II-VI M CUBED

COGENTUM™

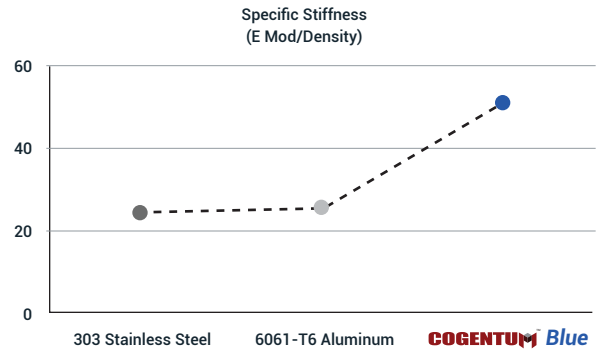
THE CLEAR MATERIAL CHOICE FOR ADVANCED MACHINE DESIGN

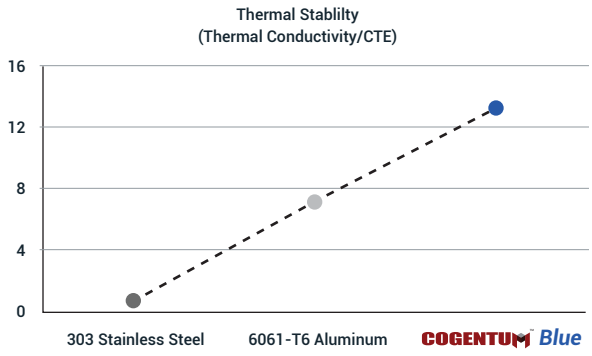
ENABLING TECHNOLOGY FOR HIGH PERFORMANCE SYSTEM ACCURACY

Manufacturers of advanced back end semiconductor processing equipment are focused on providing their customers with innovative, high performance and cost effective solutions to maintain leading edge and competitive market positions. To maintain a technical leadership position, system accuracy and precision are critical aspects of any advanced machine design.

SPECIFIC STIFFNESS AND THERMAL STABILITY

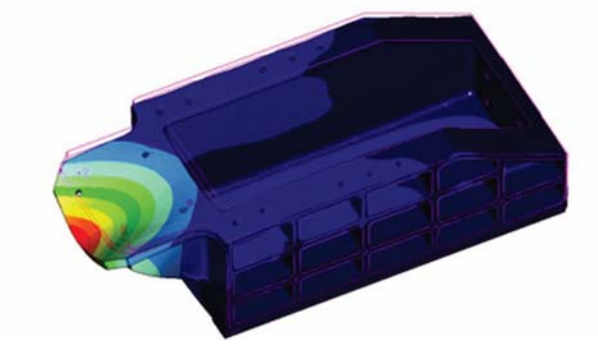
The **COGENTUM**™ product line of advanced materials provides designers with the flexibility to optimize the specific stiffness and thermal stability: a component's high specific stiffness enables precise and accurate motion in advanced system design. High thermal stability is a function of a material's low coefficient of thermal expansion and high thermal conductivity and ensures positional precision and accuracy regardless of thermal micro-climates. Compared to traditional materials, combines both high specific stiffness and high thermal stability to enable precise and accurate advanced machine performance.





DEFLECTION

Components and structures designed for precision and accuracy in advanced machine designs depend on material characteristics such as density (weight) and modulus (stiffness). A light weight but stiff material will minimize both self-weight and loaded deflections. **COGENTUM**™ provides designers with the flexibility to design for minimal deflection without sacrificing other critical aspects of high performance machines.



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M Cubed Technologies, Inc.
31 Pecks Lane, Suite 8
Newtown, CT 06470

General Inquiries: Phone (203) 304-2940
Sales Inquiries: mcubed.sales@ii-vi.com
Phone (203) 304-2940, Fax (203) 426-0880

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Material Property	COGENTUM™ Black	COGENTUM™ Blue	COGENTUM™ Gold
Density (g/cc) [ρ]	2.78	2.80	2.96
Poisson's Ratio	0.29	0.29	0.25
Young's Modulus - GPa (E)	125	143	200
CTE avg 20-100°C(ppm/k) [α]	15	12	11
Thermal Conductivity (W/mK) [k]	160	164	160
Specific Heat(J/kg-K)	820	800	730
Ultimate Tensile Strength (MPa)	370	320	340
Fracture Toughness (MPa-$m^{1/2}$)	15	13	13
Damping Factor(% Zeta)	0.26	0.26	0.58
Specific Stiffness(E/ρ)	45	51	68
Thermal Stability(k/α)	11	14	14

SEMICONDUCTOR BACK END OF LINE PRODUCT EXAMPLES

STAGE STRUCTURES & ASSEMBLIES

WAFER HANDLING COMPONENTS

Call or write today!

Materials, Machining, Motion

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