

JMatPro® capabilities		Al alloys	Mg alloys	Cast irons	General steels	Stainless steels	Ni alloys	Co alloys	Ti alloys	Zr alloys	Solder alloys	Copper alloys	
Phases	Temperature/Concentration stepping	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Isopleth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Metastable phases	✓	✓										
Physical properties	Standard physical properties*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Stacking fault energy				✓	✓	✓	✓					
	Gamma/Gamma' mismatch						✓						
	Magnetic permeability				✓								
Solidification	Phases and physical properties	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Back diffusion / Secondary dendrite arm spacing	✓	✓		✓	✓	✓	✓	✓	✓			
	Cooling curve	✓	✓	✓			✓	✓	✓	✓	✓	✓	
	Cast strength	✓	✓	✓	✓								
	Homogenisation	✓	✓		✓	✓	✓	✓	✓	✓			
Mechanical properties**	O F H T5 T6 heat treatment strength	✓											
	Room temp. strength/hardness	✓			✓	✓	✓		✓				
	High temp. strength/hardness	✓			✓	✓	✓	✓	✓				
	Flow stress curves & rupture strength	✓	✓		✓	✓	✓	✓	✓				
	Creep and rupture life					✓	✓	✓	✓				
	Jominy hardenability / Grossmann critical Ø				✓								
	Cast Strength	✓	✓	✓	✓								
	Fatigue tool				✓	✓	✓	✓	✓				
	Forming limit diagram	✓	✓		✓	✓	✓	✓	✓				
	Processing map	✓			✓	✓	✓	✓	✓				
	Fracture toughness	✓			✓				✓				
Phase transformations	TTT/CCT diagram	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	TTA diagram				✓								
	Re-austenitisation phases and properties				✓								
	Plasticity coefficients				✓								
	Isothermal transformations	✓	✓		✓	✓	✓	✓	✓	✓			
	Energy changes			✓	✓	✓	✓		✓				
	Cooling transformations				✓				✓	✓			
	Martensite formation				✓	✓			✓				
	Stress induced martensite				✓	✓							
	Quenching and welding data				✓								
	Simultaneous carbide precipitation and strength				✓								
	Temp.-time-precipitation of M(C,N), MN, AlN				✓	✓							
	Tempering hardness and properties				✓								
	Gamma'/Gamma" coarsening							✓					
	Hot Rolling grain size/recrystallization/rolling force				✓								
	Evolution of microstructure & strength							✓					
Data export	Forging simulation data	✓			✓	✓	✓	✓	✓				
	Welding and heat treatment simulation data				✓								
	Solidification simulation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Other	Carburisation				✓	✓							
	C diffusion in weld				✓								
	Dissimilar metal welds	✓					✓		✓				
	Pitting resistance					✓							

* Specific heat – enthalpy - density - molar volume - thermal expansion coefficient - thermal conductivity - electrical conductivity/resistivity - surface tension - liquid viscosity/diffusivity- Poisson's ratio- Young's/shear/bulk modulus. These properties can be calculated during/after heat treatment or during solidification for the whole temperature range including in the liquid phase. When relevant, properties are given for each phase. ** Proof stress, tensile stress and hardness are calculated at any temperature up to the melting point. *** Data export is done both to specific formats used by third-party simulation software and to neutral ASCII files.