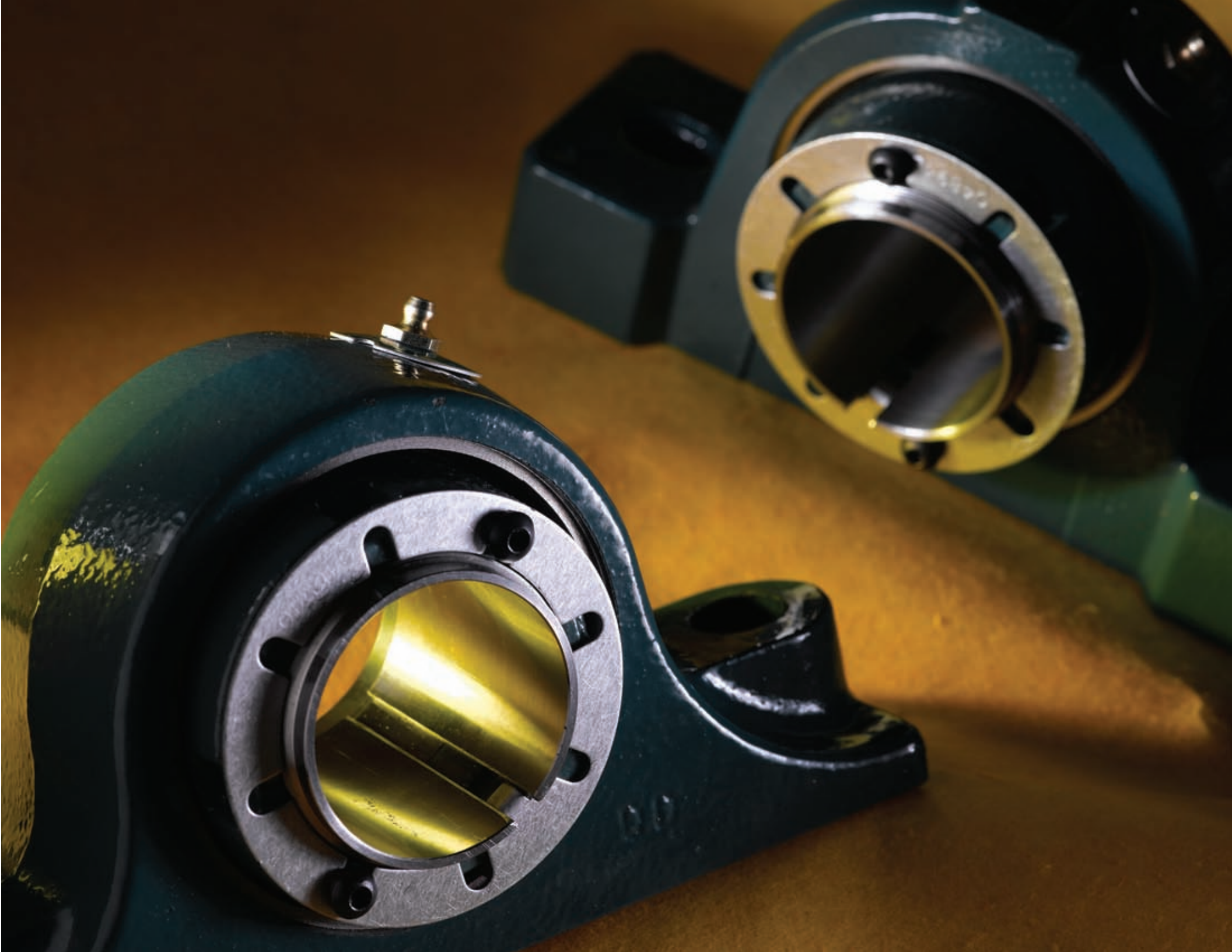




# IMPERIAL ROLLER BEARINGS





## DODGE IMPERIAL

# THE MOUNTED SPHERICAL ROLLER BEARING THAT LIVES UP TO ITS NAME

For more than 125 years, The DODGE® brand has been synonymous with the best the industry has to offer. Bearing users throughout the world recognize that, with DODGE, they have access to the best selection of the highest quality mounted bearings in the industry.

