

V PROCESS	Cope and Drag Method. Softened plastic is drawn to pattern. Sand is backfilled.	Most all Castable Metals	All sizes	+/- .020" up to 6" than +.002" per inch. Add .020" per inch across parting line.	\$5,000	\$3,000 - \$20,000	Medium	High	125-150 RMS	None	0.090" to 0.125"	Good	Fair	Unlimited pattern life. Used for medium to med high volumes.
SHELL MOLD	Resin coated sand is poured onto hot metal patterns, curing into bonded sand mold halves. These are removed from pattern, assembled with or without cores, and metal is poured into the resultant cavities.	Most all Castable Metals	Normal maximum 550 sq. in. usable mold area	Ferrous: +/- .008" per in. 5000 up to 3" Add .003" per in. over 3" Non-Ferrous: under 1" = +/- .004" 1"-3" = +/- .010" 3"-6" = +/- .013" 6"-12" = +/- .016" 12"-20" = +/- .020" Add .005"-.010" across parting lines	5000	\$1500 - \$25,000	Medium	Medium	Iron: 200-350 RMS Copper Base: 150-200 RMS Aluminum: 75-125	Outside: 0 to 1-1/2 deg Inside: 0 to 2 deg	Non-Ferrous: .100" Ferrous: .125"	Good	Fair	Used for production of fairly small parts for which closer tolerances are required than are obtainable from sand castings. Widely used for cores.
SAND CASTINGS	Cope and Drag Method - Tempered sand is packed onto wood or metal pattern halves; removed from pattern, assembled with or without cores and metal is poured into resultant cavities. Various materials can be used.	Most Castable Metals	Limitation mainly foundry capabilities. All sizes.	0-3" = 1/32" 3"-6" = 3/64" +6" = +1/18" Across parting line add .020" to small castings .090" to large castings	\$2,000	\$50 - \$15,000	Low	Lowest	Aluminum: 175-350 RMS Copper Base: 300-560 Ferrous: 420-900 RMS	1 to 5	Non-Ferrous: .125" - .250" Ferrous: 250"-.375"	Fair to Good	Best	Most widely used process for ferrous metals for both small and large production runs. Various binder systems available.