



Brochure

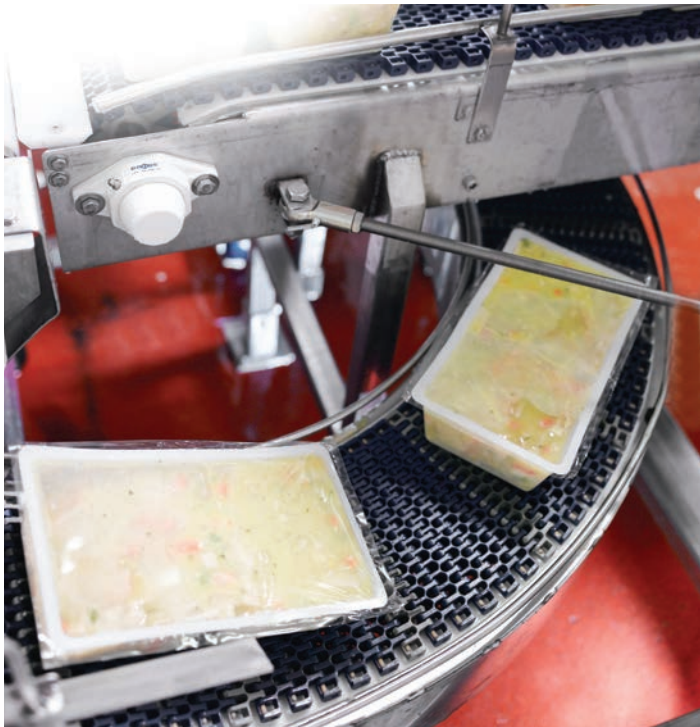
Food and beverage Mechanical power transmission solutions for food safety and reliability



Power and productivity
for a better world™



With expertise, and a comprehensive portfolio of products and life-cycle services, we help value-minded industrial customers improve their energy efficiency and productivity.



Dodge® mechanical power transmission solutions for the food and beverage industry

ABB's Dodge lineup of mechanical products offers a comprehensive solution for the food and beverage industry

Today, more than ever, food and beverage companies are facing tougher food safety regulations, commodity costs, and competitive pressures. No matter the process; mixing, blending, cooking, baking, bottling, or conveying, plant managers rely on mechanical power transmission (MPT) products to perform reliably around the clock. The MPT products used in these processes are exposed to a wide range of tough operating conditions, including harsh, high-pressure sanitary washdown.

Experience matters

With decades of experience applying Dodge MPT products in the food and beverage industry, we have a unique understanding of the issues that impact your productivity and have designed a full range of food grade products that meet Food and Drug Administration (FDA), United States Department of Agriculture (USDA), European Communities (EC), and European Union (EU) standards for incidental food contact regulations, ensuring they will operate reliably and with less maintenance.

Problem solving features

Dodge products feature industry leading patented sealing technology that provides extended life by keeping contaminants out and lubrication contained. Our products come factory-filled with USDA, FDA, National Sanitation Foundation (NSF), and European Hygienic Engineering & Design Group (EHEDG) certified H1 food grade grease or oil. Housings have been designed with smooth rounded surfaces with no crevices to harbor microbes. Combining these features in a stainless steel offering provides the ultimate in washdown protection, making Dodge the preferred brand by many of the largest end-users in the industry.

A history of performance

For more than 135 years, Dodge mechanical power transmission products have been synonymous with the best the industry has to offer. These products have handled the toughest applications, providing the lowest total cost of ownership to both food equipment manufacturers and end-users.

