

TECHSPEC® 4.5mm C Series Fixed Focal Length Lens

#86-900



4.5mm Focal Length, #86-900

TECHSPEC® C Series Fixed Focal Length Lenses are designed for use in machine vision applications with the working distance and resolution requirements of factory automation and inspection in mind. TECHSPEC® C Series Fixed Focal Length Lenses feature large maximum apertures, allowing these high performance lenses to be used in even the most restrictive lighting conditions. Each lens has a broadband anti-reflection coating, locking iris and focus adjustment with recessed set screws, and a ruggedized, robust housing for space-restrictive applications. C Series lenses are manufactured to high tolerances, which result in high levels of imaging performance with low lens-to-lens variation. Through combining optical performance, industrial features, and compact package sizes, our TECHSPEC® C Series Fixed Focal Length Lenses are ideal for use in factory automation and inspection.

General

Note:	Length includes protruding front element
Type:	Fixed Focal Length Lens
Imaging Lens Type:	Compact Lens

Physical & Mechanical Properties

Iris Option:	Variable
Length (mm):	37.50
Maximum Diameter (mm):	40
Outer Diameter (mm):	40.00
Weight (g):	69
Maximum Rear Protrusion (mm):	2.78

Optical Properties

Horizontal Field of View, 1/2" Sensor:	76.7°
Horizontal Field of View, 1/3" Sensor:	59.2°
Maximum Image Circle (mm):	9.00
Numerical Aperture NA, Object Side:	0.0285
Horizontal Field of View @ Max Sensor Format:	84.7°
Number of Elements (Groups):	7 (6)
Horizontal Field of View, 1/1.8" Sensor:	84.7°
Horizontal Field of View, 1/2.5" Sensor:	69.4°
Focal Length FL (mm):	4.50
Primary Magnification PMAG:	0.117
Working Distance (mm):	25 - ∞
Aperture (f/#):	f/2 - f/11
Coating:	425 - 675nm BBAR
Coating Specification:	425 - 675nm BBAR
Entrance Pupil Position (mm):	14.40
Horizontal Field of View, 1/4" Sensor:	45.2°
Object Space Principal Plane (mm):	17.89
Image Space Principal Plane (mm):	6.51
Field of View at Max Sensor Format:	Horizontal: 84.7° Vertical: 66.1° Diagonal: 100.1°
Maximum Distortion (%):	-15.83
Exit Pupil Position (mm):	-9
Lens Wavelength Range:	VIS

