

# AMC

AMERICAN METALCASTING CONSORTIUM

## Casting Alloy Data Search (CADS) Tool



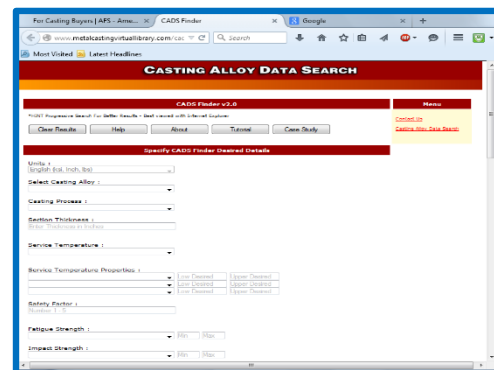
**Program Overview and Objectives:** As part of the American Metalcasting Consortium (AMC), the American Foundry Society (AFS) has developed Casting Alloy Data Search (CADS) as an online casting material database to provide DoD, OEMs, and metalcasters easy accessibility to critical design properties. The database has been designed so that material properties can be imported into Casting Aided Engineering (CAE) and Finite Element Design (FEA) programs. CADS equips the casting design engineer with the latest data sets for engineering properties, including strain life fatigue, which have been determined using the latest test methods available. This database continues to grow with the addition of several alloys each year and currently contains over 300 data sets for various irons including ADI, and HiSiMo, a variety of grades of common cast steels, as well as aluminum and magnesium alloys.

## SUCCESS STORY

**Problem:** Current printed handbooks contain material properties which are either inadequate, generated with outdated test methods, or lacking critical information such as process, chemistry, etc. The continuous decrease in the number of metalcasters and the unavailability of critical design properties contribute to substantial delays in the procurement of castings.

**Solution:** The user-friendly web-based CADS tool and database has been developed to provide critical design properties for many alloys. Each year alloys are tested and added to the database, with the latest being A206 and E357 aluminum, solid solution strengthened ferritic ductile iron (SSF Iron), and CA40 and CF8M stainless steels.

**Benefits:** A one-stop shop for potential sources, critical material properties, and alloy and casting selection processes, CADS is significantly reducing the time required to design and procure new or replacement parts which results in shorter lead times for weapons system's spare parts.



To use CADS go to:  
AFS website under Technical & Management section or directly to [metalcastingvirtuallibrary.net/cads/cads.aspx](http://metalcastingvirtuallibrary.net/cads/cads.aspx)

“Today’s design and manufacturing optimization quest by OEMs demands accurate and comprehensive cast alloy material properties with a complete pedigree of information such as casting process, chemistry, microstructure and test bar section thickness. Now with CADS, these are available to the design engineers digitally for their design validations using FEA and process simulation” Jiten Shah, President, PDA LLC



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