These assurances are now more evident than ever in our complete family of DODGE IMPERIAL spherical roller bearings—the only high-capacity double-row spherical roller bearings with an effective easy-on, easy-off adapter mounting and removal system. Not only does this patented system

provide a concentric grip for superior holding on the shaft, but it reduces the fretting corrosion caused by traditional setscrews and vibration.

Combine these features with our IMPERIAL bearings' superior sealing systems and compact one-piece, compact, industry-standard dimensioned housings, and you have a family of mounted roller bearings which lives up to its name.

**DODGE®**



# THE ORIGINAL DODGE IMPERIAL BEARINGS, ONLY

## PATENTED SEALING OPTIONS

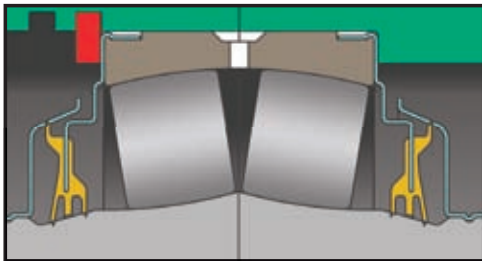
An ineffective seal can allow contaminants to enter a bearing, which can cause failure. However, with IMPERIAL bearing inserts, there are two exclusive seals for maximum sealing protection.

Our proven Trident seals are extremely effective for dirty environments, low-to-medium speeds, and normal ambient conditions. Made of nitrile

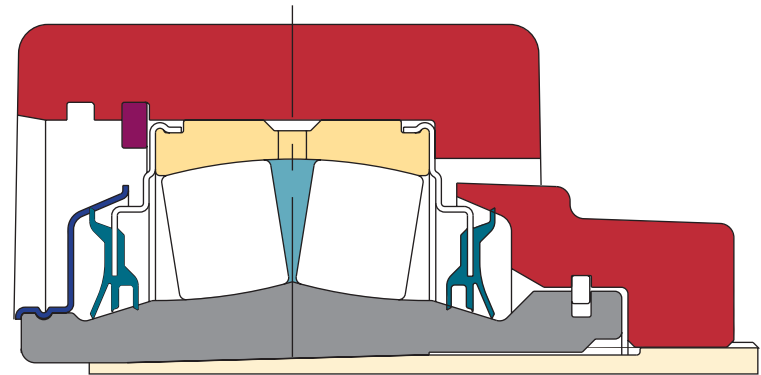
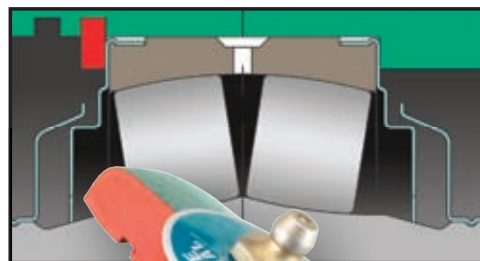
material, this triple-lip rubbing seal has a low coefficient of friction, and its seal land maintains full seal contact even when misaligned.

For high speeds and harsher ambient conditions, the IMPERIAL inserts offer labyrinth seals with corrosion-resistant flingers and clearance steel seal carriers.

### TRIDENT® Seals



### Labyrinth Seals



## IMPERIAL SPHERICAL ROLLER BEARINGS

- Patented Imperial “Push/Pull” adapter mounting system
- Eliminates need for feeler gauges
- Easy removal
- Expansion & non-expansion, field convertible
- Triple lip contact seals for wet or dirty applications
- Labyrinth non-contact seals for high speed & high temperature applications



## TIME SAVING REMOVAL AND REPLACEMENT DESIGN

- 1) Steel cage provides precision roller guidance
- 2) Outer ring riding two-piece guide ring minimizes heat generation
- 3) Tapered seal land maintains full contact when misaligned
- 4) Patented nitrile triple lip seal resists heat & chemical breakdown
- 5) Ease in mounting & dismantling with patented adapter system
- 6) Adapter sleeve improves concentricity and reduces vibration

**DODGE®**

PATENTED ADAPTER SYSTEM CAN BE INSTALLED OR REMOVED IN 15 MINUTES

- Clockwise rotation of the locknut pushes the tapered adapter sleeve between the shaft and bearing inner race, allowing quick metal to metal contact during initial installation.
- Locknut is then further rotated for a pre-determined number of turns, properly reducing bearing clearance. No feeler gauges are used.
- Lock plate keeps locknut tight for dependable shaft attachment
- Integral locknut-inner race design allows efficient removal of the sleeve from the bearing assembly via counter clockwise rotation of the locknut