Sensor

Maximum Sensor Format:	1/1.8"
------------------------	--------

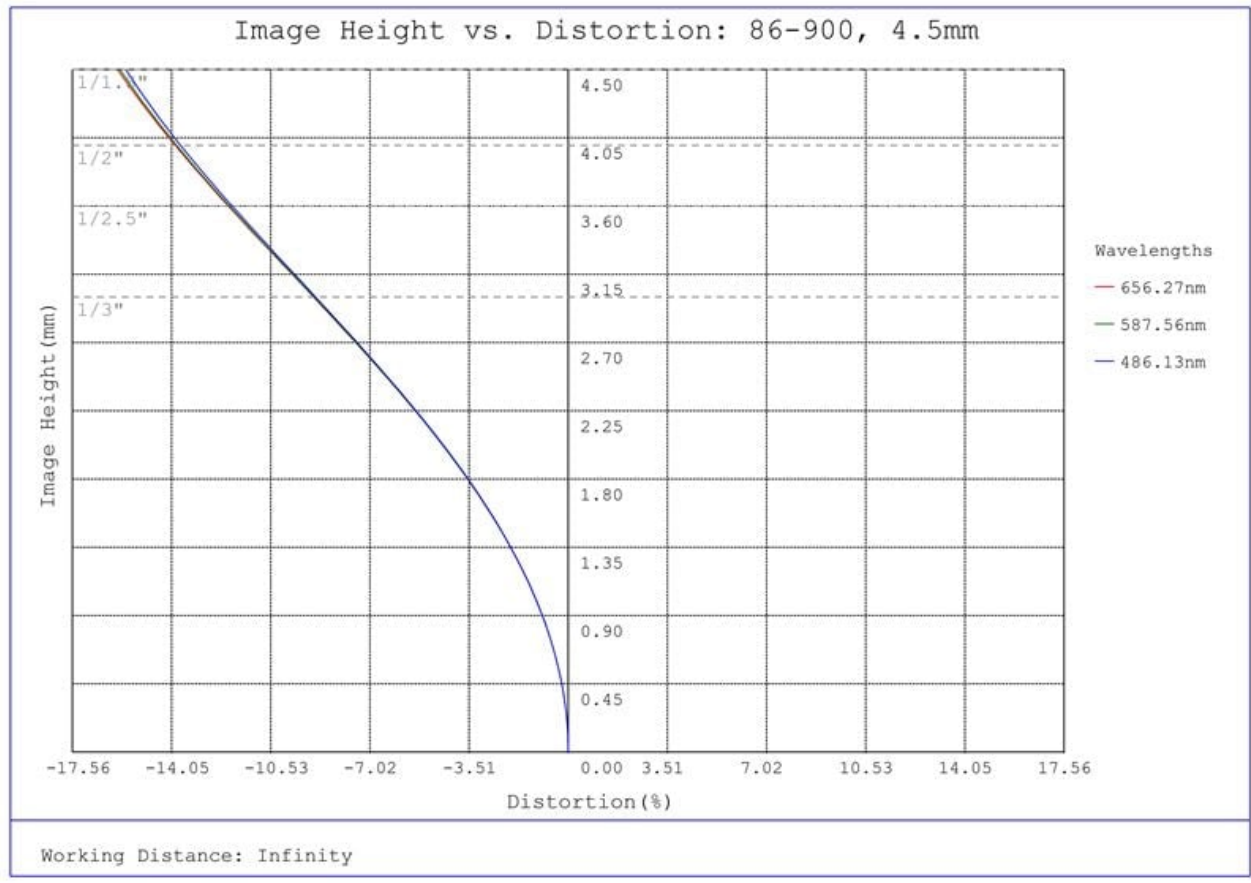
Threading & Mounting

Filter Thread:	M58 x 0.75 (Male)
----------------	-------------------

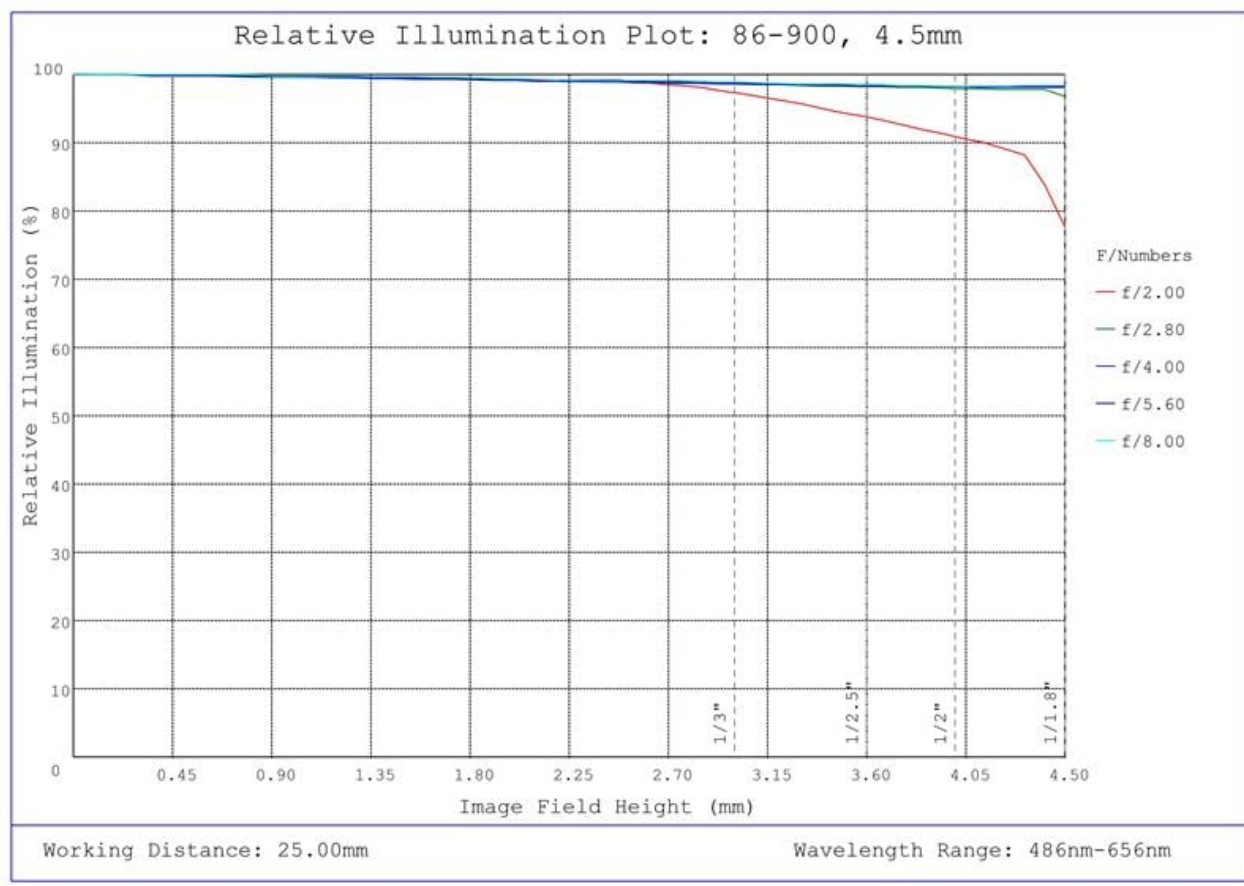
Filter Thread Adapter:	#87-425 (Required)
Front Thread:	M40 x 0.5 (Male)
Mount:	C-Mount

Environmental & Durability Factors

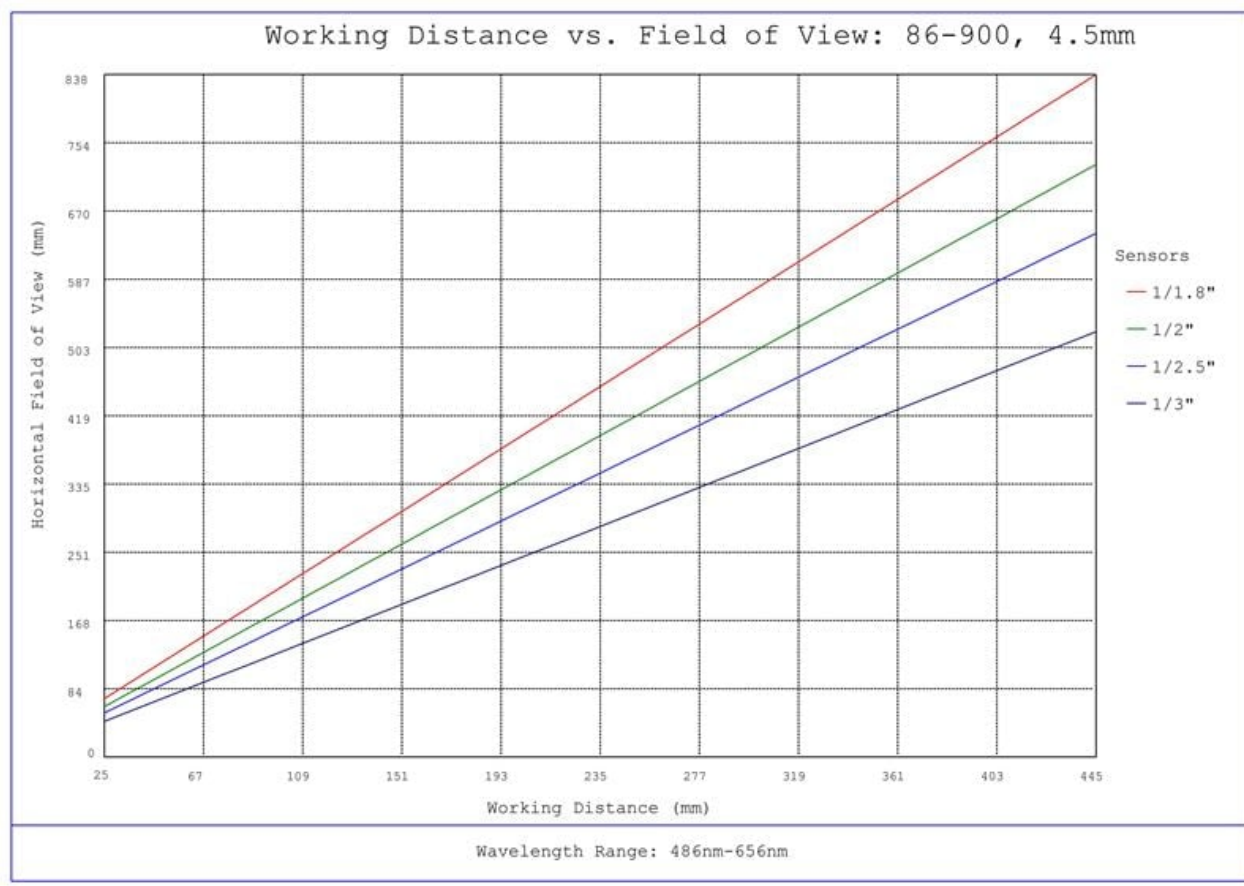
Storage Temperature (°C): -20 to +60 For questions regarding operating temperature please contact our support team