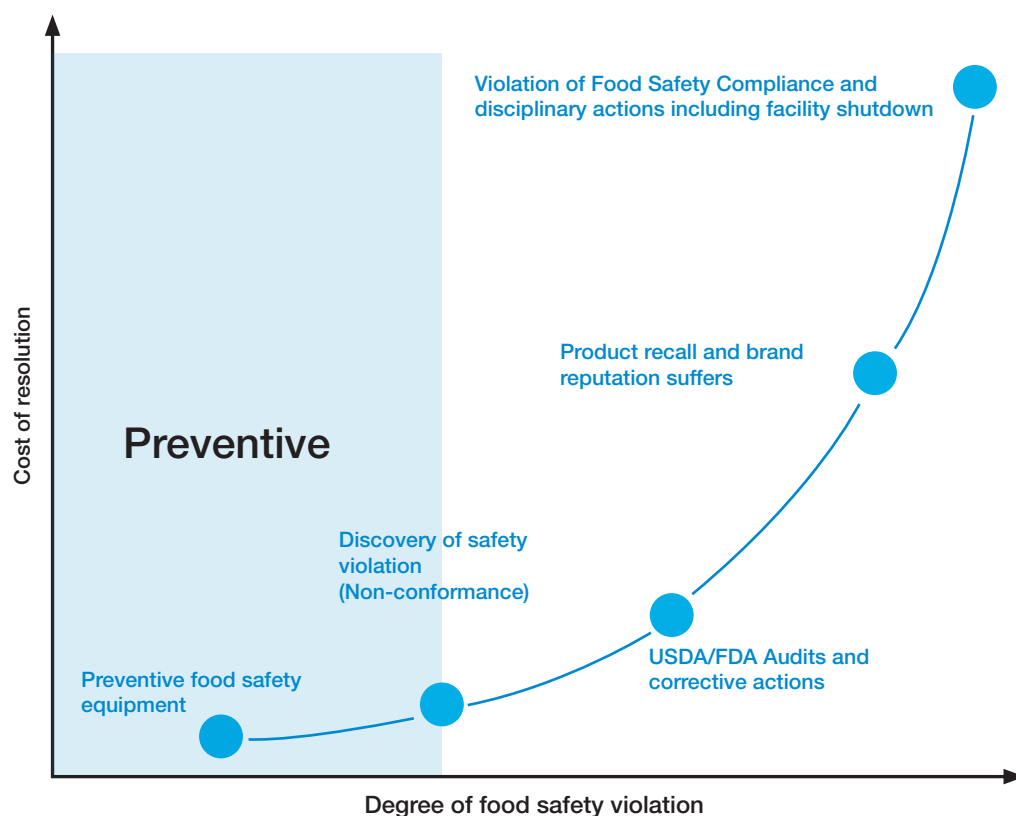
Only Dodge products offer a total mechanical power transmission solution:

- Sanitary designs that meet USDA, FDA, EC, and EU standards
- Industry leading sealing systems
- Easy installation and removal
- Reliable performance
- Extremely long product life
- Maximum process up-time
- Lower total cost of ownership



Food safety trends

Although it is not yet mandated that housing materials need to be stainless steel, it is the trend we are seeing in the industry today. When looking at the Total Cost of Ownership (TCO) it's important to not only consider the initial cost of the mechanical products, but also the long term ramification of being in potential violation of food safety regulations. Industry leading Dodge® products will ensure the highest level of food safety.

