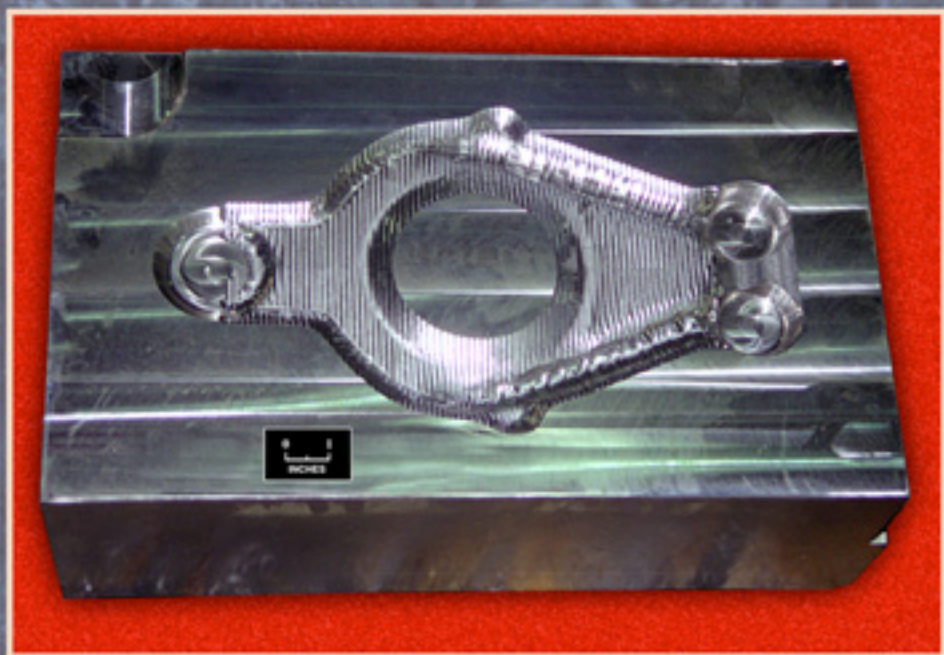




Ni₃Al Enables Improvement in Forging Dies

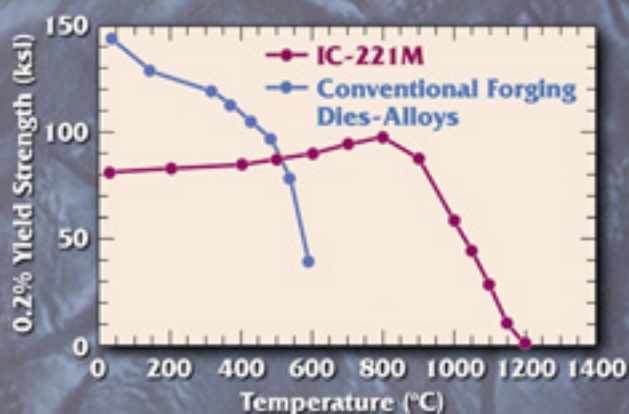


- **Longer Life** - demonstrated 10X improvement under production conditions



Cast Ni₃Al Die

- **Process Improvement**
 - more efficient;
 - less down time
- **Product Quality Improvement** - better dimensional tolerance
- **Dies Commercially Available** - through licensing of Oak Ridge National Laboratory (ORNL) developed technology



**Superior Ni₃Al Strength
Compared to Conventional
Forging Dies - Alloys**



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Ni₃Al Enables Improvement in Forging Dies

Forging dies of cast nickel-aluminide alloy IC-221M have been used to successfully forge 100,000 pieces of a part known as a "brake spider." This is a factor of ten improvements over the commercially used die material.

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