Atlas of Formability

Cast Aluminum 6063
Flow Stress Curves
In this investigation, flow behavior of Aluminum 6063 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 6063

by

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for

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## Cast Aluminum 6063

### Testing Parameters

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STRAIN RATE: 0.01/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66321
TEMP: 540 C
STRAIN RATE: 0.01/SEC
GRAPH NO: 66322

STRAIN RATE: 0.01/SEC

TRUE STRESS (MPA)

0.00 0.20 0.40 0.60 0.80 1.00

TRUE STRAIN

0.00 25.00 50.00 75.00 100.00 125.00 150.00

300 C

420 C

540 C
GRAPH NO: 66315
TEMP: 360 C
STRAIN RATE: 0.1/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66314
TEMP: 300 C
STRAIN RATE: 1.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN
GRAPH NO: 66316
TEMP: 480 C
STRAIN RATE: 1.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 68313
TEMP: 540 °C
STRAIN RATE: 1.0/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: 66323
STRAIN RATE: 1.0/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

300 C
420 C
540 C

NCEMT
GRAPH NO: 66301
TEMP: 360 C
STRAIN RATE: 5.0/SEC
GRAPH NO: 66302
TEMP: 480 C
STRAIN RATE: 5.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
Graph No: 66324
Strain Rate: 5.0/Sec

True Stress (MPa)

360°C

480°C

True Strain

NCEMT
GRAPH NO: 66304
TEMP: 300 C
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66303
TEMP: 420 °C
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPA)

TRUE STRAIN

NCEMT
GRAPH NO: 66307
TEMP: 540°C
STRAIN RATE: 12.0/SEC
GRAPH NO: 66325
STRAIN RATE: 12.0/SEC

TRUE STRESS (MPa)

TRUE STRAIN

300 C
420 C
540 C

NCEMT
18