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An Alternative to Alloy Substitution

Reduce Costs with Designed Compression

Difficulties Associated with Alloy Substitution

Alloy substitution is most commonly implemented to mitigate damage mechanisms. Negative aspects of alloy substitution include:

- Unique alloys are costly
- Often difficult to procure
- May require special processing
- Time and expense of testing
- Difficult to qualify and certify
- Marginal performance benefits

Aermet 100 was Considered as an Alloy Substitute for 300M Steel in Main Landing Gear

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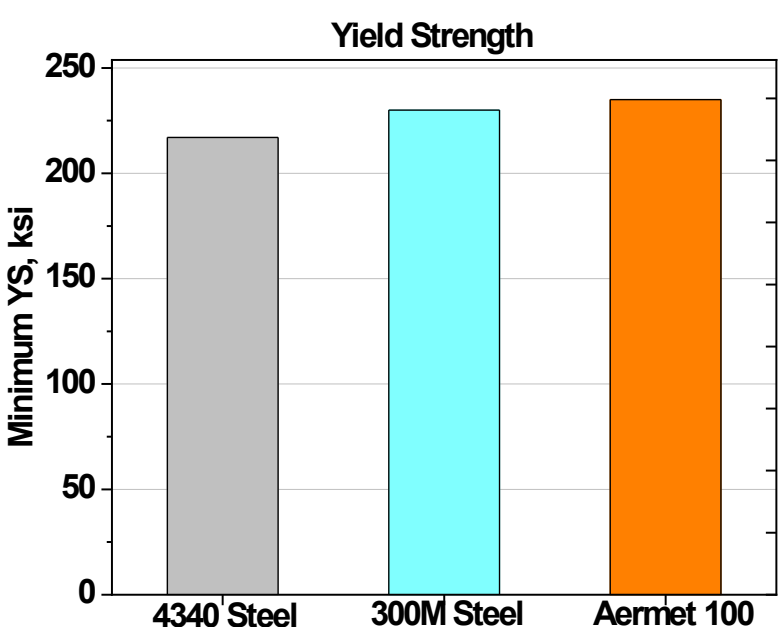
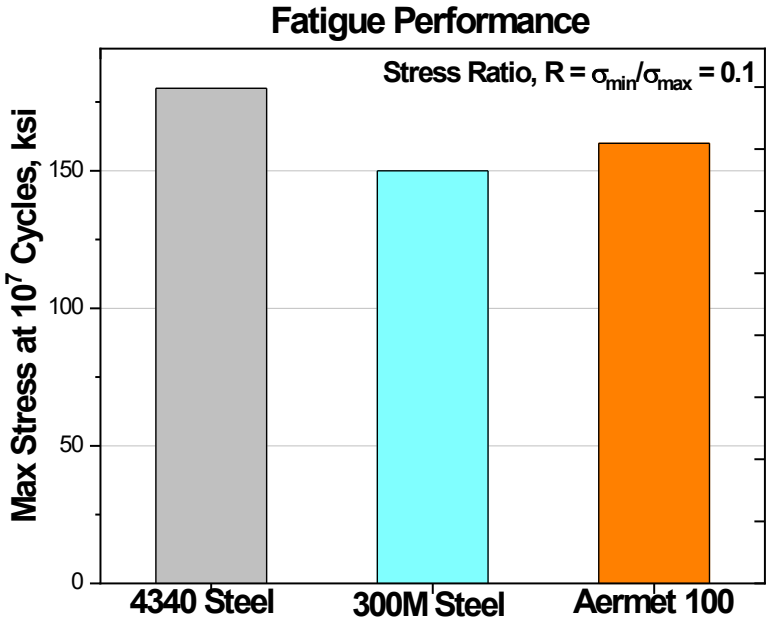
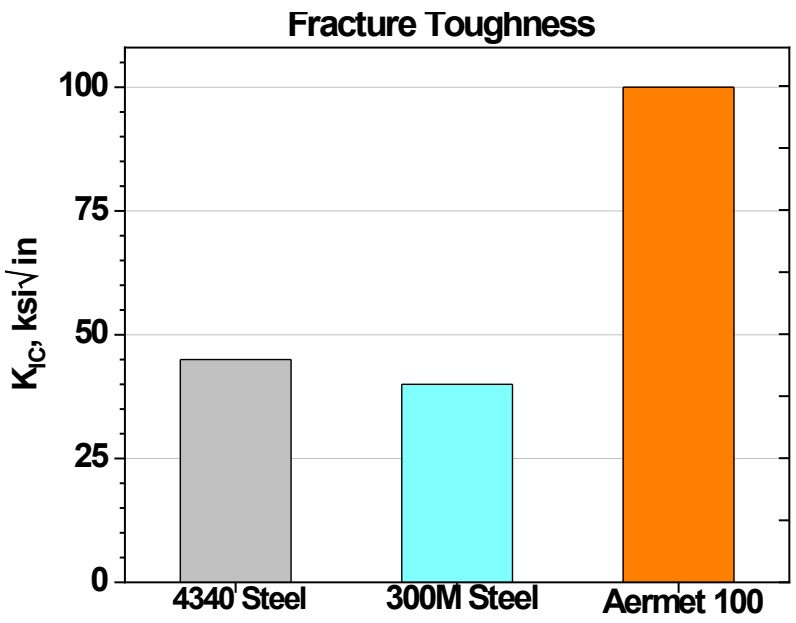
Example: Aircraft Main Landing Gear







