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Sample AMB2018-01-625-CBM-B2-P3

Overall dimensions:
H  25.35mm
L  80.72mm
W  12.19mm
Develop mechanical measurement data to complement diffraction measurements
   ➢ Axial stress in recoat direction

Develop mechanical measurement data to supplement diffraction measurements
   ➢ Near surface measurement
Contour measurements through L4, L7, L10 for \( \sigma(y, z) \)

Hole drilling near surface measurement \( \sigma(y) \)

Optional contour measurements
Hole drilling measurement
- Location: \((x, y, z) = (64, 0, 7.5) \) mm
- Tensile residual stress in both build and transverse directions
  - Build direction stress near/beyond yield
  - Plasticity error likely, beware specific values
  - These results consistent with prior observations
L7 Average Contour

Contour measurement through L7

Front

Back

2nd
AMB2018-01-625-CBM-B2-P3 results
Contact information

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Specimen description

- 625-CBM-B2-P3

- Assumed material properties:
  - Material type: INCONEL alloy 625
  - $E = 207 \text{ GPa}$
  - $\nu = 0.278$
  - $S_y = 700$ to $800 \text{ MPa (typical)}$
Contour measurements

- Three contour method measurements
  - Oriented to measure stress in x direction
  - Round 1
    - To be completed before Round 2 measurements start
    - CL7: located at x = 31 mm
  - Round 2
    - CL4: located at x = 17 mm
    - CL10: located at x = 44 mm
Contour measurement @ L7

L7 Average Contour

L7 Front Contour

L7 Back Contour

*Contour measurement @ L7*