

SGi®

Garlock KLOZURE® Family of Shaft Grounded Bearing Isolators





Family of Shaft Grounded Bearing Isolators

HAVE YOUR BEARINGS BEEN DAMAGED BY ELECTRICAL DISCHARGES?

When electric induction motors are driven by variable frequency drives (VFD), damaging electrical voltages are induced onto the motor shaft and will discharge through the motor's bearings causing premature bearing failure. Shaft voltages are present the moment the drive is turned on. Damage to the bearings and the lubrication can occur long before there is a catastrophic failure. By the time you hear the audible noise caused by the fluting damage in the bearing, it is already too late! It is important to protect the motor's bearings from ingress and electrical damage right from the start to avoid failures, costly down time, or complete replacement.

HOW CAN YOU TELL IF THE BEARINGS ARE DAMAGED?

Damaging voltages can be detected early with shaft voltage measurements for any motor operated by a VFD. Vibration analysis is another method to detect and monitor electrical bearing damage. A good indicator of a fluted bearing close to catastrophic failure is to simply listen to the system. Bearing deterioration can be heard as a loud audible noise!

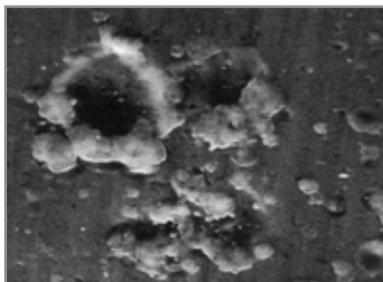
LUBRICATION DETERIORATION

Bearing protection is not just about ensuring the lubrication stays clean and retained, but also ensuring the quality of the lubricant is maintained. Continuous electrical arcing in the motor bearings will often rapidly deteriorate the quality of the lubrication and cause bearing race damage. When an arc occurs, the lubrication is super heated and causes lubrication break-down. The grease will often have a burnt/black appearance instead of the normal "clean" color. Deterioration of the grease will also result in a greatly shortened bearing life.



EDM PITTING & MICRO CRATES IN ROLLING ELEMENTS

Electrical Discharge Machining (EDM) is an electrical arc that is created when the shaft voltage overcomes the dielectric of the oil film between the rolling element and the bearing race. The electrical current arcs through the oil and grease and melts the steel race wall creating a pit in the surface between 5 to 10 micron diameter. These pits are visible to the eye in the form of a light colored track on the bearing race. Over time the micro craters can result in fluted bearing races.



BEARING FLUTING

Bearing fluting is an accelerated "wash-board" wear pattern in the bearing race as a result of continued EDM pitting. As the rolling element travels over already damaged areas, more damage occurs. High system vibration and noise are often the result of bearing fluting which will result in costly system failure.



SGi® : Family of Shaft Grounded Bearing Isolators

Garlock SGi® Family - The ultimate protection for your bearings

What happens when you merge the world's best bearing isolator technology, the GUARDIAN™, with the industry leader in shaft current mitigation technology, AEGIS™? You have the birth of the Garlock SGi®...the Garlock Shaft Grounded Isolator! The GUARDIAN™ has proven time and time again to be the absolute best bronze bearing isolator on the market for ingress and egress protection, no question. Similar to the GUARDIAN™, AEGIS Shaft Grounding Ring has proven to be the only maintenance-free and long term reliable shaft voltage mitigation technology. When you merge these great technologies into one product, the result is truly remarkable and something no other can offer...a maintenance-free bearing isolator ensuring the highest level of ingress and egress protection with the added protection of shaft grounding!

Growing from the GUARDIAN™ Bearing Isolator family, the SGi® is now available in three configurations to serve your application requirements:

- SGi® merges the world's best bearing isolator technology, the GUARDIAN™, with the industry leader in shaft current mitigation technology, AEGIS™
- SGi®-180 is a maintenance friendly split SGi®, designed to reduce installation time and keep your equipment producing.
- SGi®-MT uses the MICRO-TEC® filter technology with the SGi® to effectively protect your equipment in heavily contaminated environments.