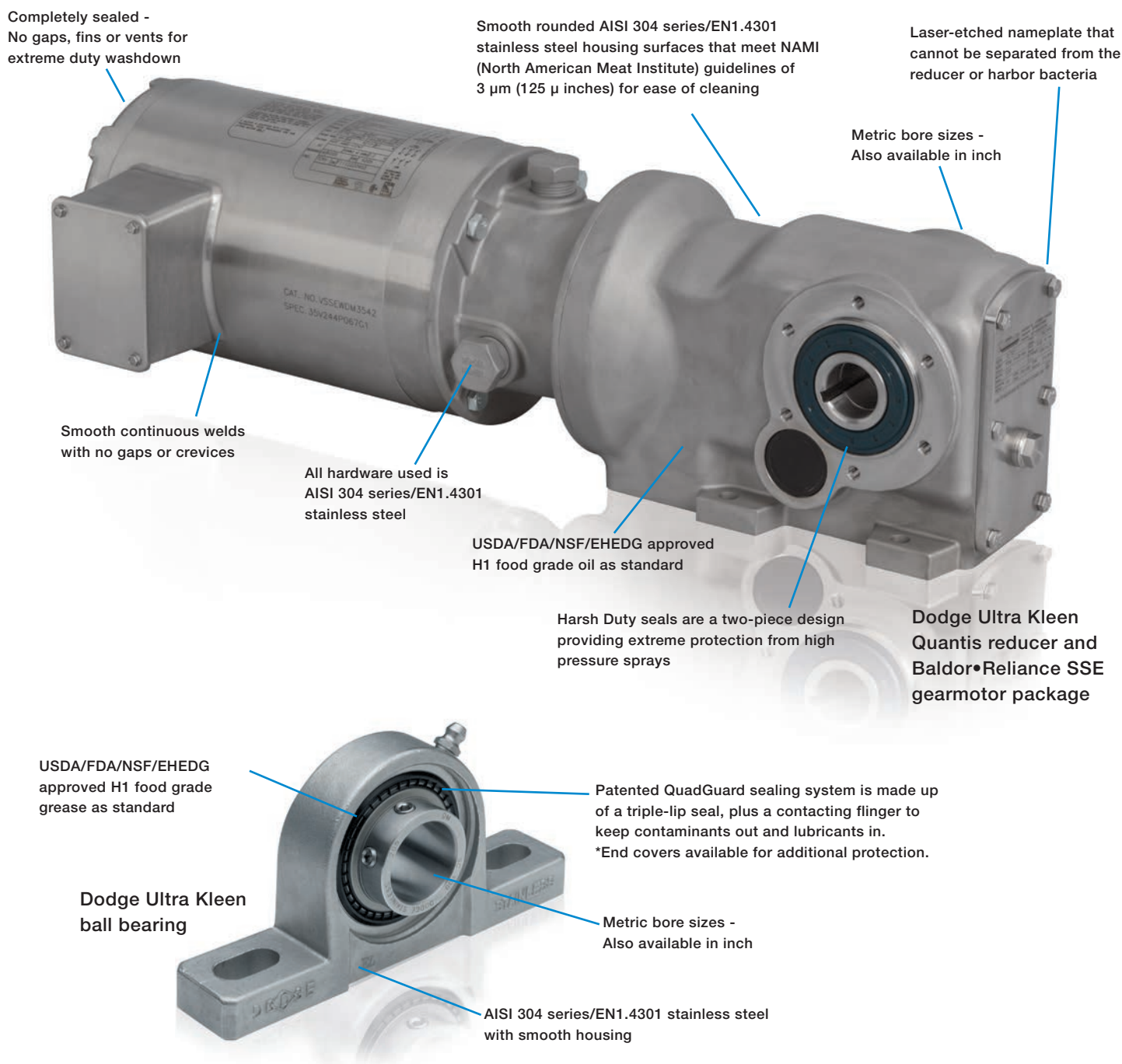


Three features make a product unique to the food industry; sealing technology, type of lubrication, and housing designs that include material and coatings. Without these three areas being addressed, a food application will be susceptible to contamination and possible violation of may food safety regulations.

Food safety solutions

Dodge® products have been engineered to comply with food safety guidelines and recommendations. These sanitary design considerations mean our products provide the ultimate solution for harsh washdown conditions.

A critical factor influencing cleaning performance is the quality of the food contact surface. All Dodge Ultra Klean® products and Baldor•Reliance® SSE motors feature AISI 304 series/EN1.4301 stainless steel that can withstand caustic, high pressure, or high temperature (80° C/176° F) sanitary washdown applications.



Dodge Ultra Klean stainless steel solutions will always outperform any coated product in the industry. Stainless steel material, smooth housing design, food grade lubricants, and the ultimate sealing system, make these Dodge products the premier choice in food safety.

Dodge bearing solutions

Ultra Kleen® and E-Z Kleen® mounted ball bearings for extreme sanitary washdown applications

Keeping equipment sanitized is one of the biggest challenges in any food or beverage plant. However, the high-pressure washdown process is hard on mounted ball bearings; caustic sprays can penetrate or degrade seal effectiveness and shorten the operating life of standard bearings. These applications also accelerate corrosion in ferrous materials which can lead to shorter product life, as well as costly production contamination.

Dodge Ultra Kleen and E-Z Kleen bearings are designed specifically for the food and beverage industry, and meet FDA standards for incidental food contact per regulations FDA 21 CFR 175.300. These products offer an array of features that provide extended life in these challenging conditions.

Dodge bearings are the only bearings in the industry to offer a patented triple-seal plus a rubberized flinger called the QuadGuard™ sealing system.

These units also include an exclusive ball retainer called the Maxlife™ cage that helps retain food-grade lubricants and prevents washout in wet environments.

Combine these features with a complete line of stainless and polymer housing offerings, with optional concentric and adapter mounting options, and you have a family of mounted ball bearings that are unsurpassed in the industry.



