

### Investment Troubleshooting

Condition	Causes & Corrections
“Fins” or flash on casting (added thin metal extensions)	Incorrect water/powder ratio causing weak investment mold; investment improperly stored; investment extended past work time; flasks disturbed too soon; flasks heated too rapidly
“Non-fins” (incomplete castings)	Pattern improperly sprued (too thin or too few); incomplete wax burnout; mold to cool when cast; metal too cool when cast; insufficient metal by weight
Porous castings (fine cavities in metal)	Pattern improperly sprued; incomplete wax burnout; metal overheated; mold too hot; too much “old” metal (never use more than 50%); metal insufficiently fluxes; too much flux added to metal
Foreign particle inclusions	Sharp corners and bends in sprue system; flask placed in furnace too soon; flask heated too fast
Spalling (portion of investment in mold)	Sharp corners and bends in sprue system; flask placed in furnace too soon; flask heated too fast; investment handled past work time
Bubbles / nodules	Wax patterns not painted with wetting agent; slurry not sufficiently mixed; vacuum in need of pump oil
Rough surface	Roughness on wax pattern; pattern improperly sprued; incorrect water/powder ratio
Watermarks (grainy surface)	Investing too rapidly; incorrect water/powder ratio; investment handled past work time

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