

General Comparison of Processes Requiring Machining

P R O C E S S C O M P A R I S O N

DESIGN/ PROCESS FEATURE	Investment Cast & Machine	Machine from Solid	Permanent Mold & Machine	Sand Cast & Machine*	Shell Cast & Machine	Forge & Machine	Fabrication/ Weldment
Tolerance Capability	High	Very High	Medium	Low	Medium	Medium	Medium
Complex/ Design Freedom	Very High	High	Medium	Medium	Medium	Low	High
Choice of Material	Very Wide	Wide	Narrow	Medium	Medium	Medium	Narrow
Lead Time - First Piece	Medium	Short	Long	Medium	Medium	Long	Long
General Appearance	High	Very High	Medium	Low	Medium	Low	Low

COMPARATIVE COSTS - High Volume – 10,000 pcs. or more per year

Process Piece Price	High	High	Medium	Low	Medium	Low	Medium
Tooling Cost	Low	High	Medium	Low	Medium	Medium	High
Secondary Machining Cost	Low	High	Medium	High	Medium	Medium	Low

COMPARATIVE COSTS - Low Volume – 10 pcs. or more per year

Process Piece Price	High	High	High	Low	Medium	Medium	High
Tooling Cost	Medium	High	High	Low	High	High	High
Secondary Machining Cost	Low	High	Medium	High	Medium	High	Medium

* With the advent of CNC Equipment, repeatability of chucking is very important. Difficult to do with sand castings.

General Comparison of Near Net Shape Processes

P R O C E S S C O M P A R I S O N

DESIGN/PROCESS FEATURE	Investment Cast	Powdered Metal	Die Cast
Tolerance Capability	High	High	High
Complex/ Design Freedom	High	Low	High
Choice of Material	Very Wide	Wide	Very Narrow
Lead Time - First Piece	Medium	Long	Long
General Appearance	Medium	High	High

COMPARATIVE COSTS - High VOLUME – 10,000 pcs. or more per year			
Process Piece Price	High	Low	Low
Tooling Cost	Low	High	High
Secondary Machining Cost	Low	Medium	Low

COMPARATIVE COSTS - Low Volume – 10 pcs. or more per year			
Process Piece Price	Medium	N/A	N/A
Tooling Cost	Medium	N/A	N/A
Secondary Machining Cost	Low	N/A	N/A