Dodge bearing solutions

Ultra Kleen ball bearings



The Dodge line of Ultra Kleen line of mounted ball bearings feature a stainless steel insert and provide the highest level of performance in the most severe applications. Available in a stainless steel or a reinforced polymer housing, these bearings are engineered for extended life in wet and corrosive environments.

- 100% stainless steel insert
- Factory-filled H1 USDA/FDA/NSF/EHEDG compliant food grade grease
- Patented QuadGuard sealing system
- Maxlife cage that extends grease life
- Operating temperature range
-40° C to 83° C (-40° F to 180° F)
- 20 mm to 50 mm (3/4" to 2") bore sizes
- 65° set screws provide maximum locking force
- Optional snap-on end covers

A patented polymer formulation

This unique glass reinforced polymer formulation is manufactured into a solid, one-piece housing, making this bearing extremely strong and durable.

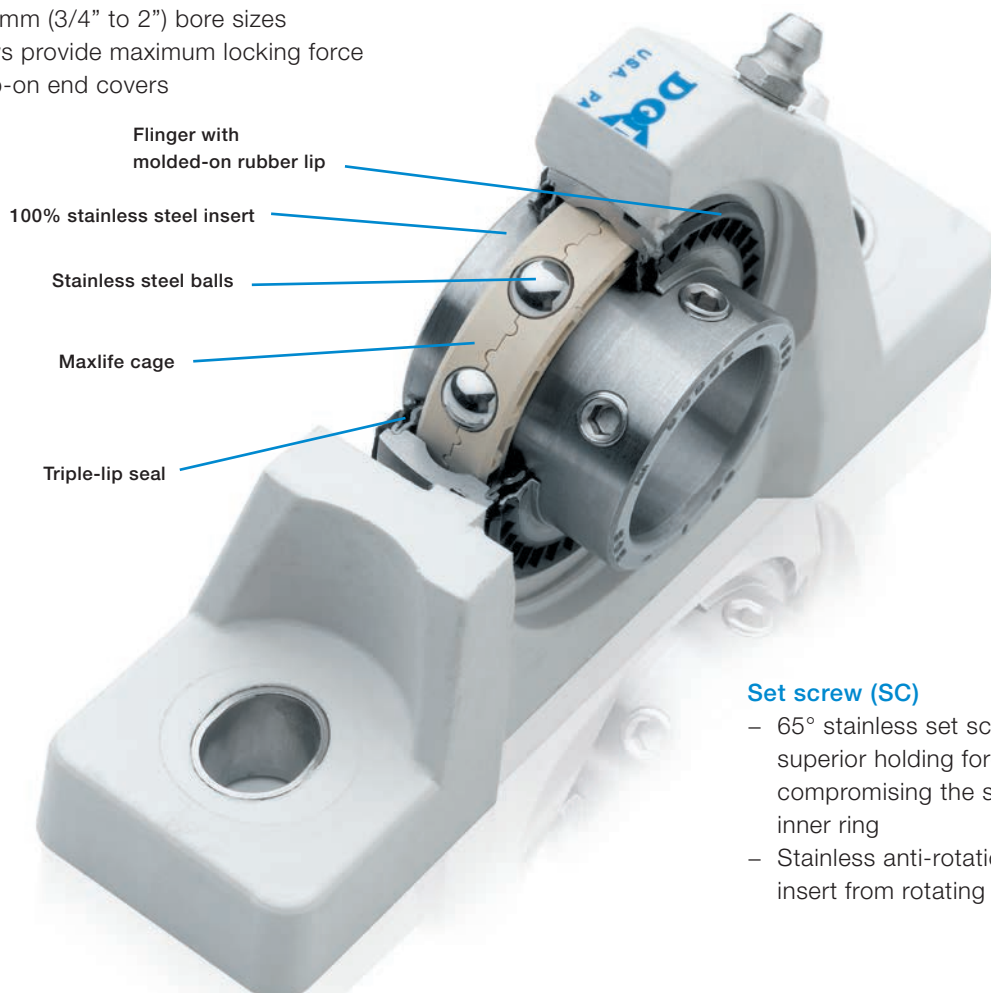
- Features an anti-microbial agent which resists bacterial and fungus growth
- Smooth solid cross-section base housings
- No core cavities to trap contaminants
- Features a molded, reinforced grease zerk; preventing separation from the polymer housing



Dodge polymer housings feature a smooth, solid base.



Competitive bearing with cavities and fillings that can trap bacteria.



