Atlas of Formability:

Cast Aluminum 6061
Flow Stress Curves,
In this investigation, flow behavior of Aluminum 6061 alloy was studied by conducting compression tests over a wide range of temperatures and strain rates. Stress-strain curves were recorded for each test condition. These data are essential in metalworking process design or finite element analysis of high temperature deformation.
ATLAS OF FORMABILITY
CAST ALUMINUM 6061

by

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for

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Philadelphia, PA 19112-5078

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The views, opinions, and/or findings contained in this report are those of the authors and should not be construed as an official Department of the Navy position, policy, or decision, unless so designated by other documentation.
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ST #A, AUTH USNAVIRSA (MR PLONSKY 8/443-6684)  
PER TELECON, 17 AUG 93 CB
## Cast Aluminum 6061

### Testing Parameters

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TRUE STRESS (MPA)

TRUE STRAIN
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TEMP: 420 C
STRAIN RATE: 0.01/SEC

 TRUE STRESS (MPA)

 TRUE STRAIN

NCEMT
GRAPH NO: 66123
STRAIN RATE: 0.01/SEC

TRUE STRESS (MPA)

TRUE STRAIN

300°C

420°C

540°C

NCEMT
GRAPH NO: 66114
TEMP: 360 C
STRAIN RATE: 0.1/SEC

TRUE STRESS (MPA)

TRUE STRAIN
GRAPH NO: 66109
TEMP: 420°C
STRAIN RATE: 1.0/SEC

TRUE STRAIN (MPA)

TRUE STRAIN
GRAPH NO: 66112
TEMP: 540 C
STRAIN RATE: 1.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66125
STRAIN RATE: 1.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

300 C

420 C

540 C

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NCEMT
GRAPH NO: 66101
TEMP: 360°C
STRAIN RATE: 5.0/SEC
GRAPH NO: 66102
TEMP: 480 C
STRAIN RATE: 5.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66126
STRAIN RATE: 5.0/SEC

TRUE STRESS (MPA)

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0.00 0.20 0.40 0.60 0.80 1.00

TRUE STRAIN

360 C

480 C
GRAPH NO: 66103
TEMP: 420 C
STRAIN RATE: 12.0/SEC
GRAPH NO: 66106
TEMP: 540°C
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPA)

0.00 25.00 50.00 75.00 100.00 125.00 150.00

0.00 0.20 0.40 0.60 0.80 1.00

TRUE STRAIN

NCERM
GRAPH NO: 66127
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPA)

300°C

420°C

540°C

TRUE STRAIN

NCEMT