



Supplementary Material



Figure S1. Cross sections of the A- and B-series of the Mg2Nd and Mg2Yb alloy at different strains and elongation to failure.



compression

true stress [MPa]

tension

compression

300

250

200

150

100

50

true stress [MPa]

tension

TUTTIN



Figure S2. Comparison of the measured and simulated texture development during deformation of the A- and B-series of the Mg2Nd and Mg2Yb alloy at different strains.

0.0 0 0.0 0∔ 0.0 0.1 0.2 0.3 0.4 logarithmic strain 0.5 0.1 0.2 0.3 0.4 logarithmic strain 0.5 0.1 0.2 0.3 0.4 logarithmic strain 0.5 Figure S3. Comparison of the flow curves from compression and tensile tests of the A-, B- and C-series

n-situ experiment

ex-situ experiment

. simulation

TUTTI

300

250

200

150

100

50

ex-situ experiment

true stress [MPa]

300

250

200

150

100

50

true stress [MPa]

of the Mg2Nd and Mg2Yb alloy.

n-situ experi

ex-situ experimen simulatio





Figure S4. Comparison of the experimentally measured and simulated axial elastic lattice strains during (a, b) compression and (c, d) tensile tests of the A- and B-series of the Mg2Nd alloy.

Mg2Yb

А

-0.2

-0.3

20.1

11.2

10.3

0.00 -0.25 -0.50 -0.75 -0.75

0.00 -0.25 -0.50 -0.75 -1.00

-0.1





Figure S5. Comparison of the experimentally measured and simulated axial elastic lattice strains during (a, b) compression and (c, d) tensile tests of the A- and B-series of the Mg2Yb alloy.



Figure S6. Deformation mode activity as a function of strain of the A- and B-series of the Mg2Nd alloy.



Figure S7. CRSS of the different deformation systems as a function of strain of the A- and B-series of the Mg2Nd alloy.



Figure S8. Deformation mode activity as a function of strain of the A- and B-series of the Mg2Yb alloy.



Figure S9. CRSS of the different deformation systems as a function of strain of the A- and B-series of the Mg2Yb alloy.