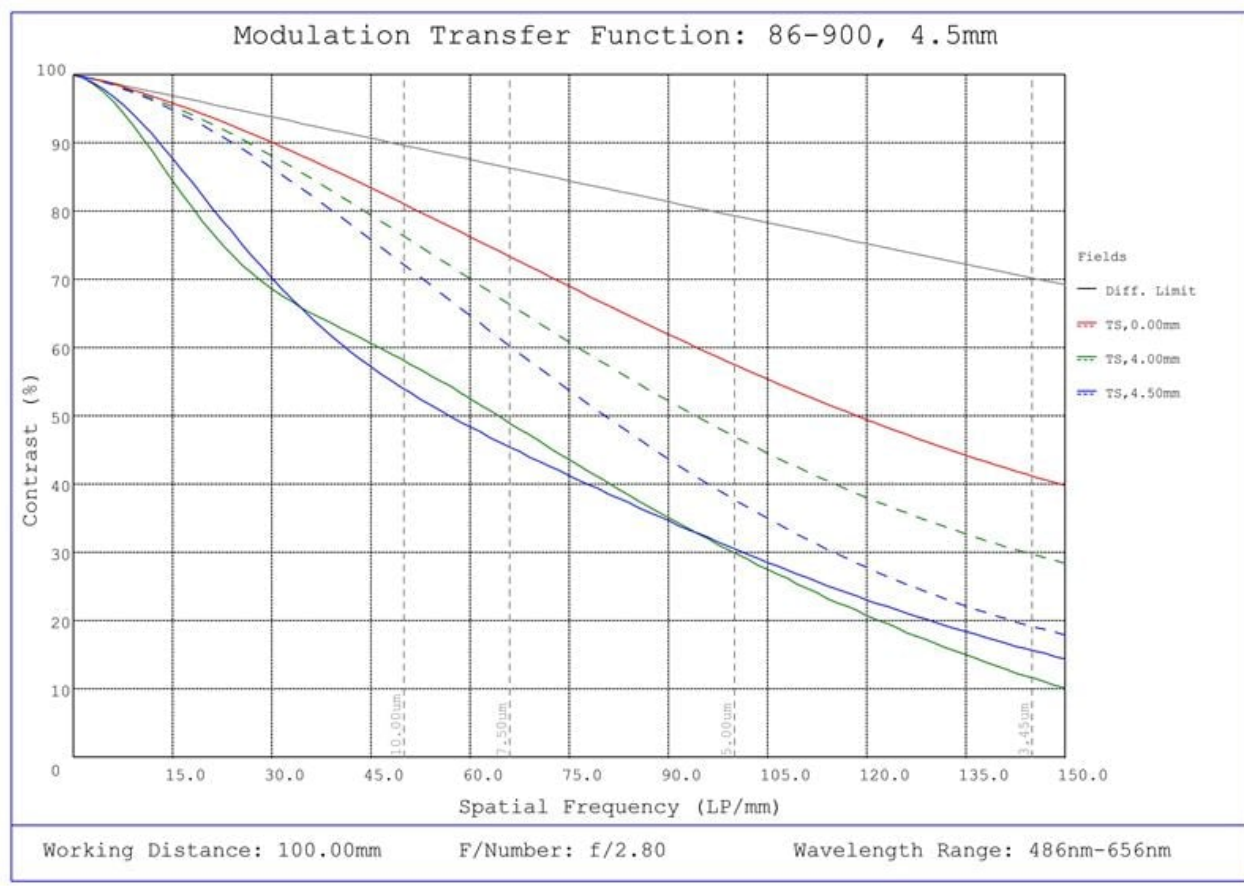
#86-900, 4.5mm C Series Fixed Focal Length Lens, Distortion Plot



