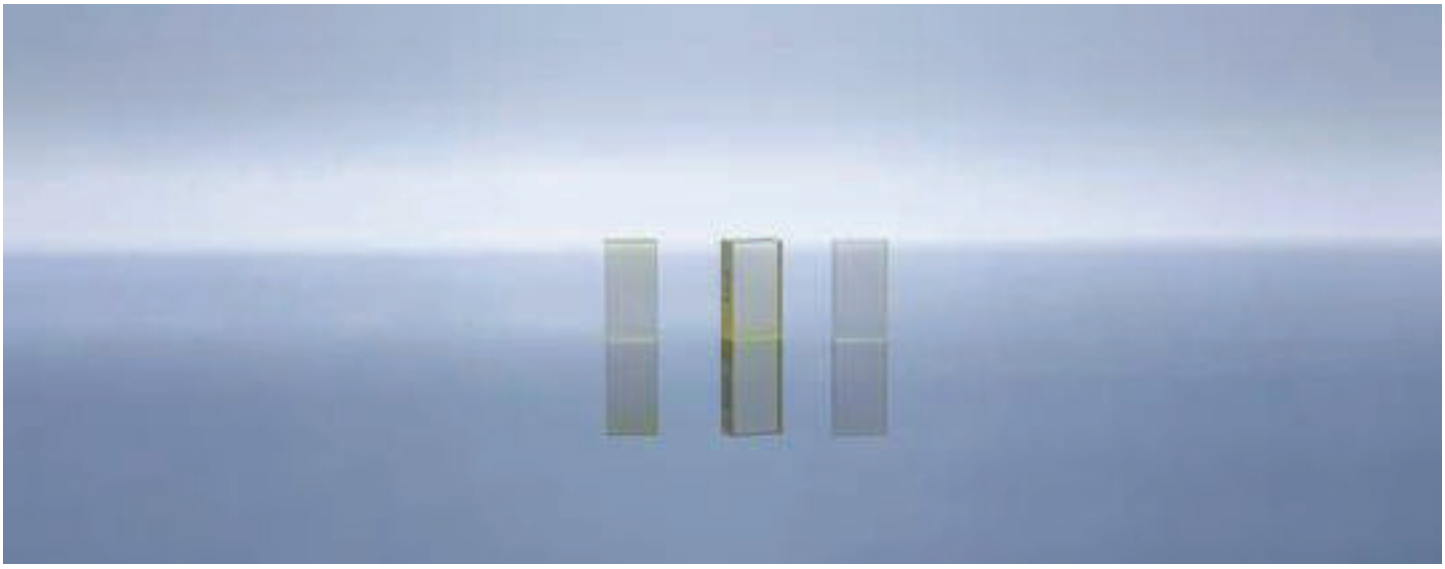
TGG



DESCRIPTION

TGG crystal, also known as terbium gallium garnet crystal, with the chemical formula $Tb_3Ga_5O_{12}$, is a magneto-optical crystal with good comprehensive properties. TGG crystal has a high magneto-optical constant, low optical loss, high thermal conductivity, and a high laser damage threshold. TGG single crystal is the best magneto-optical material for Faraday polarizer and isolator, and the applicable wavelength is 400~1100nm (excluding 470~500nm). TGG (terbium gallium garnet) single crystal has a very high Verdet constant in the range of 4oonm-11oonm (excluding 475-500nm), which is the best and most widely used magneto-optical material in Faraday rotators and isolators. By placing the rod of this material in a strong magnetic field, the Faraday rotation angle of more than 45 ° can be achieved. This allows the construction of a Faraday rotator as the main component of the Faraday isolator, which transmits light in only one direction.

FEATURES

- High damage threshold
- Low optical loss
- High thermal conductivity
- Large Verdet constant

APPLICATIONS

- Isolator
- Faraday rotator
- Magneto optic waveguide

CRYSTAL SPECIFICATION

Wavefront distortion	<λ/8 @632.8nm
Dimensional tolerance	Diameter: +0.0/-0.05 mm, length: ± 0.2mm
extinction ratio	>30dB
surface quality	10/5
Parallelism	<10″
verticality	<5′
Clear aperture	>90%
Surface flatness	<λ/10 @632.8nm
size	According to customer requirements
coating	According to customer requirements

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TGG

CRYSTAL PHYSICOCHEMICAL PROPERTIES

attribute	numerical value
Chemical formula	$Tb_3Ga_5O_{12}$
Lattice parameters	a=12.355Å
Growth mode	Lifting method
density	7.13g/cm^3
Mohs hardness	8
melting point	1725℃
Refractive index	1.954@1064nm
extinction ratio	30dB
Thermal conductivity	7.4 W cm^{-1} k^{-1}

SPECTROGRAM