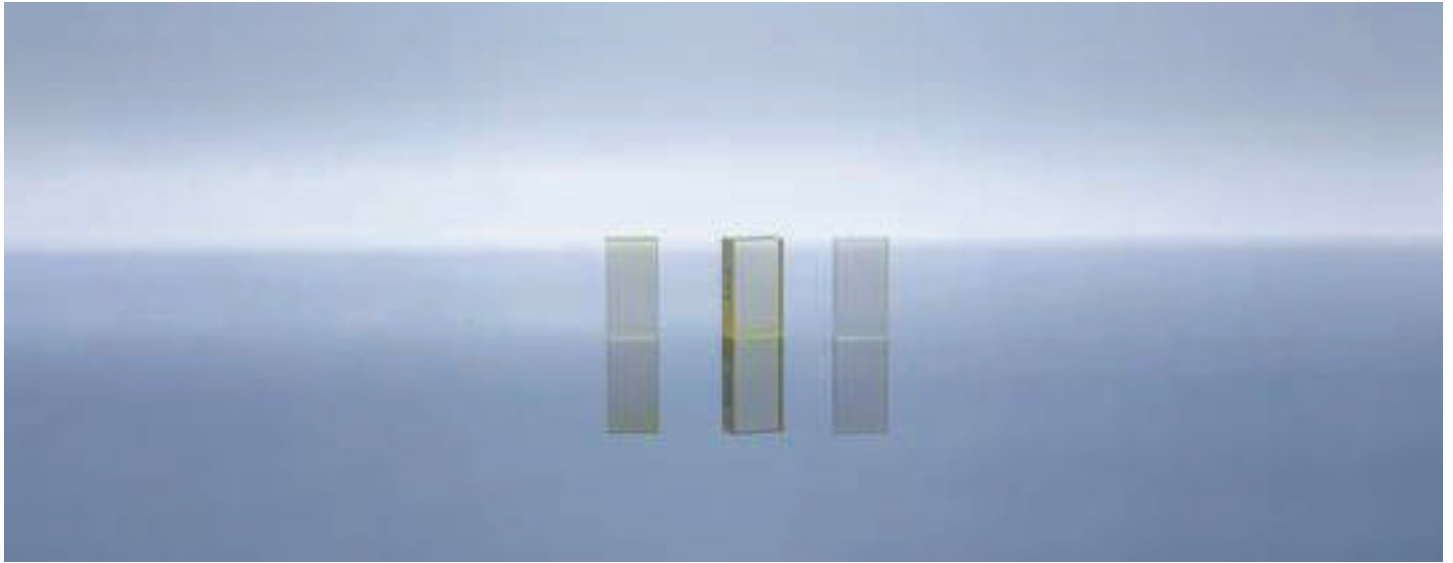


# TGG



## 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 400nm-1100nm (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  $45^\circ$  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	$<\lambda/8$ @632.8nm
Dimensional tolerance	Diameter: $+0.0/-0.05$ mm, length: $\pm 0.2$ mm
extinction ratio	$>30$ dB
surface quality	10/5
Parallelism	$<10''$
verticality	$<5'$
Clear aperture	$>90\%$
Surface flatness	$<\lambda/10$ @632.8nm
size	According to customer requirements
coating	According to customer requirements



# TGG

## CRYSTAL PHYSICOCHEMICAL PROPERTIES

attribute	numerical value
Chemical formula	Tb <sub>3</sub> Ga <sub>5</sub> O <sub>12</sub>
Lattice parameters	a=12.355Å
Growth mode	Lifting method
density	7.13g/cm <sup>3</sup>
Mohs hardness	8
melting point	1725°C
Refractive index	1.954@1064nm
extinction ratio	30dB
Thermal conductivity	7.4 W cm <sup>-1</sup> k <sup>-1</sup>

## SPECTROGRAM

