

CG Thermal

PROCESS TECHNOLOGY SOLUTIONS

Umax[®] Block Advanced Ceramic Heat Exchanger.

The Industries Most Reliable and Technically Advanced Heat Transfer Technology

Maximum Corrosion & Erosion Resistance
Maximum Thermal Efficiency
Optimal OPX Solution

5 year unconditional guarantee against erosion and corrosion.



Umax Advanced Ceramic

heat exchangers are the high value, long life alternative to reactive metal, graphite, and TFE heat exchangers for acid dilution and concentration, pickling, and other processes involving highly corrosive fluids. They offer an unequalled combination of corrosion resistance, thermal efficiency, low fouling, and maintainability.

Maximum Corrosion Resistance

The Umax[®] Ceramic heat exchanger represents the ultimate solution for your most corrosive heat transfer applications. It is universally corrosion resistant against virtually all chemicals within its design temperature of 932 °F. It is particularly well suited for processes involving H₂SO₄, HF, HCL, high concentrations of bromine, fluorine and caustics, and mixed acids. Its physical and thermal properties will not degrade over time.

Superior Heat Transfer Efficiency

The thermal conductivity of Umax ceramic is greater than that of graphite, 2x that of tantalum, and over 100x that of TFE. Since erosion is not a concern and Umax Ceramic doesn't rely on an oxidizing barrier for corrosion resistance, you can operate with higher velocities resulting in less required surface area compared to other material options.

Superior Erosion Resistance

Umax[®] advanced ceramic tubing is over 50% harder than tungsten carbide making it, for all practical purposes, immune to erosion.



	Umax Ceramic	Graphite	Tantalum	Teflon
Specific Gravity	3.1	1.9	16.6	.78
Flexural (psi)	60,000	6,380	50,750	Non Break
Compressive (psi)	560,000	11,310	N/A	3500
CTE (10-6 in/in F)	2.2	2.4	5.8	75
Conductivity (btu/ft-hr F)	72.6	58	32	.142

Superior Thermal and Mechanical Shock Resistance

The Umax block is designed for the operating stresses of your process system, including fluctuations in temperature and pressure at start or due to cycling or upset conditions. The exceptionally high thermal conductivity and low thermal expansion characteristic of Umax ceramic result in a block that is 100% immune to thermal shock and has exceptional resistance to mechanical abuse.

Low Fouling

The structure of Umax ceramic creates a low friction surface with a lower propensity for fouling. This means higher overall performance and lower maintenance costs for ownership.

High Reliability

The block design requires minimal gaskets. This, coupled with the excellent material properties of the SIC Advanced Ceramic block, makes for a very robust and highly reliable design.



Designed to Exceed Expectations

- Design Pressures to 230 psig
- Temperatures from -60°F to 932 °F
- Design according ASME, PED
- Hole diameters from 1/4" to 5/8"



Low Total Cost of Ownership

- ✓ **5 year unconditional guarantee against erosion and corrosion**
- ✓ Easily Maintained
- ✓ Superior strength properties
- ✓ Excellent thermal conductivity - 2x higher than tantalum and 100x higher than TFE
- ✓ Resistant to fouling
- ✓ Completely field repairable with common tools.
- ✓ Immune to thermal shock