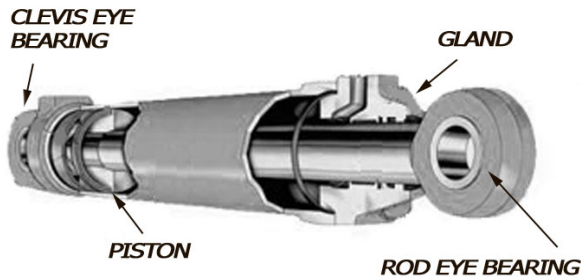


### Longer Life for Hydraulic Cylinders:



Many hydraulic cylinder components are traditionally made of bronze. These include cylinder eye bearings, gland or rod bearings and various internal components such as piston heads, cushions and guides.

Zincaloy bearing stock is increasingly being used to replace bronze in these applications because it offers the following benefits:

- longer gland life with reduced rod wear and scoring
- eye bearings better resist pounding-out and cracking under severe conditions
- piston heads work better under high side loading conditions by eliminating barrel scoring
- guides last longer and run smoother in telescoping cylinders

In general, Zincaloy components can be substituted for SAE 660 bronze in most cases without any design changes. An exception occurs when gland/rod clearance is required to be minimal and where cylinders experience large temperature variations. In these cases allowances may be necessary for Zincaloy's greater thermal expansion by increasing the clearance 30% to avoid excessive rod drag. Glands with flanges on shoulders should be machined with a small radius on corners to reduce the chance of cracking under high impact. Glands should be retained by threads, pins or end plates and not just by a press fit.

### Zinc Success Stories:

**Croman** - Division of Crothers Manufacturing Ltd. in Concord, ON, a major hydraulic cylinder manufacturer and repair depot, introduced Zincaloy to Canadian National Railway. Zincaloy was used as a replacement for bronze in their brake retard system, used to slow rail cars in the freight yard. Specific components are the large sliding wearplates for the actuators and various internal bushings.

**Algoma Steel** - Extensive testing of Zincaloy bearings and hydraulic components by Algoma Steel, one of Canada's major steel producers, has led to acceptance of the material as a replacement for bronze and hardened steel in a variety of applications. These include trunnion and clevis eye bearings as well as thrust washers, spacers and general purpose bearings. Hydraulic cylinder gland nuts are used in the finishing mill and on steering lift cylinders on C-Tech equipment.

**Carelift Equipment** of Breslau, Ontario, manufacturer of the "Zoom Boom" construction fork lift uses Zincaloy for all the gland nuts and bushings in their hydraulic cylinders. Other applications include shaft sleeves and knuckle bearings.

**Mailhot Hydraulics** of Milton, ON have successfully replaced 660 bronze with Zincaloy for cylinder eye bushings and piston glands on their OEM cylinders.

**Wainbee, Ltd.** a recognized cylinder manufacturing shop in North Bay, ON, has proven the benefits of Zincaloy over bronze for cylinder components. They are now converting all their bronze stock to Zincaloy. Wainbee cylinders are used extensively throughout the mining industries in northern Canada.

**Port Machine Works Ltd.** of Port Alberni, B.C. has realized the longer life and increased resistance to pounding of ZA-12 bearings and has specified ZA-12 exclusively for the pivot points, cylinder eyes and glands on their line of PIRANHA hydraulic grapples

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