

Comparative Advantages, Disadvantages and Applications for Various Casting Methods :

Sand Casting		
Advantages	Disadvantages	Recommended Application
Least Expensive in small quantities (less than 100)	Dimensional accuracy inferior to other processes, requires larger tolerances	Use when strength/weight ratio permits
Ferrous and non - ferrous metals may be cast	Castings usually exceed calculated weight	Tolerances, surface finish and low machining cost does not warrant a more expensive process
Possible to cast very large parts.	Surface finish of ferrous castings usually exceeds 125 RMS	
• Least expensive tooling		
Permanent and Semi-permanent Mold Casting		
Less expensive than Investment or Die Castings	Only non-ferrous metals may be cast by this process	Use when process recommended for parts subjected to hydrostatic pressure
Dimensional Tolerances closer than Sand Castings	Less competitive with Sand Cast process when three or more sand cores are required	Ideal for parts having low profile, no cores and quantities in excess of 300
Castings are dense and pressure tight	Higher tooling cost than Sand Cast	
Plaster Cast		
Smooth "As Cast" finish (25 RMS)	More costly than Sand or Permanent Mold-Casting	
Closer dimensional tolerance than Sand Cast	Limited number of sources	Use when parts require smooth "As Cast" surface finish and closer tolerances than possible with Sand or Permanent Mold Processes
• Intricate shapes and fine details including thinner "As Cast" walls are possible	Requires minimum of 1 deg. draft	
• Large parts cost less to cast than by Investment process		
Investment Cast		
Close dimensional tolerance		Use when Complexity precludes use of Sand or Permanent Mold Castings
Complex shape, fine detail, intricate core sections and thin walls are possible	Costs are higher than Sand, Permanent Mold or Plaster process Castings	The process cost is justified through savings in machining or brazing
Ferrous and non-ferrous metals may be cast		Weight savings justifies increased cost
As-Cast" finish (64 - 125 RMS)		
Die Casting		
Good dimensional tolerances are possible	Economical only in very large quantities due to high tool cost	Use when quantity of parts justifies the high tooling cost
Excellent part-part dimensional consistency	Not recommended for hydrostatic pressure applications	Parts are not structural and are subjected to hydrostatic pressure
Parts require a minimal post machining	For Castings where penetrant (die) or radiographic inspection are not required.	
	Difficult to guarantee minimum mechanical properties	

Any interests in our casting processing and our products ,you can email us by : sales@china-guangxing.com