



2003 Casting Contest: Innovations in Cast Component Design

Representing industries as diverse as automotive, aerospace, tool and die, and agriculture, this year's award-winning components showcase achievements cast in metal.

2003 Honorable Mention

Railroad Motor Mount Adapter Frame Piad Precision Casting Corp. Greensburg, Pennsylvania

Material:	Nickel aluminum bronze.
Process:	Permanent mold.
Size:	16.44 lb; 14.4 x 7.12 x 7.31 in.
Application:	The component supports the motor and clutch in a railroad track-switching machine.
Converted From:	Welded fabrication.



- ◆ Originally, the part was made from 10 fabricated and machined components requiring 20 weld joints, 24 machining operations, dichromating and two painting processes. The bottom plate was machined from a 1-inch thick steel plate (1020 cold steel) that required an additional 12 machining operations. By converting to a cast component, the customer realized a 29% weight reduction and significant cost savings.
- ◆ The nickel aluminum bronze material exceeds the strength of 1020 steel with 51 ksi yield and 95 ksi tensile strength.
- ◆ The redesign to a nickel aluminum bronze casting provides a near-net-shape component and eliminates the need for secondary dichromating and painting. In addition, the one-piece casting eliminates 20 weld joints, reducing warpage due to welding, and increases part functionality.

—Piad Precision Casting.