Set screw (SC)

- 65° stainless set screws provide superior holding force without compromising the strength of the inner ring
- Stainless anti-rotation pin to prevent insert from rotating in the housing

Dodge bearing solutions

E-Z Kleen ball bearings

The Dodge E-Z Kleen ball bearing uses a patented, corrosion resistant coating that is superior to any coated product in the market. Corrosion resistant inserts are available in either a stainless steel or a reinforced polymer housing.

- Corrosion resistant insert has a patented nickel alloy composite coating
- Factory-filled H1 USDA/FDA/NSF/EHEDG compliant food grade grease
- Patented QuadGuard sealing system
- Maxlife cage that extends bearing life
- Operating temperature range
-40° C to 83° C (-40° F to 180° F)
- 20 mm to 50 mm (3/4" to 2") bore sizes
- Offered in adapter mount (Grip Tight), concentric (D-Lok), and set screw (SC) locking mechanisms
- Optional snap-on end covers



Grip Tight



D-Lok



Set screw

E-Z Kleen corrosion resistant ball bearings

The Dodge E-Z Kleen corrosion resistant (CR) insert outperforms other coating on the market today such as black oxide, zinc, and thin dense chrome (TDC). Tests have shown that the Dodge CR insert exhibited 300% longer bearing life than a typical TDC coated insert. The CR insert load capacity is not de-rated as compared to stainless steel inserts.

24 hour salt fog test results

Dodge E-Z Kleen corrosion resistant insert – no corrosion after testing



Dodge corrosion resistant insert



Black oxide



Zinc plating

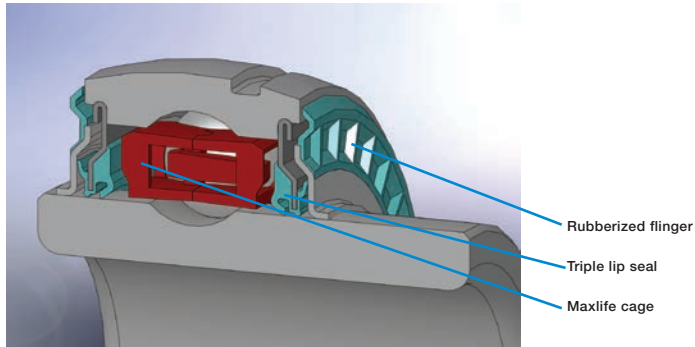


Thin dense chrome (TDC)

Dodge bearing solutions

QuadGuard™ seals Maxlife™ and end covers

Patented QuadGuard seal



This patented sealing system is made up of a triple-lip seal, plus a contacting flinger to create four areas of protection. This superior design keeps contaminants out and grease in, increasing service life in severe washdown conditions.

- Mechanically retained seal with two contact points on the inner rings and one that rides against the flinger surface
- Rubberized flinger extends to the outer ring, closing the gap and providing more protection
- Rubberized flingers provide external protection, discarding contaminants as it rotates
- Internal grease chambers keep lube in the race surrounding the rolling elements

Snap-on end covers



All Dodge Ultra Klean and E-Z Klean housings are machined with a groove to accept a snap-on style polymer end cover, creating a secure and rigid fit within the housing that can withstand high-pressure washdowns.

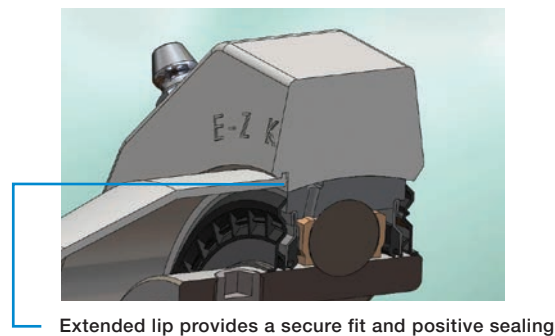
- Durable and easy to install
- Provide positive sealing in wet environments
- Include a drain hole to prevent moisture from collecting inside the cover
- Creates safer working condition by covering exposed, rotating shafts

Maxlife cage



The Maxlife cage is an industry leading two-piece design that creates a constant grease compartment around each of the rolling elements.

