

# BrightLine® Image-splitting Dichroic Beamsplitters

## Product Data Sheet



Ideal solution for  
image-splitting



$\lambda/5$  RWE on 3mm and  
100 m ROC on 1mm



Optimized spectral edges  
for popular fluorophores



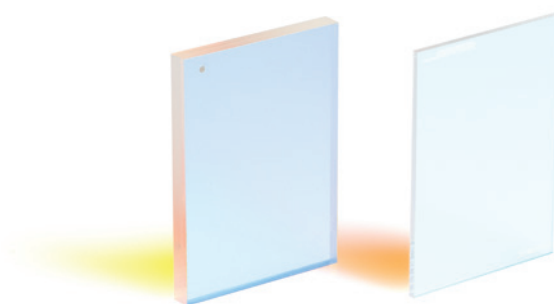
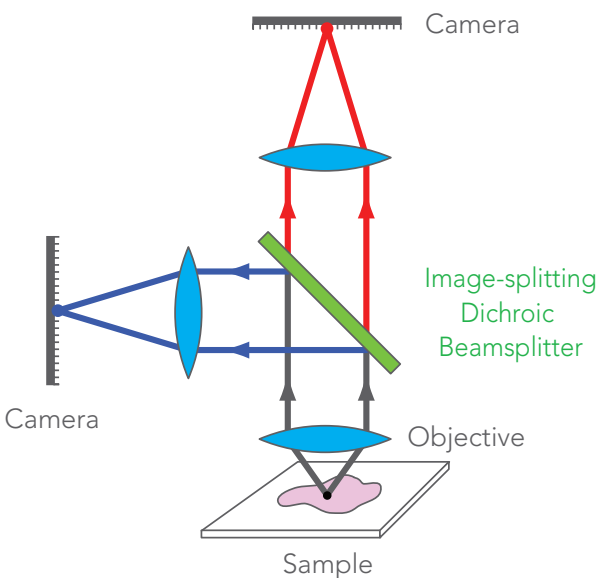
Wide reflection and  
transmission bands



Learn more at  
[www.semrock.com](http://www.semrock.com)

## Image-splitting Dichroic Beamsplitters for Multi-color Microscopy

Semrock's image-splitting dichroic beamsplitters are the industry standard enabling simultaneous multi-color imaging applications. The spectral edges of these filters are optimized for imaging of popular fluorophore-pairs providing maximum signal throughput, while maintaining minimal wavefront distortion in reflection and transmission thereby maximizing contrast and resolution of the overall imaging system.



Lack of sufficient flatness of image-splitting dichroic beamsplitters can introduce significant optical aberrations compromising resolution and contrast.

### BrightLine Image-splitting Dichroic Beamsplitter for Super-resolution Microscopy

- ›  $\lambda/5$  P-V Reflected Wavefront Error (RWE) on 3 mm
- › Spectral edges are optimized for popular fluorophore pairs
- › Super-resolution microscopy for large diameter imaging beams
- › Thicker filter substrate provides a robust solution for mounting
- › Wide reflection bands — into UV & wide transmission regions — to 1200 nm in IR

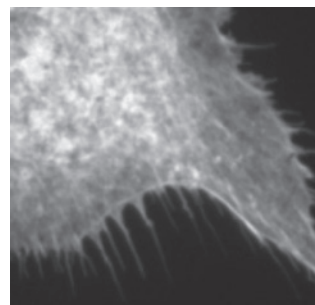
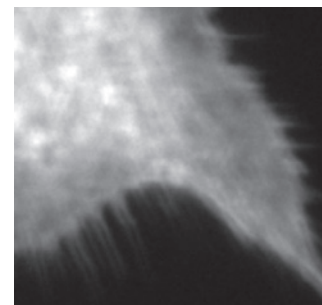


