



Nilcra® Zirconia Z-Bearing™

The original long-life
alternative ceramic Hanger
Bearings for demanding
service.

MACOR Machining China Inc. makes Nilcra® Zirconia - the strongest, toughest, hardest wearing zirconia ceramic available - perfect for hanger bearings, Z-Bearing™ are ideal in applications where abrasion takes its toll on traditional bearing materials, journals and shafts.



Nilcra® Z-Bearing™ features:

- Cema 216/226 design or bespoke design
- Resistant to most chemicals
- Outlasts White Cast Iron by up to 25 times
- Made from Nilcra® Zirconia - strong, hard, tough, reliable
- Non-galling properties extend shaft life by up to 7 times
- FDA approved for direct contact with food products
- Nilcra® Zirconia is not a coating that can flake or spall away and remains solid all the way through



Nilcra®
ZIRCONIA MS

Z-Bearing™ are made using Nilcra® Zirconia, the original “Ceramic Steel” - a tough, solid non-porous ceramic with a tensile strength and coefficient of thermal expansion similar to that of mild steel, but with four times the compressive strength, and much greater hardness. Since the toughness is similar to cast iron it can be assembled and handled just like any metal part without fear of breaking. Z-Bearing™ are compatible with traditional journal materials so no changes are required prior to installation. The high hardness, corrosion resistance, low coefficient of friction and non-galling (no metal pickup) properties mean that bearings no longer squeal and even highly abrasive environments such as fly ash have a minimal effect on the surface of the Z-Bearing™.

Long lasting Z-Bearing™ significantly increase productivity and dramatically reduce maintenance costs making them the best choice

for replacement of conventional hanger bearings. Z-Bearing™ are available and stocked in the most common CEMA sizes however, we can manufacture almost any size or design to meet your specifications.

Currently MACOR Machining China Inc.' Z-Bearing™ are successfully employed in the following industries:

- Power and Energy
- Mining, Smelting and Refining
- Pulp and Paper
- Chemicals and Minerals
- Grain Handling
- Foods
- Cement



Photo's courtesy of Martin Sprocket & Gear, Inc.

Z-Bearing™ works when other materials fail.

Application #1 Nickel Refinery handling pyrophoric cobalt sulfide powder. Screw conveyer with 316 stainless steel shaft and Ni-hard bearings. Running at 50 rpm in a temperature of 266°F (130°C).

Problem: Bearing failure and consequent severe wear of screw flight and trough due to pick-up and galling causing shaft and bearing to bind together, requiring replacement every 5–6 months.

Solution: Z-Bearing™ installed. Top and bottom halves supplied to accommodate “float” in the shaft.

Result: Complete elimination of metal pick-up and galling. Bearing and shaft have not needed replacement for over three years.

Application #2 Steel Mill, in dust collection system. Screw conveyer with hard iron bearings, conveying iron filings, iron particulate, high calcium lime, dolomitic lime and slag dust.

Problem: Bearing deterioration, resulting in shaft and screw trough replacement every two months due to adverse environment. Cost prohibitive because of material and labour on ten such systems (enclosed system making it difficult to access and perform maintenance).

Solution: Z-Bearing™ installed in bottom half only.

Result: No problems in over one year.

Application #3 Brown coal fired powder station precipitators. Screw conveyer intermediate shaft bearings. Material replaced: Modified roller bearing, Nihard, Cast Iron.

Problem: The original materials in 3 different precipitator banks all failed in the bearing assembly in 1-2 years due to the highly abrasive nature of the fly ash. Bearing wear caused excessive shaft whip and resulting wear.

Solution: Nilcra® Z-Bearing™ have replaced all screw bearings and more recently the rapper hammer bearings and hammer bushings.

Result: Bearing life increased to up to 20 years of operation. Additionally shaft wear has been substantially reduced and life extended by 7 times.

MACOR Machining China Inc.

At Morgan we focus on solution driven technologies, solving our customer's most challenging and arduous severe service problems. This is achieved by combining application engineering knowledge together with our unique portfolio of ceramic materials. Our products are used in industries as diverse as food and produce, energy, mining, mineral processing and materials handling industries.