- Compartments provide constant contact between balls and grease to prevent wear and minimize friction
- Compartmental construction holds in the grease and prevents it from being washed out during high pressure cleaning
- Extends bearing life with less frequency of re-lubrication versus standard designs



Extended lip provides a secure fit and positive sealing

Dodge gearing solutions

Quantis® Ultra Klean® and E-Z Klean® gearing for ultimate washdown protection

Dodge Quantis reducers are highly efficient with washdown features for superior reliability in food and beverage applications. Offered in both Ultra Klean and E-Z Klean versions, these reducers are well suited for high-pressure sprays and sanitizing solutions, and are available in both metric and inch dimensions. These application driven designs have been engineered and manufactured to food industry standards dictated by sanitation and food safety regulations.

Ultra Klean Quantis



The Dodge Quantis Ultra Klean reducer is a total stainless steel solution that meets the North American Meat Institute (NAMI) Foundation recommendations for a smooth, rounded housing with no crevices that might harbor food or microbes. The reducer is offered with a universal housing for foot or flange mount. Harsh duty output seals provide industry leading protection against high pressure sprays and abrasive materials.

- Smooth AISI 304 series/EN1.4301 stainless steel housing ideal for washdown environments
- Maintenance-free operation
- Standard two-piece harsh duty output seals
- Totally enclosed, no paths for contamination in or oil out
- Factory-filled H1 USDA/FDA/NSF/EHEDG compliant food grade oil
- Available in sizes 38 and 48 right angle bevel (RHB)
- Ratios up to 179:1
- IEC B5 dimensional clamp collar input flange for 71, 80, 90, and 100 frame motors
- NEMA clamp collar C-face for 56C, 143/145TC, and 182/184TC
- Stainless steel metric solid shaft, hollow bore or Q-Loc keyless output options. Also available in inch
- Standard ambient temperature configurations from -4° C to 41° C (-25° F to 106° F) - expanded ranges available
- 95% efficient
- 3-year warranty
- Laser etched nameplate

E-Z Klean Quantis



The robust protection features of a Quantis E-Z Klean reducer make it the right choice for harsh-duty environments that don't require a stainless steel option. These reducers are manufactured with a unique 13-step coating system specifically developed for washdown applications. This system provides more than three times the corrosion resistance of standard epoxy-painted units.

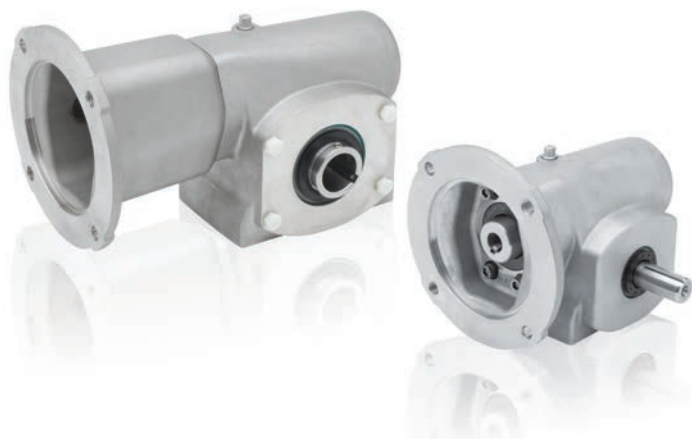
- E-Z Klean paint system meets or exceeds C3 rating according to DIN EN ISO 12944-2
- Thin dense nickel composite (TDNC) plated metric output shafts, hollow bore or twin-tapered bushings
- Standard two-piece harsh duty output seals
- Non-cavity hardware
- Factory-filled H1 USDA/FDA/NSF/EHEDG compliant food grade oil
- Available in sizes 38, 48, 68, and 108 for in-line helical (ILH), right-angle bevel (RHB), and motorized shaft mount (MSM)
- Available with an IEC or NEMA dimensioned clamp collar or 3-piece coupled input
- Standard ambient temperature configurations from -4° C to 41° C (-25° F to 106° F) - expanded ranges available
- 95% efficient
- 3-year warranty

Dodge gearing solutions

Tigear-2® Ultra Kleen® and E-Z Kleen® reducers

Dodge Ultra Kleen and E-Z Kleen Tigear-2 reducers have proven reliability in the US food and beverage industry and are an ideal choice for machinery exported to the North American market. These designs have been engineered and manufactured to food industry standards dictated by sanitation and food safety regulations.