300M Steel (Original Material) vs Aermet 100 (Substituted Alloy)

- 300M Steel and Aermet100 have comparable tensile and fatigue properties
- Aermet 100 shows nearly 3X higher fracture toughness (K_{IC}) compared to 300M steel

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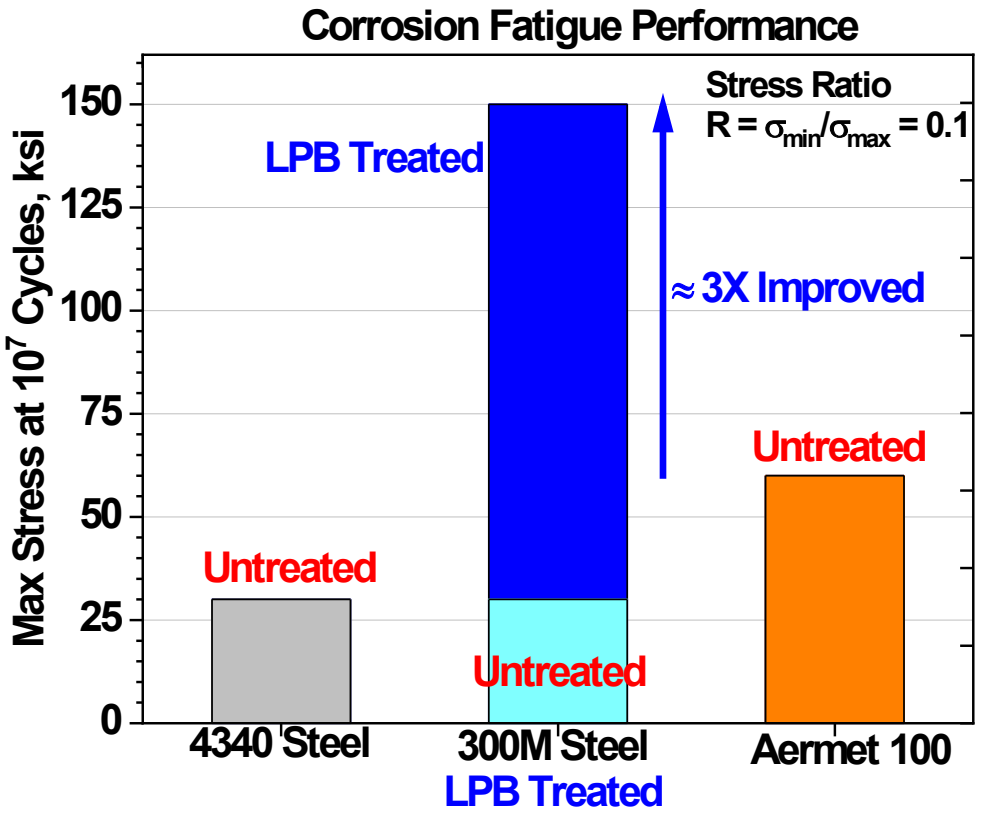
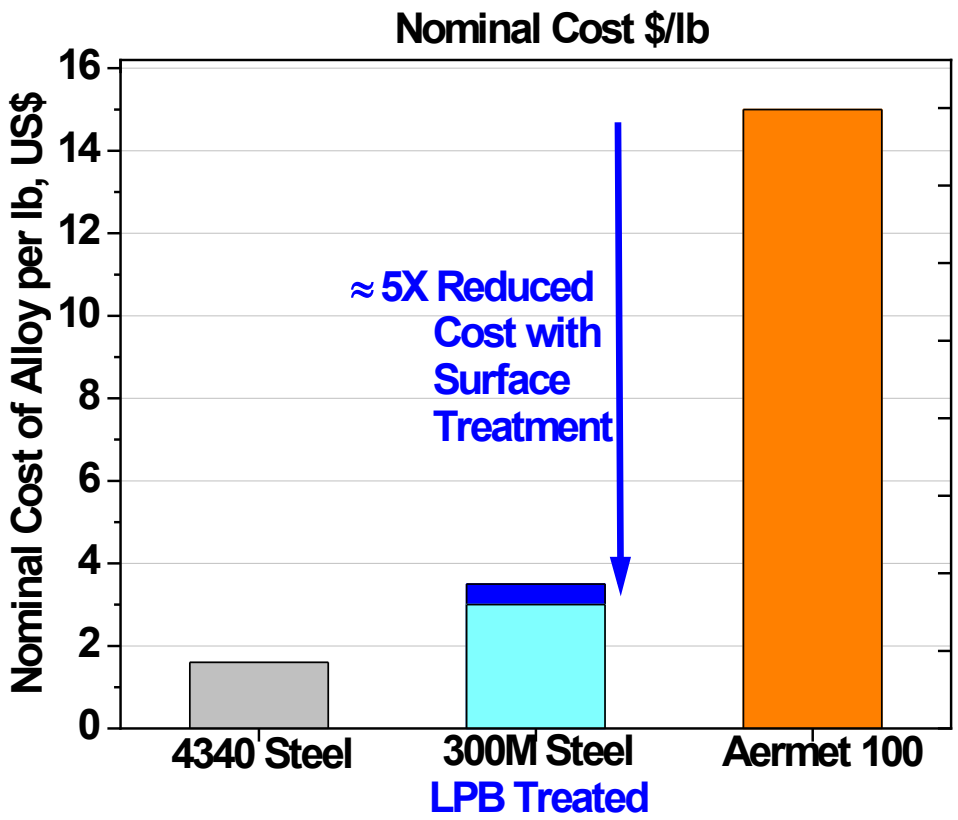
Performance and Cost Comparison