IMPERIAL HOUSING OPTIONS



PILLOW BLOCK

Two Bolt: 1-1/8" to 4"  
Four Bolt: 2-3/8" up to 5"  
Expansion & Non-Expansion



FOUR BOLT FLANGES

1-7/16" up to 3-15/16"  
Expansion & Non-Expansion



ISAF PILLOW BLOCKS

P2B 1-1 7/16" up to 3-7/16"  
P4B 2-3/16" up to 7"  
Expansion & Non-Expansion



PILOTED FLANGE BEARINGS

1-1/8" to 5"  
Expansion & Non-Expansion

WIDE SLOT TAKE UP

1-1/8" to 4"  
Expansion & Non-Expansion



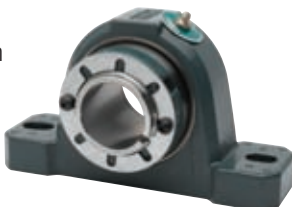
IMPERIAL-E

P2B, P4B, Flange, Piloted  
1-3/8" up to 7"  
Expansion & Non-Expansion



ISN TWO BOLT PILLOW BLOCKS

30mm to 125mm  
Expansion & Non-Expansion



INSERTS

1-1/8" to 7"



SHAFT TOLERANCES

| Nominal Shaft Size — Inches | Commercial Shaft Tolerances<br>▲ | Recommended Shaft Tolerances      |                                    |                  |
|-----------------------------|----------------------------------|-----------------------------------|------------------------------------|------------------|
|                             |                                  | Setscrews in Inner Race or Collar | Eccentric Lock Collar              | Adapter Mounting |
| Up to 1-1/2"                | +0.000" - 0.002"                 | +0.0000" - 0.005"                 | +0.0000" - 0.005" +0.000" - 0.002" |                  |
| 1-9/16" to 2-1/2"           | +0.000" - 0.003"                 | +0.0000" - 0.001"                 | +0.0000" - 0.001" +0.000" - 0.003" |                  |
| 2-5/8" to 4"                | +0.000" - 0.0004"                | +0.0000" - 0.001"                 | —                                  | +0.000" - 0.004" |
| 4-3/16" to 6"               | +0.000" - 0.0005"                | +0.0000" - 0.001"                 | —                                  | +0.000" - 0.005" |
| 6-7/16" to 8"               | +0.000" - 0.0006"                | +0.0000" - 0.002"                 | —                                  | +0.000" - 0.006" |

▲ Cold-finished low-carbon bars (Ref. -- A.I.S.I. Tables 5-1 and 5-2).

IMPERIAL CONFIGURATION OPTIONS

| IMPERIAL IP SERIES                                                                 | IMPERIAL ISAF SERIES                                              | IMPERIAL-E SERIES                                                     |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------|
| Interchangeable with DODGE S-2000 Unitized Housings and many competitive products. | Interchangeable with DODGE USAF and many competitive SAF products | Our IMPERIAL Bearing is now available with Type E Mounting Dimensions |
| <b>Two-Bolt Pillow Blocks</b><br>1-1/8" to 4"                                      | <b>Two-Bolt Pillow Blocks</b><br>1-7/16" up to 3-7/16"            | <b>Two-Bolt Pillow Blocks</b><br>1-1/8" up to 3 1/2"                  |
| <b>Four-Bolt Pillow Block</b><br>2-3/8" up to 5"                                   | <b>Four-Bolt Pillow Blocks</b><br>2-7/16" up to 7"                | <b>Four-Bolt Pillow Blocks</b><br>2-1/4" up to 7"                     |
| <b>Four-Bolt Flanges</b><br>1-1/8" up to 4"                                        | <b>ISN SERIES</b><br>Interchangeable with competitive SN products | <b>Four-Bolt Flanges</b><br>1-3/16" up to 4-1/2"                      |
| <b>Flange Bearings Piloted</b><br>1-1/8" to 5"                                     | <b>Two-Bolt Pillow Blocks</b><br>30mm to 125mm                    | <b>Piloted Flanges</b><br>1-3/16" up to 5"                            |
| <b>Wide Slot Take-Up</b><br>1-1/8" to 4"                                           |                                                                   | <b>Wide Slot Take-Ups</b><br>1-1/8" up to 4"                          |
| <b>Inserts</b><br>1-1/8" to 7"                                                     |                                                                   |                                                                       |