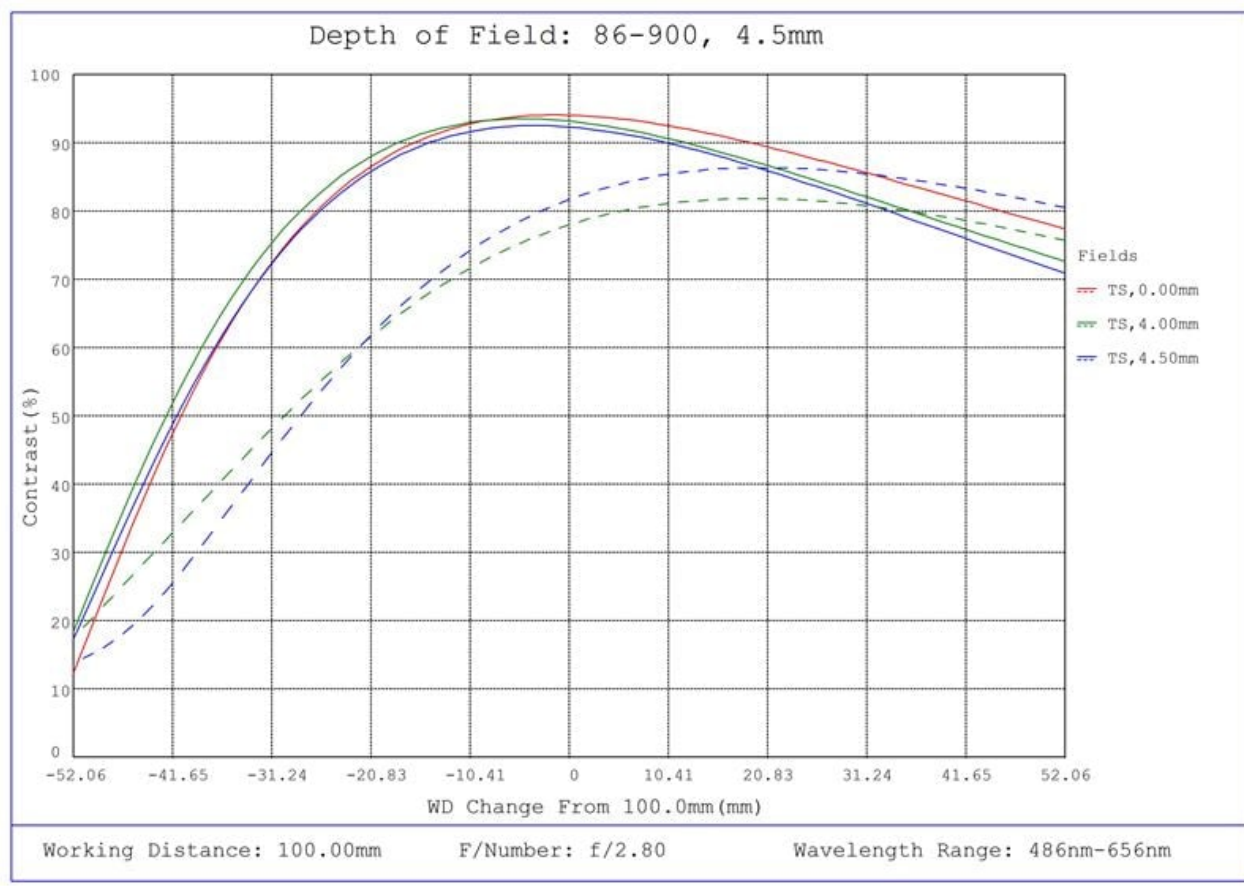
#86-900, 4.5mm C Series Fixed Focal Length Lens, Relative Illumination Plot



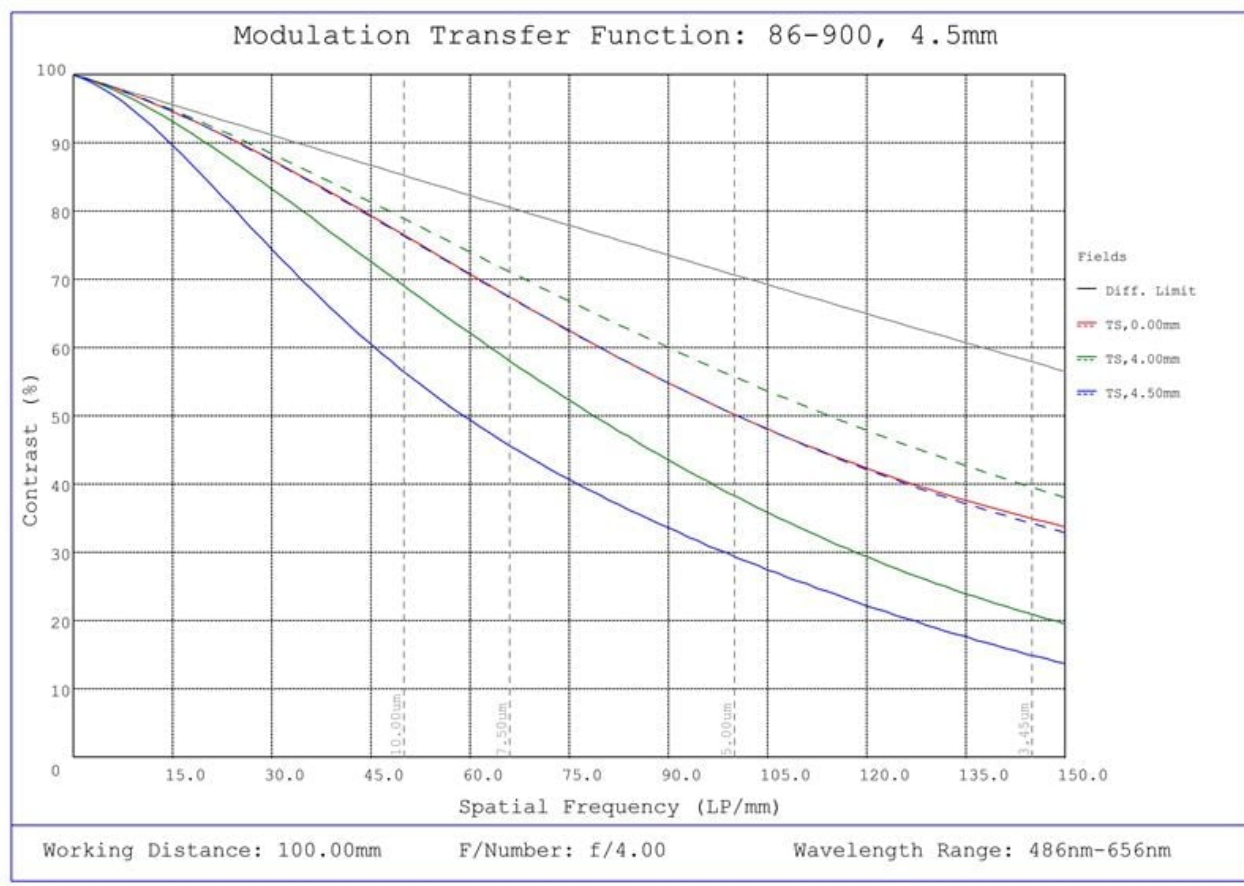
#86-900, 4.5mm C Series Fixed Focal Length Lens, Working Distance versus Field of View Plot



