



Application Data

Hydraulic Piston Head Overlays

Description

When high hardness and long piston head life are necessary, Ampco aluminum bronze weldwire has become a popular material for overlaying ferrous piston heads. In addition to being subjected to high operating pressures, piston heads must also have good bearing characteristics to resist scratching and galling of the mating surface.

Material

AMPCO-TRODE® 10 and 150 weldwire. Selection of the weldwire is dependent on the hardness of the mating cylinder walls. The correct weldwire will result in a weld deposit of 50 to 75 points Brinell softer than the mating surface.



Advantages

Overlaying ferrous piston heads with aluminum bronze offers a number of advantages. AMPCO-TRODE 10 and 150 weldwire are not hot short, that is, they have very good ductility during the transformation from liquidus to solidus. As a result, there is less potential for cracking during cool down to ambient temperature. Normally, cracking is a significant problem because of the difference in linear expansion between bronze and steel. With little or no surface cracking, less rework is required.

Another important advantage is that aluminum bronze has higher hardnesses than other commonly-used copper-base alloys. With higher hardnesses, longer piston head life can be expected.

In addition, operator appeal is enhanced since AMPCO-TRODE 10 and 150 have good weldability and excellent deposition rates using the gas metal-arc welding process. Machinability ratings are also good.

