

### Heat energy input and particle velocity for common thermal spray processes

Process	Input heat energy to particle		Output particle velocity(a)				
	High	Low	Highest	High	Medium high	Medium	Low
Combustion wire	X					X	
Combustion powder	X						X
Standard plasma	X				X		
High-velocity plasma	X			X			
Vacuum plasma	X			X			
Standard wire arc	X					X	
Vacuum arc	X				X		
High-velocity oxyfuel		X	X				
Detonation gun		X	X				

(a) Particle speed ranges from a high of approximately 1000 m/s (3000 ft/s) to a low of 25 m/s (80 ft/s). Further variations within each process depend on the particle size, material type, and gas velocity. Source: *ASM Handbook: Metallography and Microstructures*, Vol. 9, p 1038, 2004.