TYPICAL PHYSICAL PROPERTIES*

	SGi®	SGi®-180	SGi®-MT
Speed	0 to 12,000 f/m (60.9 m/s)	0 to 4,500 f/m (32.8 m/s)	0 to 4,500 f/m (22.8 m/s)
Protection	IP66	IP65	IP66
Standard Width	.570" (14.5 mm)	.905" (23.0 mm)	.800" (20.3 mm)
Minimum Cross Section	.500" (12.7 mm)		
Construction	Bronze w/ Fluoroelastomer o-ring		
Size Range	0.875" to 6.000" (22.2 to 152.4 mm)		
Axial Motion	0 to 0.025" (0 to 0.6 mm)		
Shaft-to-Bore Misalignment	0 to 0.020" (0 to 0.5 mm)		
Temperature Range	-22°F to 300°F (-30°C to 148.9°C)		
Shaft Grounding	AEGIS™ Shaft Grounding Ring		

*Contact Garlock for any special inquiries

INSTALLATION METHODS

- » Press-fit (shown above)
- » Surface mounted (with conductive epoxy)
- » Bolted designs

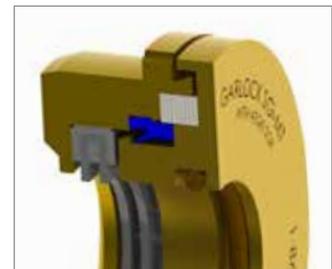
To learn more about how to protect your bearings or other sources of electrical damage, visit www.garlock.com and download our whitepaper.



SGi®



SGi®-180

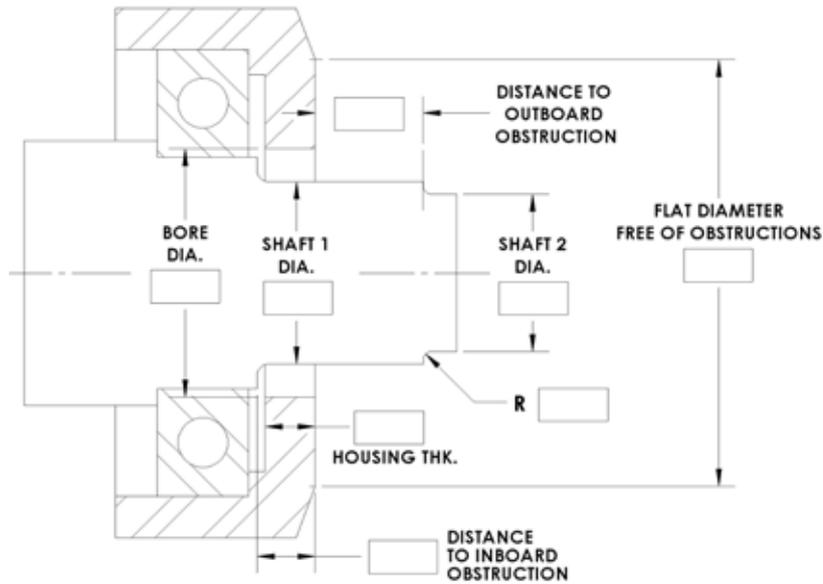


SGi®-MT



SGi®-SURFACE MOUNTED

GARLOCK KLOZURE SGI® APPLICATION DATASHEET



All dimensions supplied to 3 decimal places.

Contact Information: Name: _____ Phone Number: _____
 Email: _____

Equipment Type: Pump Motor Other: _____
 Manufacturer: _____
 Model Number: _____

Previous Seal Design: Oil Seal Bearing Isolator Other: _____
 Seal Manufacturer: _____ Quantity Required: _____
 Seal Part Number: _____

Seal Design: Solid Split
 Mounting Method: Press Fit Epoxy Mount Bolting Flange
 Construction Material: Bronze 316 SS
 Seal Purpose: Contamination Exclusion Lubricant Retention Shaft Grounding

Application Conditions

Speed: _____ RPM fpm mps
 Temperature: _____ °F °C
 Pressure: _____ PSI bar
 TIR (total indicated runout): _____ in mm
 Axial Movement: _____ in mm
 Shaft Orientation: Horizontal Vertical Top Vertical Bottom
 Lubrication Method: Grease Oil Sump Air-Oil Oil Mist
 Media Fill Level: Below Shaft Mid Shaft Submerged Shaft
 Media Manufacturer: _____
 Media Product Name: _____

Notes: _____

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