

## Endura TTZ Shell Properties

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### TTZ CERAMIC CONTAINMENT SHELL PROPERTIES

Transformation-Toughened Zirconia (TTZ) is a high strength and chemically resistant engineered ceramic material. Ceramics are non-conductive and therefore do not produce eddy current losses and the associated heat, like metallic shells. This prevents excessive heating of the process fluid through the containment shell and bearings. The shells are 100% hydrostatically tested at 412 PSI, and have an excellent field record of durability and performance.

Endura MC-Series pumps are available with either metal or ceramic containment shells. Utilizing a TTZ shell will result in significant efficiency gains and savings in power costs. This is especially beneficial at higher speeds, since power losses from a metal shell are proportional to the square of the speed. For example, running the pump at 3500 RPM will produce four times the losses at 1750 RPM. The motor would need to be rated to supply this extra power in addition to the brake horsepower required by the application.

All Endura AB-Series pumps utilize the TTZ containment shell. The shell contains the pressurized barrier gas and provides secondary containment for the process fluid.

Magnetic Couplings for the TTZ shell have adjusted (de-rated) torque ratings relative to similar couplings used for a metal shell. This is due to the greater thickness of the ceramic shell, which increases the overall gap between the inner and outer magnets.

Note: For magnetic coupling torque ratings and metal shell eddy current losses, refer to *Mag Coupling Torque Ratings* document.