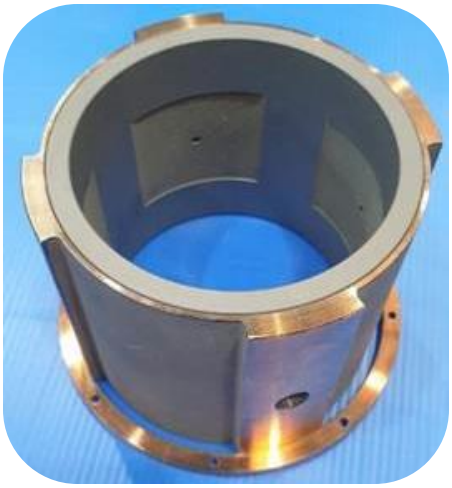
GRAPHALLOY® CASE HISTORY

DS2090-469

Circulating Water Pumps- Nuclear Reactor

CUSTOMER:

Pump OEM whose end-customer is an Atomic Research Institute.



APPLICATION:

Circulating water pumps in Nuclear Research Reactors – Service is water & boric acid, temperature is 180°C for upper & middle bushings, 350°C for lower bushings.

Nuclear power plants use circulating water pumps (CWPs) to filter water and cool the condenser in their circulating water systems (CWS).

PROBLEM:

Customer's design engineer required custom, high-temperature bushings that could withstand boric acid.

GRAPHALLOY SOLUTION:

After several weeks of design discussions, including requests for mechanical and thermal properties of the grades, we sent samples to the customer to test the Graphalloy nickel-grade and resin-grade bushings, including chemical analysis.

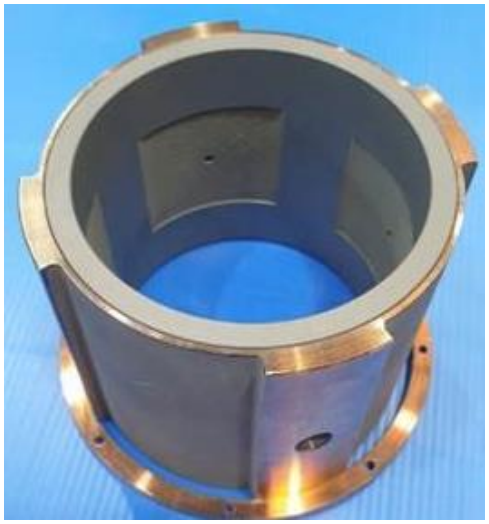
After several months, the customer stated that both grades successfully passed their testing. They wanted to purchase complete bushing assemblies and provided us with their housings.

- Upper/Middle Bearings: 180°C (356°F) – where resin grade is used.
- Lower bearing: 350°C (662°F) – where nickel grade is used.
- This is a static pressure bushing type. We machined ID pockets, radial holes, and finished the ID after installation.

RESULTS:

The finished parts, installed in customer housings, shipped in September 2022. Three months later, we received another order for another one of the pumps. After 2 years, both pumps are working well.

SO# 313037



Graphalloy machined with pockets and holes

Customer Housing