## IMPERIAL BENEFITS

### FULL SHAFT CONTACT VIRTUALLY ELIMINATES FRETTING CORROSION

With DODGE IMPERIAL bearings, you can remove the bearing from the shaft and immediately mount a new bearing on the same shaft without first reworking the shaft. DODGE IMPERIAL bearings leave very few, if any, markings on the shaft; and, with 360° of locking pressure, there is virtually no fretting corrosion, less heat, and less vibration.



Setscrew Bearing after 500 hours

In a head-to-head comparison test, with 3,000 lbs of radial load and speeds of 1150 RPM, a setscrew mounted bearing left shaft fretting corrosion after only 500 hours in service. But, even after 2500 hours in service, the DODGE IMPERIAL bearing demounted quickly and revealed no shaft fretting corrosion or scarring.



IMPERIAL bearing after 2500 hours



### ONLY THE BEST BEARINGS COME FROM THE BEST PLANT

Our DODGE® Type E, S-2000 and S-2000-E, and IMPERIAL® and IMPERIAL-E bearings are the best. Manufactured at our Marion, NC, plant—one of *IndustryWeek's* Top 10 Best Plants for 2004—they represent the best in roller bearing technology and innovation.

When you want the best bearings, look to DODGE and our Best Plant in Marion, NC. Together, they are your best source for performance-proven solutions.

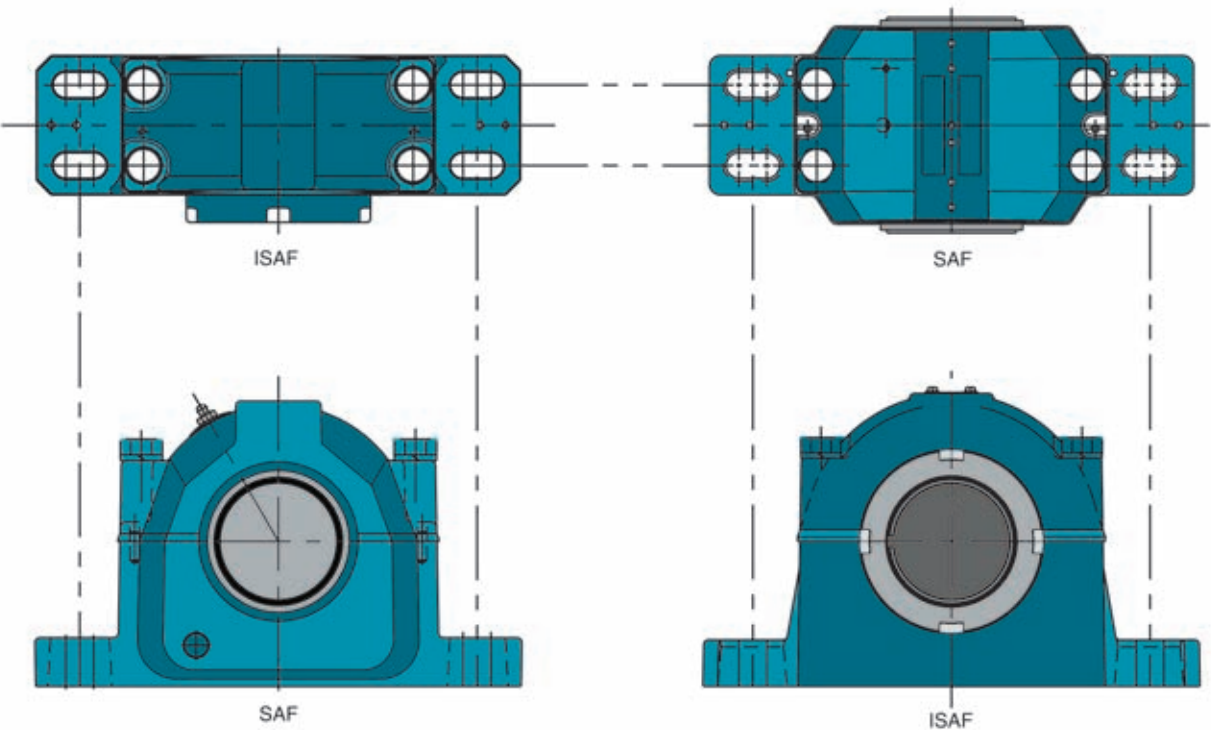
### DODGE IMPERIAL BEARINGS VS. SETSCREW MOUNTED PRODUCTS

