

Process Step	Starting Billet Stock	Forging and Heat Treatment	Machining and Finishing	Assembly	Service
ICME Focus Areas	Description of starting composition and microstructure	Microstructure-property evolution and residual stress field	Residual stress field evolution and part distortion	Final residual stress field in part after assembly	Integration of residual stress field with service stress for life prediction
Critical Elements (for the ICME effort)		<ul style="list-style-type: none"> • Temperatures 1 • Time transients • Microstructure evolution 3 	Part geometry and removal sequence 4	Assembly tolerances 4	High fidelity and confidence in residual stress field predictions 5
Critical Validation Elements		<ul style="list-style-type: none"> • Temperatures and transients • Heat transfer coefficients 2 • Measured RS field 	<ul style="list-style-type: none"> • Dimensional changes • RS field in finished part 2 	<ul style="list-style-type: none"> • Dimensional tolerances for assembly fit 	<ul style="list-style-type: none"> • Life prediction validation