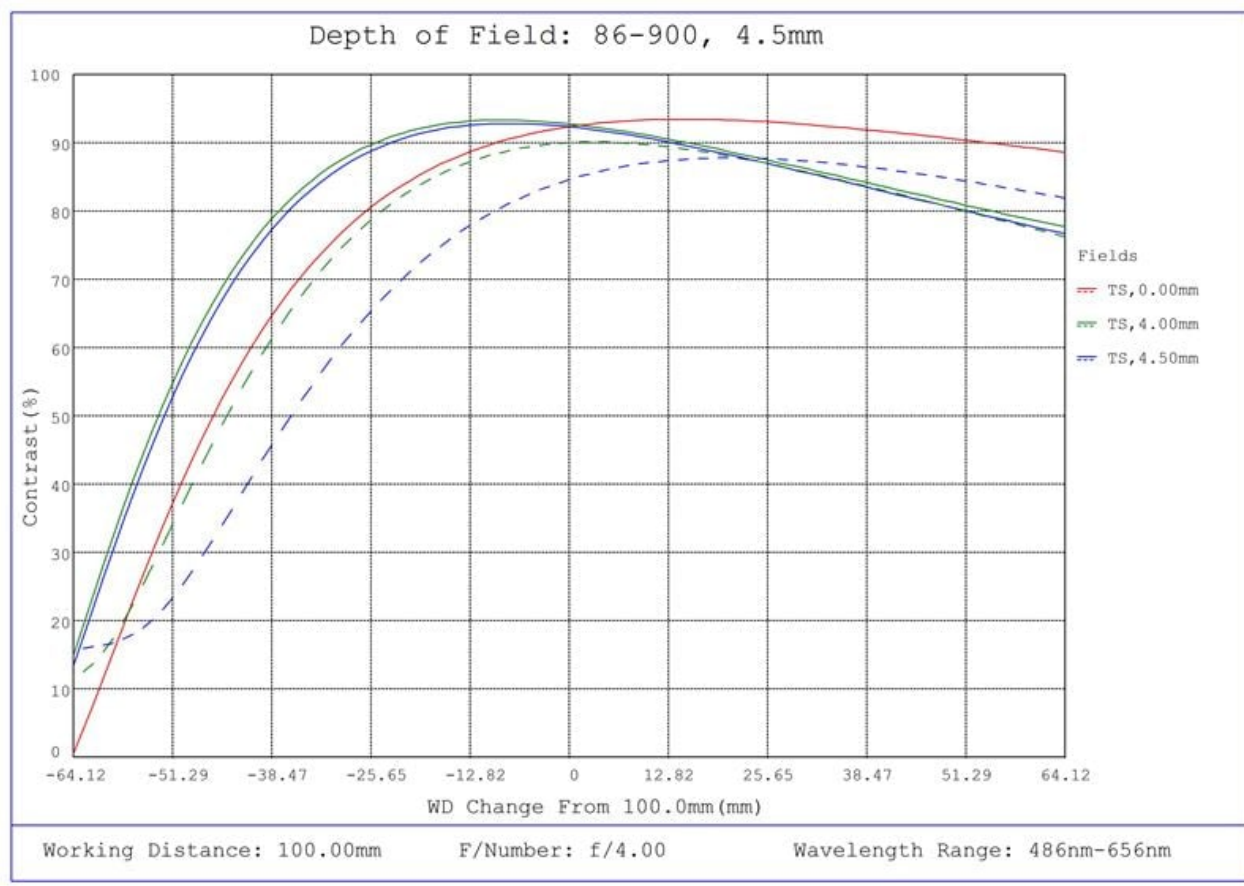
#86-900, 4.5mm C Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 100mm Working Distance, f2.8



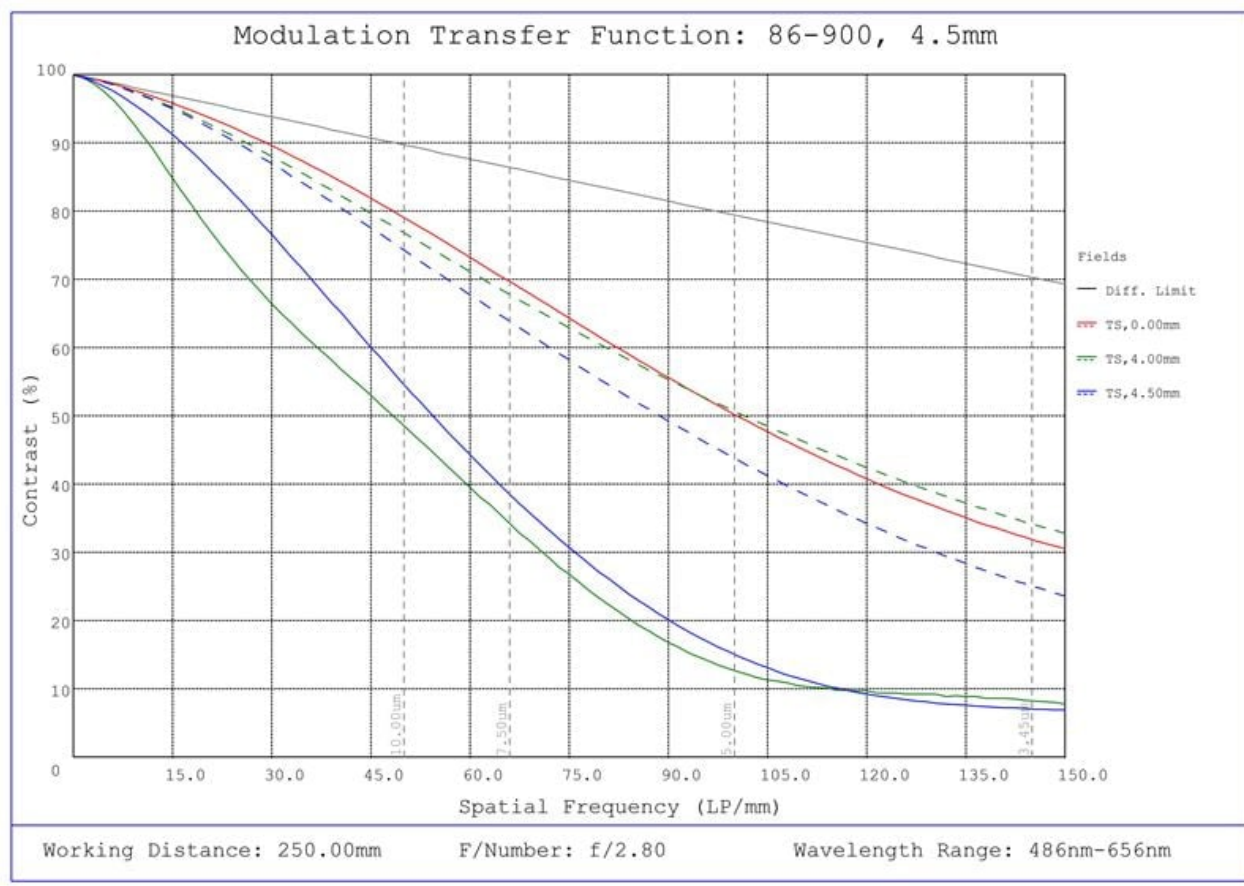
#86-900, 4.5mm C Series Fixed Focal Length Lens, Depth of Field Plot, 100mm Working Distance, f2.8



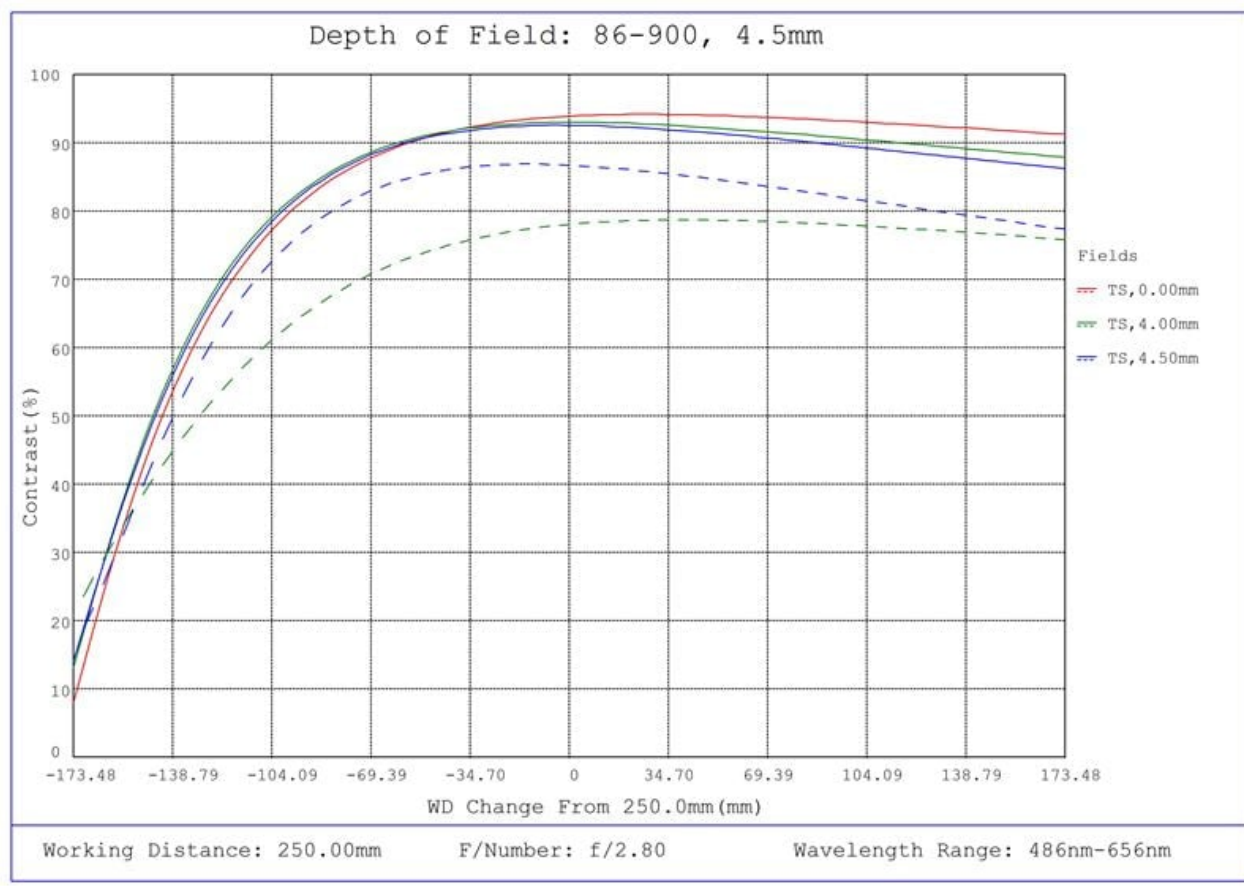
#86-900, 4.5mm C Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 100mm Working Distance, f4



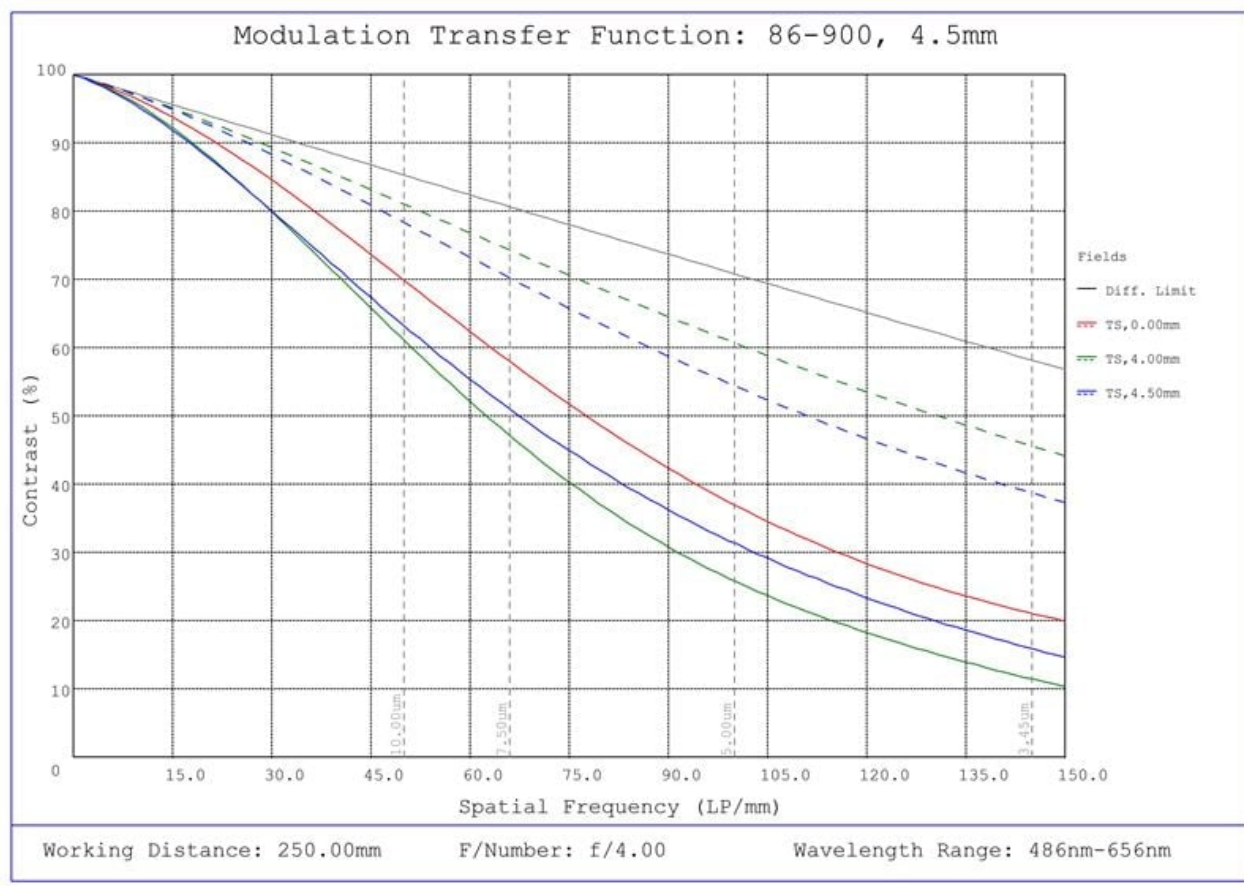
#86-900, 4.5mm C Series Fixed Focal Length Lens, Depth of Field Plot, 100mm Working Distance, f4