| DODGE IMPERIAL                                                        | SETSCREW MOUNTED PRODUCTS                                                             |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Shaft centered in the bearing                                         | Shaft offset in the bearing bore                                                      |
| Concentric gripping force — no shaft damage, no fretting, or scarring | Setscrews indent and damage the shaft                                                 |
| Commercial shafting acceptable                                        | Commercial shafting not acceptable - Turned, ground and polished shafting recommended |
| Ground constant-pressure seal surface                                 | Typical seal arrangement on a straight seal land                                      |
| Lower operating temperatures (up to 25%)                              | Higher operating temperatures                                                         |
| Higher maximum speed limits (up to 30%)                               | Lower maximum speed limits                                                            |
| Bearing Installation and removal in 15 minutes or less                | Bearing removal alone takes 30 minutes or more                                        |





# ISAF: DIMENSIONAL INTERCHANGE WITH SAF



Bearing users throughout the world recognize that, with DODGE, they have access to the best selection of the highest quality of mounted bearings in the industry.

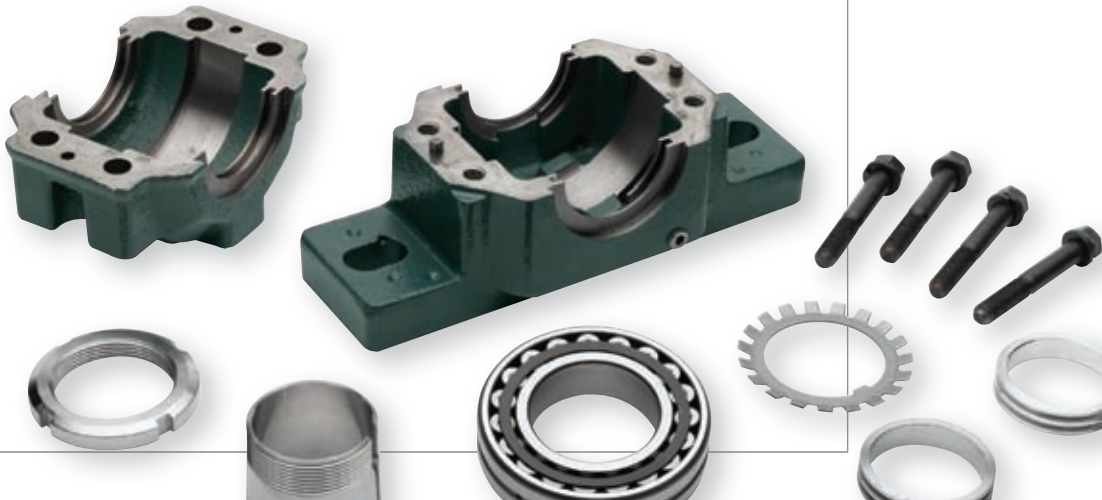


## ISAF

### DODGE IMPERIAL ISAF BEARINGS Vs. STANDARD SAF PRODUCTS

| DODGE IMPERIAL ISAF SERIES                                   | STANDARD SAF PRODUCTS                                           |
|--------------------------------------------------------------|-----------------------------------------------------------------|
| One package — shaft ready                                    | Three or more packages — user assembled                         |
| Bearing matched to shaft                                     | Bearing oversized to accommodate adapter                        |
| Simple clearance setting — no special tools or feeler gauges | Requires feeler gauges                                          |
| 100% seal constant pressure                                  | Seals in the housing — loses effectiveness when misaligned      |
| Greased at the factory                                       | User packs the grease and cleans the mess                       |
| Grease retained near the rollers with the seal               | Grease migrates out to the housing cavity away from the rollers |
| Reduced grease consumption                                   | Large cavity to fill with grease                                |
| Factory sealed                                               | Subject to onsite contamination                                 |
| Easy, intuitive removal method                               | Difficult removal                                               |

## SAF





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