Performance Comparison of Untreated 4340 Steel, 300M Steel, LPB-Processed 300M Steel and Aermet 100



Estimated Cost Comparison of Untreated 4340 Steel, 300M Steel, LPB-Processed 300M Steel and Aermet 100

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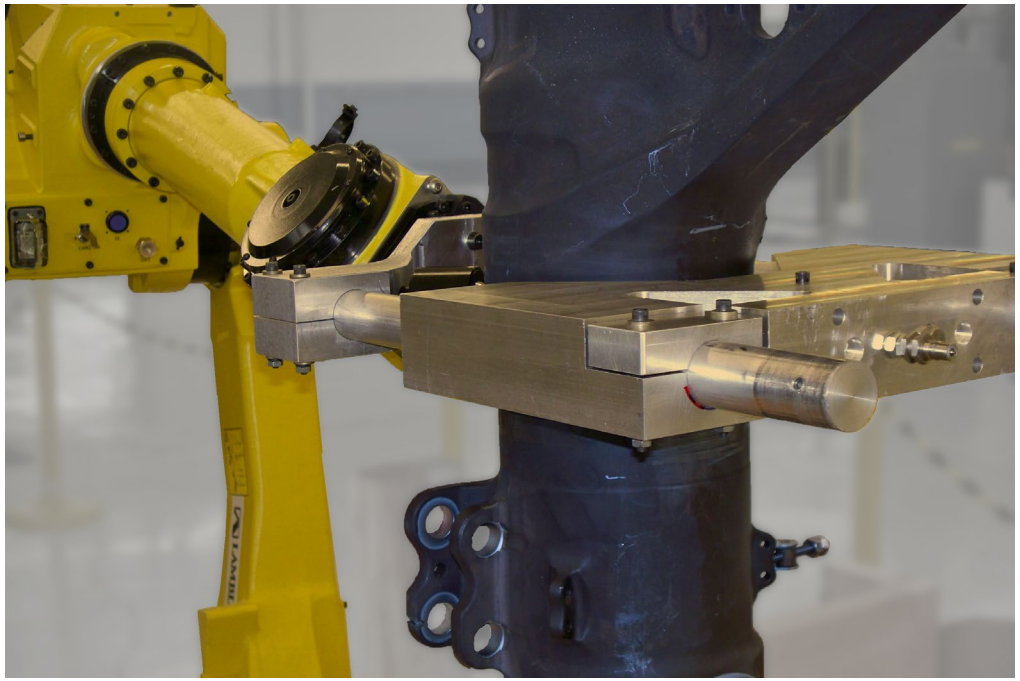
LPB –Processed 300M Steel Achieves Greater than 2.5x the Corrosion Fatigue Performance of Aermet 100 at 1/5th the Cost

Designed Compression



Application of Designed Compression to
300M Steel Main Landing Gear

Benefits of Designed Compression

- Greater Resistance to Corrosion Fatigue & Damage
- Use Original OEM Material
- Reduced Costs
- Less Risk of Failure
- Reduced Time to Implementation
- Performed on New or Existing Parts
- No Redesign

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Extend Component Life with Designed Compression
A Cost-Effective Alternative to Alloy Substitution