

VRC6CPT - June 15, 2017

Item # VRC6CPT was discontinued on June 15, 2017. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

FLUORESCING AND LIQUID CRYSTAL ALIGNMENT DISKS

- ▶ Visualize Wavelengths from Visible to MIR
- ▶ Central Hole or Target Aids Alignment
- ▶ Available Unmounted, with SM1 or RMS Threads, or Attached to a Cage-Mountable Plate



VRC6CPT



VRC2RMS



VRC4D05



VRC2D1



VRC4CPT

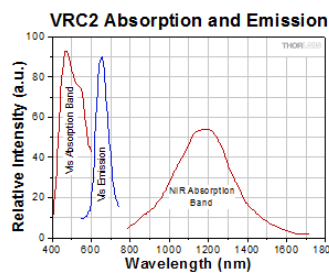
Placed in a 30 mm Cage System

[Hide Overview](#)

OVERVIEW

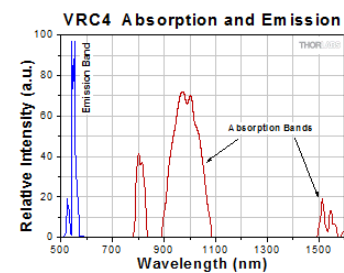
Features

- Ø10.0 mm, Ø1/2", and Ø1" Disks for Visible to MIR Alignment
- Three Materials Available:
 - VIS/IR Fluorescing Material (400 to 640 nm and 800 to 1700 nm)
 - IR Fluorescing Material (790 to 840 nm, 870 to 1070 nm, and 1500 to 1590 nm)
 - MIR Thermochromic Liquid Crystal Material (1500 to >13,200 nm)



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The graph above gives the absorption and emission bands of the VRC2D05, VRC2D1, VRC2RMS, and VRC2SM1 alignment disks.



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The graph above gives the absorption and emission bands of the VRC4D05, VRC4D1, and VRC4CPT alignment disks.

Our alignment disks are made from either fluorescing or liquid crystal material to aid the alignment of visible to mid-infrared (MIR) beams. The graphs to the right detail the absorption and emission bands of our fluorescing disks, which are made of the same materials as those used in our VRC2 and VRC4 laser viewing cards. We offer these Ø1/2" or Ø1" disks unmounted, SM1-threaded (1.035"-40), RMS-threaded (0.800"-36), or mounted to a drop-in cage plate. Our unthreaded and cage-plate-mounted disks feature a centered Ø1.5 mm through hole, while the unthreaded disks have an alignment target. Alternatively, our Ø10.0 mm MIR liquid crystal alignment disk is made from the same material as our VRC6 laser viewing card and is available mounted to a drop-in cage plate.

[Hide Specs](#)

S P E C S

Specifications for Alignment Disks

Item #	Operating Wavelength Range(s)	Emission Band	Active Region	Alignment Feature	Requires Charging
VRC2D05	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø1/2" (Ø12.7 mm)	Ø1.5 mm Hole in VIS/IR Disk Center	Yes
VRC2D1	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø1" (Ø25.4 mm)	Ø1.5 mm Hole in VIS/IR Disk Center	Yes
VRC4D05	790 to 840 nm, 870 to 1070 nm, 1500 to 1590 nm	~520 to 580 nm	Ø1/2" (Ø12.7 mm)	Ø1.5 mm Hole in IR Disk Center	No
VRC4D1	790 to 840 nm, 870 to 1070 nm, 1500 to 1590 nm	~520 to 580 nm	Ø1" (Ø25.4 mm)	Ø1.5 mm Hole in IR Disk Center	No
VRC2SM1	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø0.79" (Ø20 mm)	Target Guide Lines Ø3 mm and Ø9 mm Concentric Circles	Yes
VRC2RMS	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø0.7" (Ø18 mm)	Target Guide Lines Ø3 mm and Ø9 mm Concentric Circles	Yes
VRC4CPT	790 to 840 nm, 870 to 1070 nm, 1500 to 1590 nm	~520 to 580 nm	Ø1/2" (Ø12.7 mm)	Ø1 mm Hole in Plate Ø1.5 mm Hole in IR Disk Center	No
VRC6CPT	1500 to >13,200 nm	N/A	Ø0.39" (Ø10.0 mm)	Ø1 mm Hole in Plate Ø2.0 mm Hole in MIR Disk Center	No

[Hide VIS/IR Fluorescing Alignment Disks \(Unmounted\)](#)

VIS/IR Fluorescing Alignment Disks (Unmounted)

- ▶ Absorption Bands: 400 - 640 nm and 800 - 1700 nm
- ▶ Requires Charging by Visible Light
- ▶ Ø1.5 mm Central Hole Allows Partial Beam Transmission for Alignment
- ▶ Use with Our Ø1/2" or Ø1" Fixed Optic Mounts or Lens Tubes

These VIS/IR alignment disks are ideally used as drop-in tools to simplify active alignment of visible and infrared setups. A small Ø1.5 mm hole at the center enables beams to be aligned with the optical axis of our mounts or lens tubes. The slow-fading, phosphor material on these disks requires charging by visible light. When charged and exposed to light in the 400 to 600 nm or 800 to 1700 nm spectral range, the disks will emit 580 - 750 nm light. Please see the *VRC2 Absorption and Emission* graph above for more details on the absorption and emission bands.