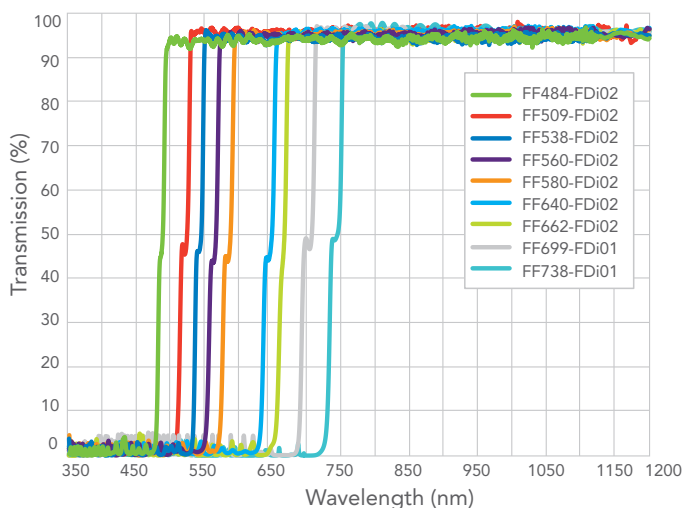
Image-splitting dichroic beamsplitter



Standard-flatness dichroic beamsplitter

## BrightLine Image-splitting Dichroic Beamsplitter designed for Super-resolution Microscopy

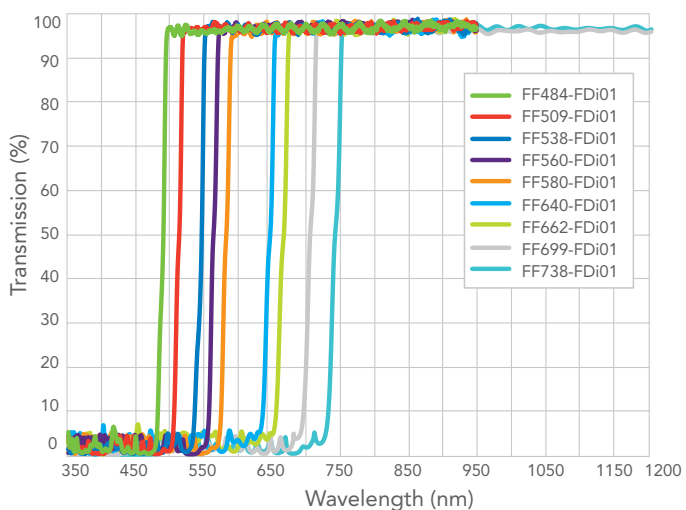
Flatness / RWE Classification	Example Applications	Nominal Radius of Curvature	Maximum Reflected Beam Diameter, mm	Reflected Wavefront Error at 632.8 nm, PV	Dichroic Family, and Example Part Numbers
Image-splitting	Splitting of emission signal on a pixel based detector	~ 1275 meters	37	<0.2λ	BrightLine Image-splitting (FF509-FDi02-t3)



Fluorophore Pair to Split	Reflection Band (nm)	Transmission Band (nm)	Filter Part Number
DAPI / FITC BFP / GFP	350 – 475	492.3 – 1200	FF484-FDi02-t3-25x36
CFP / YFP	350 – 500	518.3 – 1200	FF509-FDi02-t3-25x36
GFP / Orange	350 – 528.4	547.7 – 1200	FF538-FDi02-t3-25x36
YFP / dTomato	350 – 550	570.1 – 1200	FF560-FDi02-t3-25x36
GFP / mCherry FITC / TexasRed	350 – 570	590.8 – 1200	FF580-FDi02-t3-25x36
Cy3 / Cy5	350 – 629.5	652 – 1200	FF640-FDi02-t3-25x36
TexasRed / Cy5	350 – 650	673.7 – 1200	FF662-FDi02-t3-25x36
iRFP670 / iRFP720	350 – 686	712 – 1200	FF699-FDi01-t3-25x36
Cy5.5 / Cy7	400 – 722	754 – 1200	FF738-FDi01-t3-25x36

## BrightLine Image-splitting Dichroic Beamsplitter designed for Standard Microscopy

Flatness / RWE Classification	Example Applications	Nominal Radius of Curvature	Maximum Reflected Beam Diameter, mm	Reflected Wavefront Error at 632.8 nm, PV	Dichroic Family, and Example Part Numbers
Image-splitting	Splitting of emission signal on a pixel based detector	~ 100 meters	10	<2λ	BrightLine Image-splitting (FF509-FDi01-)



Fluorophore Pair to Split	Reflection Band (nm)	Transmission Band (nm)	Filter Part Number
DAPI / FITC BFP / GFP	350 – 475	492.3 – 950	FF484-FDi01-25x36
CFP / YFP	350 – 500	518.3 – 950	FF509-FDi01-25x36
GFP / Orange	350 – 528.4	547.7 – 950	FF538-FDi01-25x36
YFP / dTomato	350 – 550	570.1 – 950	FF560-FDi01-25x36
GFP / mCherry FITC / TexasRed	350 – 570	590.8 – 950	FF580-FDi01-25x36
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TexasRed / Cy5	350 – 650	673.7 – 950	FF662-FDi01-25x36
iRFP670 / iRFP720	350 – 686	712 – 1200	FF699-FDi01-t1-23x36
Cy5.5 / Cy7	400 – 722	754 – 1200	FF738-FDi01-t1-23x36