Atlas of Formability:

Cast Aluminum 6061
Flow Stress Curves,

93-18844
NCEMT
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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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.
TABLE OF CONTENTS

Testing Parameters ........................................... 1
Stress-Strain Curves ....................................... 2
Cast Aluminum 6061

Testing Parameters

<table>
<thead>
<tr>
<th>Strain Rate (1/sec.)</th>
<th>Temperature (deg. C)</th>
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<th>Page Number</th>
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TEMP: 300 C
STRAIN RATE: 0.01/SEC

![Graph](image)

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66119
TEMP: 540 C
STRAIN RATE: 0.01/SEC
GRAPH NO: 66123
STRAIN RATE: 0.01/SEC

TRUE STRESS (MPA)

TRUE STRAIN

300°C

420°C

540°C

NCEMT
GRAPH NO: 66115
TEMP: 480 C
STRAIN RATE: 0.1/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66122
TEMP: 300 C
STRAIN RATE: 1.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

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

TRUE STRESS (MPA)

0.00  0.20  0.40  0.60  0.80  1.00

TRUE STRAIN

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

TRUE STRESS (MPA)

TRUE STRAIN
GRAPH NO: 66125
STRAIN RATE: 1.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

300 C

420 C

540 C

NCEMT
GRAPH NO: 66101
TEMP: 360 C
STRAIN RATE: 5.0/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

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

TRUE STRESS (MPA)

TRUE STRAIN
GRAPH NO: 66104
TEMP: 300 C
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

 graphs.png
GRAPH NO: 66106
TEMP: 540 C
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT