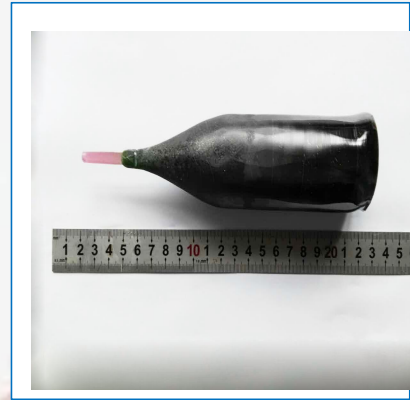


## Er:YSGG/Er,Cr:YSGG

YSGG (Yttrium Scandium Gallium Garnet) doped with Chromium and Erbium provides an efficient laser crystal for generating 2.8 micron light in an important water absorption band.

### Advantages of Cr, Er: YSGG

- Lowest threshold and highest slope efficiency of common Erbium doped crystals(1,2)
- Can be flash lamp pumped via Cr bands or diode pumped via Er bands
- Operates CW, free-running or Q-switched
- The intrinsic crystal disorder increases pump line widths and tenability



Crystal structure	Cubic, Garnet
Growth Method	Czochralski
Chemical formula	Y <sub>2.93</sub> Sc <sub>1.43</sub> Ga <sub>3.64</sub> O <sub>12</sub>
Lattice constant	12.42Å
Doping content (at/cm <sup>3</sup> )	Cr:5×10 <sup>20</sup> , Er:×10 <sup>21</sup>
Density	5.67g/cm <sup>3</sup> (Cr&Er doped)
Refractive index	1.92 at 1000nm
Thermal expansion coefficient	8.1×10 <sup>-6</sup> /K
Thermal conductivity (W/mK)	8
Hardness (Mohs)	8
Thermo-optical factor (dn/dT) (10 <sup>-6</sup> /K)	12.3
Emission cross-section(cm <sup>2</sup> )	5.2×10 <sup>-21</sup>
Fluorescent Lifetime	1400μs

Rod Diameters	up to 15 mm
Diameter Tolerance	+0.0000 / -0.0020 in
Length Tolerance	+0.040 / -0.000 in
Tilt / Wedge Angle	±5 min
Chamfer	0.005 ±0.003 in
Chamfer Angle	45 deg ±5 deg
Barrel Finish	55 micro-inch ±5 micro-inch
Parallelism	30 arc seconds
End Figure	λ / 10 wave at 633 nm
Perpendicularity	5 arc minutes
Surface Quality	10 - 5 scratch-dig

### Basic properties

### Technical parameters