Ultra Kleen Tigear-2



Featuring an all stainless steel housing and a ventless design, Tigear-2 Ultra Kleen worm gear reducers will meet your expectations for extreme duty washdown applications. The rounded housing prevents accumulation of material or liquid, meeting design recommendations from the North American Meat Institute (NAMI) Foundation. A two-piece harsh duty output seal ensures that the interior is as protected as the exterior.

- Smooth AISI 304 series/EN1.4301 stainless steel housing ideal for washdown environments
- Maintenance-free operation
- Standard two-piece harsh duty output seals
- Factory-filled H1 USDA/FDA/NSF/EHEDG compliant food grade synthetic oil
- Available with either quill style or 3-piece coupled NEMA C-face inputs
- Available with solid or hollow output configurations
- Ratios: 5, 7.5, 10, 15, 20, 25, 30, 40, 50 and 60
- Output torque capacity up to 773 Nm (6,845 lb-in)
- Suitable for ambient temperatures from -23° C to 40° C (-9° F to 104° F)
- Available in 5 frame sizes
- Laser etched nameplate

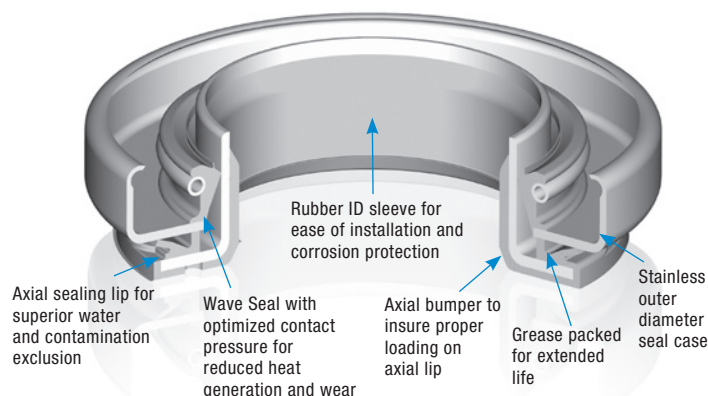
E-Z Kleen Tigear-2



The Dodge E-Z Kleen Tigear-2 features a unique 13-step coating system specifically developed for washdown applications. This system provides greater than three times the corrosion resistance of standard epoxy-painted units.

- E-Z Kleen paint system meets or exceeds C3 rating according to DIN EN ISO 12944-2
- Stainless steel solid and hollow output shafts and stainless hardware
- Standard two-piece harsh duty output seals
- Factory-filled H1 USDA/FDA/NSF/EHEDG compliant food grade synthetic oil
- Available with either quill style or 3-piece coupled NEMA C-face inputs
- Available with solid or hollow output configurations
- Suitable for ambient temperatures from -23° C to 40° C (-9° F to 104° F)
- Available in 8 frame sizes up to 420 Nm (2,680 in lbs)

Two-piece harsh duty output seal



Dodge bearing solutions

Non-washdown applications

Grip Tight® mounted ball bearings



Dodge Grip Tight mounted ball bearings feature a patented push/pull adapter mounting system that makes this bearing easy to install and remove. It also allows for 360° fully concentric shaft contact with no shaft marring or fretting corrosion.

- Integral dismount feature easily removes the bearing from the shaft
- DualGuard™ seal – comprised of single lip seal and rubberized flinger
- Interchangeable mounting dimensions with most competitive set screw, eccentric collar, and concentric clamp collar products
- Does not require turned, ground, or polished shafting
- 17 mm to 85 mm (1/2" to 3-1/2") bore sizes
- Durable cast iron housing
- Optional snap-on end covers



The Grip Tight adapter provides full contact on the shaft for better grip and less vibration.

Extreme duty mounted ball bearings



Dodge extreme duty ball bearings include an enhanced sealing system for dirty and dusty applications

- QuadGuard triple-lip seal with rubberized flinger
- Maxlife cage that extends grease life
- 65° set screw
- 20 to 75 mm (3/4" to 2-15/16") SC bore sizes
- 25 to 85 mm (1" to 3-1/2") SCM bore sizes
- Durable cast iron housing
- Optional snap-on end covers

Set Screw mounted ball bearings



Dodge set screw ball bearings feature a 65° set screw angle for greater holding power and ease of installation in confined areas.

