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Tungsten Carbide Core Pins, Inserts, and Bushings

Innovation in Material Choice & Manufacturing

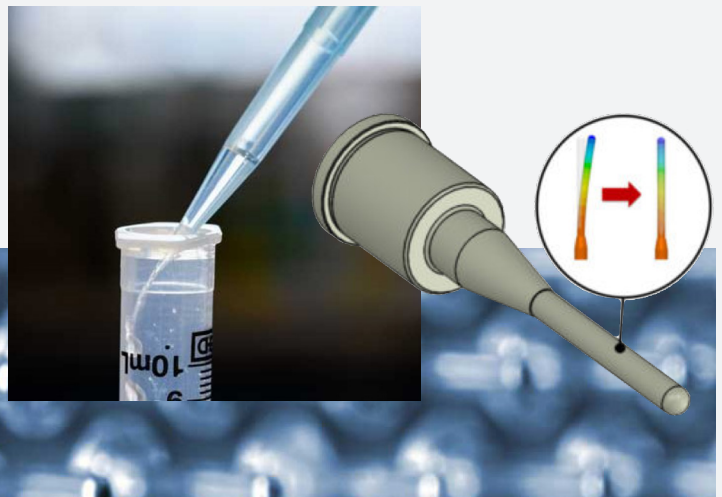
Crafts Technology engineers and manufactures high precision, complex form, tungsten carbide core pins, inserts, bushings, and other injection molding tooling with the exacting level of tolerances and design features that high-precision part molders require.

Craftalloy™ Tungsten Carbide material is more rigid than any other mold tooling material on the market. Its high modulus of elasticity significantly reduces core shift/deflection and allows for the highest possible precision and repeatability in an injection molding process.

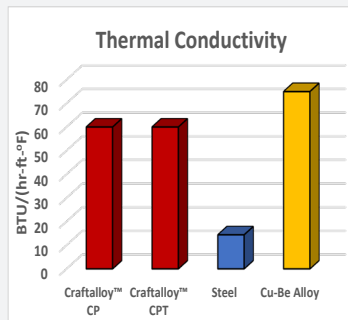
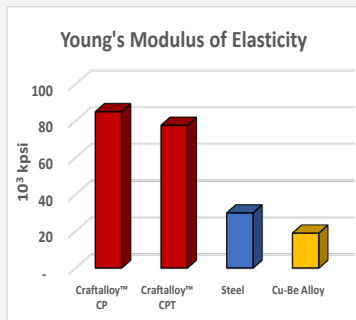
Higher molding speeds are often achieved for high precision parts because of the superior thermal conductivity of the material. Heat removal characteristics are similar to that experienced with Copper-Beryllium (Cu-Be) tooling.



MINIMUM DEFLECTION
MAXIMUM HEAT TRANSFER
MAXIMUM WEAR LIFE



Craftalloy™ Tungsten Carbide has been Tested, Proven, and Validated in the Medical Industry.



Rounding out the advancements that Craftalloy™ Tungsten Carbide tooling regularly provides to molders is the overall wear life.

Molders of Peek and glass-filled type materials have experienced significant improvements in tool life when migrating from steel or copper alloy tooling.

Injection molders around the world continue to improve part quality, processes variability and cycle times through the use of Craftalloy™ Tungsten Carbide core pins, inserts, and bushings.

Our engineering team is ready to discuss your application and offer solutions.

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Core Pin, Insert, and Bushing Material Properties

Material Type		Craftalloy™ CP Tungsten Carbide	Craftalloy™ CPT Tungsten Carbide	420SS	H13	P20	M2	Copper-Beryllium Alloy (98% Cu, 2% Be)
Young's Modulus of Elasticity	kpsi	85,000	77,600	30,000	31,000	30,000	30,000	19,000
	GPa	586	535	207	214	207	207	131
Thermal Conductivity	Btu/(ft-hr-°F)	60		14.4	14.2	17.3	11	75
	W/cm-°C	104		24.9	24.5	30	19	130
Thermal Expansion Coefficient	x10 ⁻⁶ /°C	5.7		10.3	10.4	12.1	11	17.3
	x10 ⁻⁶ /°F	3.2		5.7	5.8	6.7	6.1	9.6
Density	g/cm ³	14.2		8.03	7.8	7.86	8.14	8.36
	lb/in ³	0.51		0.29	0.28	.284	.294	.302
Specific Heat	Btu/(lb-°F)	0.051		0.11	0.11	0.11	0.11	0.091
	J/(kg-K)	213		460	460	460	460	380
Hardness	HRC	+76 (+90 HRA)		52	54	48	66	42
Poisson Ratio		0.22		0.24	0.30	0.29	0.29	0.30
Wear Resistance		Best		Good	Good	Good	Good	Poor
Cost	\$	\$\$\$\$		\$	\$	\$	\$	\$

*All values are close approximations - actual values may vary

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