



Ruggedized crystals design are mainly used in the fields of petroleum logging and geological exploration. Due to the harsh environment to be involved like high temperature above 150 degree C, certain shock and vibration, these crystals have to be applying with unique resistant material and special package technology.

Epic Crystal offer series of ruggedized crystals including NaI(Tl), CsI(Na), LaBr₃(Ce) and CeBr₃. They have excellent mechanical shock resistance, temperature shock resistance and long lifetime. Whether used in wireline or measurement while drilling(MWD), our crystals are good choice for both reliability and performance.

Specifications

Crystals	NaI(Tl), CsI(Na), LaBr ₃ (Ce), CeBr ₃	
Classification	General Logging	Measurement While Drilling(MWD)
Shock	100 g@11 ms, 3 shocks per axis(X, Z)	1000 g@1.0 ms, 3 shocks per axis(X, Z)
Crystal sizes(max)	Diameter 2"x8" Length	Diameter 1.5"x6" Length
Random vibration	5 grms(X, Y), 50-1000 Hz	20 grms(X, Y), 50-1000 Hz
Vibration PSD profile	50-300 Hz @flat, 300-1000 Hz @6dB/octave, 5 minutes duration	
Vibration acceptable criteria	Vibration induced counts rate ¹⁾ is not to be exceeding the σ^2	
Housing	Stainless Steel / Titanium	
Glass	Quartz / Sapphire	
Sealed method	Welded	
Operating temperature	-20 to 175 degree C	
Temperature gradient	<=3 degree C per minute	

1) Vibration induced count rate is under the same test condition, the average counting rate change of vibration state relative to static state.

2) $\sigma = \text{SQRT}(\text{Average count rate under static state})$.

- Custom temperature, Shock and Vibration standard design specification available upon request.
- Aluminium and Stainless Steel housing with high temperature epoxy resin sealed window for general logging is available.