Item #	Absorption Bands	Emission Band	Active Region	Alignment Feature	Requires Charging
VRC2D05	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø1/2" (Ø12.7 mm)	Ø1.5 mm Hole in Disk Center	Yes
VRC2D1	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø1" (Ø25.4 mm)	Ø1.5 mm Hole in Disk Center	Yes

Part Number	Description	Price	Availability
VRC2D05	Ø1/2" VIS and IR Alignment Disk (400 - 640, 800 - 1700 nm)	\$21.00	Today
VRC2D1	Ø1" VIS and IR Alignment Disk (400 - 640, 800 - 1700 nm)	\$33.50	Today

[Hide IR Fluorescing Alignment Disks \(Unmounted\)](#)

IR Fluorescing Alignment Disks (Unmounted)

- ▶ Absorption Bands: 790 - 840 nm, 870 - 1070 nm, and 1500 - 1590 nm
- ▶ Does Not Require Charging
- ▶ Ø1.5 mm Central Hole Allows Partial Beam Transmission for Alignment
- ▶ Use with Our Ø1/2" or Ø1" Fixed Optic Mounts or Lens Tubes

These IR alignment disks are ideally used as drop-in tools to simplify active alignment of infrared setups. A small Ø1.5 mm hole at the center enables beams to be

aligned with the optical axis of our mounts or lens tubes. The active material on these disks does not require charging and will emit light persistently when exposed to light in the 790 - 840 nm, 870 - 1070 nm, or 1500 - 1590 nm spectral regions. Please see the *VRC4 Absorption and Emission* graph above for more details on the absorption and emission bands.

Item #	Absorption Bands	Emission Band	Active Region	Alignment Feature	Requires Charging
VRC4D05	790 to 840 nm, 870 to 1070 nm, 1500 to 1590 nm	~520 to 580 nm	Ø1/2" (Ø12.7 mm)	Ø1.5 mm Hole in Disk Center	No
VRC4D1	790 to 840 nm, 870 to 1070 nm, 1500 to 1590 nm	~520 to 580 nm	Ø1" (Ø25.4 mm)	Ø1.5 mm Hole in Disk Center	No

Part Number	Description	Price	Availability
VRC4D05	Ø1/2" Alignment Disk, S,C, & L Bands (790 - 840, 870 - 1070, 1500 - 1590 nm)	\$21.00	Today
VRC4D1	Ø1" Alignment Disk, S,C, & L Bands (790 - 840, 870 - 1070, 1500 - 1590 nm)	\$33.50	Today

[Hide VIS/IR Fluorescing Alignment Disks \(SM1 or RMS Threaded\)](#)

VIS/IR Fluorescing Alignment Disks (SM1 or RMS Threaded)

- ▶ Absorption Bands: 400 - 640 nm and 800 - 1700 nm
- ▶ Requires Charging by Visible Light
- ▶ Centered Target Aids Alignment
- ▶ Externally SM1 (1.035"-40) or RMS (0.800"-36) Threaded

These VIS and IR viewing and alignment disks are photosensitive disks made from the same slow-fading phosphor material as our VRC2D05 and VRC2D1 (sold above) and are designed to simplify the alignment of visible and infrared beams. Both alignment disks feature a target that clearly marks the optical axis of any setup. The VRC2SM1 has external SM1 (1.035"-40) threading for mounting to Ø1" lens tubes, fixed optics mounts, or other components with internal SM1 threading. The depth of the SM1 threading on the back side of the VRC2SM1 alignment disk is purposely kept short so that the user can quickly insert or remove the disk from the optical setup. Alternatively, the VRC2RMS has external RMS (0.800"-36) threading that allows it to be threaded into a mount designed for an RMS-threaded microscope objective lens.

The slow-fading, phosphor material on these disks requires charging by visible light. When charged and exposed to light in the 400 to 600 nm or 800 to 1700 nm spectral range, the disks will emit 580 - 750 nm light. Please see the *VRC2 Absorption and Emission* graph above for more details on the absorption and emission bands.

