

General Characteristics of Coating Processes

Characteristic	Thermal Spray	Plating	CVD	PVD	Hardfacing
Equipment Cost	low to moderate	low	moderate	moderate to high	moderate
Operating Cost	low to moderate	low	low to moderate	moderate to high	low
Process Environment	atmospheric to soft vacuum	aqueous solution	atmospheric to medium vacuum	hard vacuum	atmospheric
Coating Geometry	line-of-sight	omnidirectional	omnidirectional	line-of-sight	line-of-sight
Coating thickness	50 μm to cm	10 μm to mm	0.1 μm to mm	0.1 μm to 20 μm	100 μm to cm
Substrate Temperature	low to moderate	low	moderate to high	low	moderate to high
Adherence	good mechanical	moderate mechanical to very good chemical	very good chemical to excellent diffusional	moderate mechanical to good chemical	very good diffusional
Surface Finish	coarse	coarse to glossy	smooth to glossy	smooth to high gloss	coarse to rough
Coating Materials	powder, wire, polymers, metals, ceramics	metals	metals, ceramics, polymers	metals, ceramics, polymers	metals