

# GRAPHALLOY® | Bearings for Cold/Cryogenic Applications



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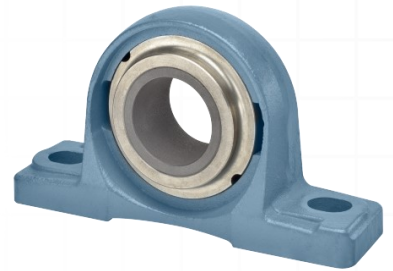
## COLD/CRYOGENIC EQUIPMENT: A TOUGH ENVIRONMENT FOR BEARINGS

Many industries deal with cold processes, such as food, aerospace, and refineries. The temperatures can range from freezing to near absolute zero. Throughout this range problems occur with lubrication and finding materials that can handle the cold. Grease and other lubricants can solidify in these environments, and plastic bearings can crack or shrink.

## ADVANTAGES OF GRAPHALLOY BEARINGS

GRAPHALLOY bearings, made from graphite-metal alloys, have the following advantages:

- ◆ **Self-lubricating:** Require no grease or oil, maintenance-free
- ◆ **Temperature Range:** Operate from -400°F to +1000°F (-240°C to +535°C)
- ◆ **Dimensionally Stable**
- ◆ **Low Coefficient of Thermal Expansion**
- ◆ **Non-galling:** Will not seize or lock up
- ◆ **FDA Acceptable Grades Available**



## WHERE TO USE GRAPHALLOY

- ◆ Cryogenic Pumps– Liquid Gases
- ◆ Flash Freezing Lines
- ◆ Frozen Food Conveyors
- ◆ Ice/Dry Ice Machines
- ◆ Cold Weather Exposed Equipment



## GRAPHALLOY SUCCESS STORIES

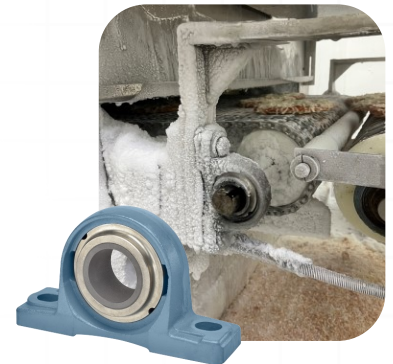
### Seafood Freezer Conveyor Extends Bearing Life by 30x

A seafood processing plant in the Southeast was running a conveyor in their freezer area to “flash-freeze” fresh seafood. The environment is a difficult one: it is cold (28°F/-2°C) and wet and the system requires frequent washdown. The conveyor bearings were being replaced every month. The plant maintenance superintendent contacted GRAPHALLOY about the problem. It was determined that the current bearings could not hold lubrication under these conditions and, as a result, breakdowns were occurring frequently. Graphalloy 4-bolt flange block assemblies were installed and have been running successfully for more than five years.



### Frozen Pizza Line

The greased bearings on a frozen pizza line (-35°F) couldn't handle the tough environment, and were failing every 3-4 months. The maintenance team found GRAPHALLOY bearings after typing “Maintenance Free Bearings” into a search engine. They replaced the greased bearings with GRAPHALLOY Food Grade Bearings, available in stainless steel pillow blocks and inserts. They've lasted over a year so far, quadrupling the life of the previous bearings.



### Liquid Oxygen Pump

The manufacturer of cryogenic, two-stage pumps, needed a non-galling bearing material that could survive shaft contact, be oxygen compatible, and perform in cryogenic temperatures. They contacted Graphite Metallizing Corporation and a Graphalloy nickel-grade bushing was recommended. Graphalloy materials are non-galling and self-lubricating, which allows for tighter clearances and improved pump efficiency. After nearly six years, the original production units, as well as several new units, are running smoothly.



### Cryogenic Cleaning System

A new company devised a cleaning system that utilizes frozen carbon dioxide pellets to blast clean similar to sand blasting. The company chose Graphalloy flange block bearings due to their ability to provide lubrication free service at temperatures as low as -400°F.

### Ice Machine

A manufacturer of ice making equipment wanted 15 years of expected life on all components, as well as only FDA Acceptable and NSF approved materials. The design speed is 22 RPM and the temperature is 25°F. The initial testing machine has logged over 10,000 hours, and Graphalloy bearings held the top spot over other materials tried. Graphalloy bearings are now standard in this equipment.