Item #	Absorption Bands	Emission Band	Active Region	Alignment Feature	Concentricity of Target/Hole	Requires Charging
VRC2SM1	400 to 640 nm, 800 - 1700 nm	~580 to 750 nm	Ø0.79" (Ø20 mm)	Target Guide Lines Ø3 mm and Ø9 mm Concentric Circles	±0.22 mm	Yes
VRC2RMS	400 to 640 nm, 800 to 1700 nm	~580 to 750 nm	Ø0.7" (Ø18 mm)	Target Guide Lines Ø3 mm and Ø9 mm Concentric Circles	±0.22 mm	Yes

Part Number	Description	Price	Availability
VRC2SM1	SM1-Threaded VIS and IR Alignment Disk (400-640 nm, 800-1700 nm)	\$78.80	Today
VRC2RMS	RMS-Threaded VIS and IR Alignment Disk (400-640 nm, 800-1700 nm)	\$82.40	Today

[Hide IR Fluorescing Alignment Disk \(Cage Plate Mounted\)](#)

IR Fluorescing Alignment Disk (Cage Plate Mounted)

- ▶ Absorption Bands: 790 - 840 nm, 870 - 1070 nm, and 1500 - 1590 nm
- ▶ Does Not Require Charging
- ▶ Ø1 mm Central Hole Allows Partial Beam Transmission for Alignment
- ▶ Use with Our 30 mm Cage Components

The VRC4CPT Cage-Plate-Mounted IR alignment disk consists of our VRC4D05 IR Alignment Disk (sold above) mounted onto an anodized aluminum cage alignment plate. The disk is positioned such that its Ø1.5 mm central hole is concentric with the plate's Ø1 mm hole and aligned with the exact center of a 30 mm cage system. The back side of the plate features a laser-engraved alignment target



Click to Enlarge
Back View of VRC4CPT
in a 30 mm Cage
System

with four concentric circles with 4 mm, 7 mm, 10 mm, and 13 mm diameters (see photo to the right).

The active material on this disk does not require charging and will emit light persistently when exposed to light in the 790 - 840 nm, 870 - 1070 nm, or 1500 - 1590 nm spectral regions. Please see the *VRC4 Absorption and Emission* graph above for more details on the absorption and emission bands.

Item #	Absorption Bands	Emission Band	Active Region	Alignment Feature	Requires Charging
VRC4CPT	790 to 840 nm, 870 to 1070 nm, 1500 to 1590 nm	~520 to 580 nm	Ø1/2" (Ø12.7 mm)	Ø1 mm Hole in Plate Ø1.5 mm Hole in Disk Center	No

Part Number	Description	Price	Availability
VRC4CPT	30 mm Cage System Alignment Plate with IR Disk	\$29.50	Today

[Hide MIR Thermochromic Liquid Crystal Alignment Disk \(Cage Plate Mounted\)](#)

MIR Thermochromic Liquid Crystal Alignment Disk (Cage Plate Mounted)

- ▶ Ø10.0 mm Liquid Crystal Film Changes Color When Exposed to Mid-IR (MIR) Light
- ▶ Does Not Require Charging
- ▶ Ø1 mm Central Through Hole Allows Partial Beam Transmission for Alignment
- ▶ Use with Our 30 mm Cage Components



Click to Enlarge
Back View of VRC6CPT
in a 30 mm Cage
System

The VRC6CPT Cage-Plate-Mounted MIR Alignment Disk consists of a Ø10.0 mm MIR alignment disk that is made of the same material as our VRC6 Detector Card and has been tested with laser sources of wavelengths ranging from 1.5 µm to 13.2 µm. This disk is adhered to an anodized aluminum cage alignment plate and positioned such that its Ø2.0 mm central hole is concentric with the plate's Ø1 mm hole and aligned with the exact center of a 30 mm cage system. The back side of the plate features a laser-engraved alignment target with four concentric circles with 4 mm, 7 mm, 10 mm, and 13 mm diameters (see photo to the right).

The detector area on this disk is a thin layer of liquid crystal. Thermochromic liquid crystals are temperature-sensitive organic chemicals with twisted helical molecular structures. MIR light incident on the disk changes the temperature of the detector area, resulting in a color change. The detector area is green between 25 and 30 °C, and it is black or brown otherwise. To return the color to the resting state, simply tap the card on a tabletop.

Please Note: The spot size on the disk will vary depending on power density. See the *Graphs* tab on our Laser Viewing Cards page for more information.

Item #	Wavelength Range	Minimum Detectable Power Density	Active Region	Alignment Feature	Requires Charging
VRC6CPT	1500 to >13,200 nm	0.3 W/cm ² @ 1550 nm	Ø10.0 mm (Ø0.39")	Ø1 mm Hole in Plate Ø2.0 mm Hole in Disk Center	No

Part Number	Description	Price	Availability
VRC6CPT	Customer Inspired!30 mm Cage System Alignment Plate with Mid-IR Disk	\$36.10	Today