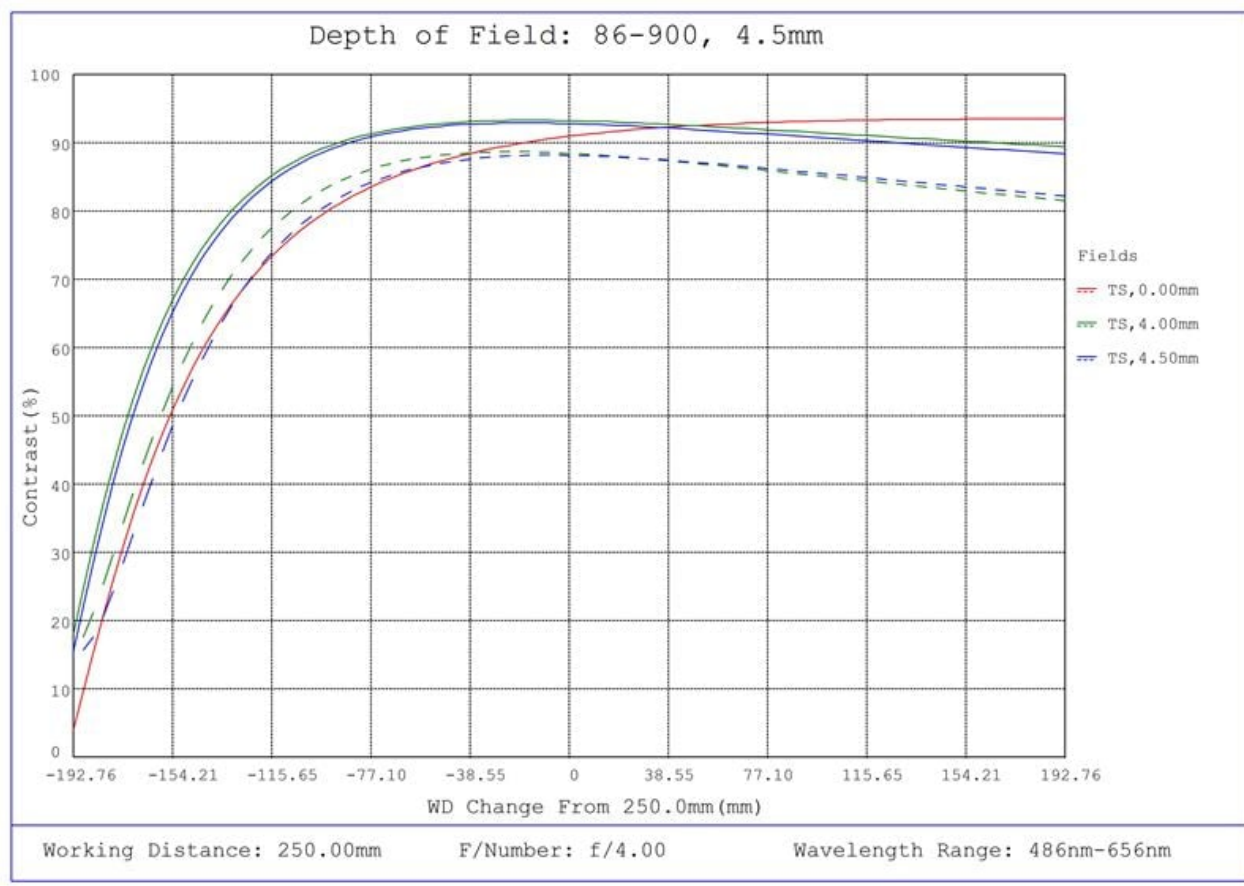
#86-900, 4.5mm C Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 250mm Working Distance, f2.8



#86-900, 4.5mm C Series Fixed Focal Length Lens, Depth of Field Plot, 250mm Working Distance, f2.8



#86-900, 4.5mm C Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 250mm Working Distance, f4



#86-900, 4.5mm C Series Fixed Focal Length Lens, Depth of Field Plot, 250mm Working Distance, f4



April 12, 2025

To Whom It May Concern,

This document certifies that the product stated below has been reviewed as requested by Edmund Optics:

Stock No.	Description
86-900	4.5mm C Series Fixed Focal Length Lens

This item is EU RoHS (2015/863/EU) compliant without the use of exemptions.

This certification means that:

- EO's suppliers have confirmed the material composition of this product.
- EO has implemented rigorous procedures to document this compliance.
- The information provided may, or may not, be based upon actual test data, or on information from our Vendors, Raw Material Suppliers or Subcontractors.