- DualGuard seal – comprised of single lip seal and rubberized flinger
- Plus or minus 2° static misalignment
- 17 mm to 85 mm (1/2" to 3-1/2") bore sizes
- Durable cast iron housing
- Optional snap-on end covers

Dodge gearing solutions

Non-washdown areas

Quantis®



The Dodge Quantis product line offers a full range of modular gear drives engineered for flexibility and greater torque density in a compact housing configuration. Available in three types: in-line helical (ILH), right angle helical bevel (RHB), and motorized shaft mount (MSM). All are dimensionally interchangeable with major global competitors, and are available with ATEX certification for hazardous environments.

- Cast iron housing available in both metric and inch design
- C-Face adapter for mounting in IEC and NEMA motors
- Separate shaft input available
- Ratios up to 350:1
- 8 frame sizes up to 14,000 Nm
- Up to 55 kW input power
- Single or double solid output shafts
- Hollow output options include straight, tapered, shrink disc, or Q-Loc keyless bushings
- Available with two-piece harsh duty output seals for wet and abrasive environments
- Standard ambient temperature configurations from -29° C to 60° C (-20° F to 140° F) - expanded ranges available
- Up to 98% efficient
- Factory-filled with Mobilgear 600XP 220

Tigear-2®



Dodge Tigear-2 speed reducers are a complete line of single reduction, right-angle worm products that are ideal for equipment built for the North American market. Available with a quill input, separate input, or 3-piece coupled input, this inch product features cast iron construction that is durable and corrosion resistant.

- Totally enclosed, ventless design that is maintenance free
- 10 cast iron frame sizes up to 770 Nm (6,800 in-lbs)
- 5:1 to 60:1 reductions
- Factory-filled H1 USDA/FDA/NSF compliant food grade oil
- Available with either quill style or 3-piece coupled NEMA C-face inputs
- Available with solid or hollow output configurations
- Suitable for ambient temperatures from -23° C to 40° C (-9° F to 104° F)
- Delivers 30% higher output torque compared to other worm gears

A complete and comprehensive product lineup for the food and beverage industry

	Extreme sanitation:	Moderate sanitation:	Dry or dirty:
Bearings	 Ultra Kleen all stainless bearing in stainless or polymer housing	 E-Z Kleen corrosion resistant bearing in a stainless or polymer housing	 Standard or extreme duty
Gearing	 Ultra Kleen stainless Quantis Ultra Kleen stainless Tigear-2	 E-Z Kleen Quantis E-Z Kleen Tigear-2	 Standard Quantis Standard Tigear-2
Motors	 Stainless steel encapsulated Stainless steel	 Paint free White washdown	 Super E Severe Duty

The complete food safety package

Combining a Baldor•Reliance® designed stainless steel motor and Dodge® Ultra Klean® stainless steel reducer creates the ultimate gearmotor package. Add Dodge Ultra Klean stainless steel mounted ball bearings, and you have a packaged solution optimized for maximum food safety in washdown food and beverage applications.

- Meets food safety USDA/NAMI requirement
- Meets FDA 21 CFR 178.3570 and 21 CFR 175.300
- 100% stainless - no paint
- Superior reliability
- Pre-assembled package
- Single point of contact



Dodge Ultra Klean mounted ball bearings

Baldor•Reliance SSE Super-E

The SSE stainless Super-E is designed to perform longer than any other industrial electric motor available today. The all stainless steel construction, including housing, conduit box and cover, base, fan cover and endplates, makes this motor impervious to rust and deterioration caused by high pressure caustic sanitation.

- Conduit box is welded to the frame to provide a leak-proof seal
- Windings are engineered for durability using E3 effusion epoxy encapsulation process
- High temperature Class H insulation with low temperature (Class B) rise for longer insulation and bearing life
- Exclusive inverter spike resistant insulation system that is up to 100 times more resistant to voltage spikes
- Silicone injected wire nuts are provided for connection
- Complete nameplate data laser etched on the motor frame, eliminating contamination trapped beneath bolt-on nameplates
- Available 0.37 – 7.5 kW (1/2 – 10 hp)
- Available in B5 or B14 frame



Dodge Ultra Klean Tigear-2 reducer and Baldor•Reliance SSE gearmotor package



Dodge Ultra Klean Quantis reducer and Baldor•Reliance SSE gearmotor package

Contact

www.abb.com/mechanicalpowertransmission

<http://new.abb.com/motors-generators/segments/food-beverage>



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