Jay Budd, Director of Corporate Compliance

April 12, 2025

Edmund Optics Inc. - 101 E Gloucester Pike, Barrington, NJ 08007 | 1-800-363-1992 | Compliance@edmundoptics.com

April 12, 2025

Stock No.	Description
86-900	4.5mm C Series Fixed Focal Length Lens

Edmund Optics certifies that all articles included in this shipment are in compliance with the terms and conditions of this order. The company also certifies that the articles included in this shipment are in accordance to all agreed upon specifications and quality assurance provisions. Please call 1-800-363-1992 should any questions arise from this shipment.



Jeff Harvey- EVP of Operations



April 12, 2025

To Whom It May Concern,

This document certifies that the product stated below has been reviewed as requested by Edmund Optics:

Stock No.	Description
86-900	4.5mm C Series Fixed Focal Length Lens

This item does not contain any of the substances listed on the Reach SVHC list as of 21 January 2025 in quantities exceeding 0.1% weight by weight.

Please note the following:

- Entry 11 of Annex V of the REACH regulation EC 1907/2006 as amended by regulation 987/2008, exempts "non-hazardous" glass components from registration.
- Items considered to be packing materials and which do not form part of, or are not required for the operation of, the product, are not considered to be within scope of this declaration.
- EO does not routinely analyze products for substances not purposely added or specified within the design specifications, drawings and assembly procedures.

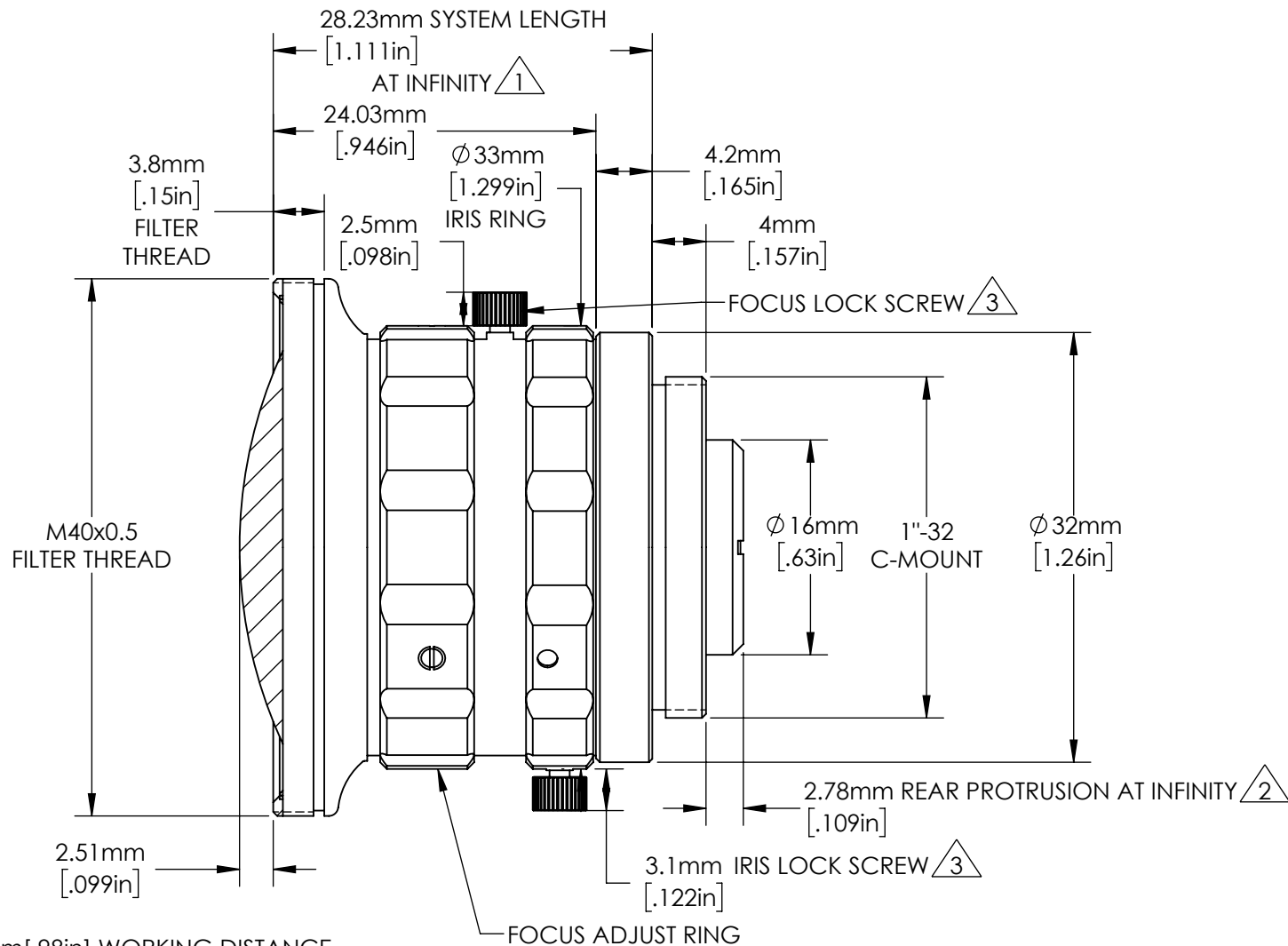
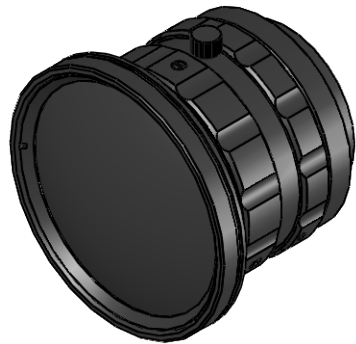
This certification means that:

- EO's suppliers have confirmed the material composition of this product.
- EO has implemented rigorous procedures to document this compliance.
- The information provided may, or may not, be based upon actual test data, or on information from our Vendors, Raw Material Suppliers or Subcontractors.



Jay Budd, Director of Corporate Compliance
April 12, 2025

Edmund Optics Inc. - 101 E Gloucester Pike, Barrington, NJ 08007 | 1-800-363-1992 | Compliance@edmundoptics.com



NOTES:

- ¹ 28.77mm[1.13in] @ 25mm[.98in] WORKING DISTANCE.
- ² 2.24mm[.09in] REAR PROTRUSION @ 25mm[.98in] WORKING DISTANCE.
- ³ OPTIONAL RECESSED SET SCREW INCLUDED.
- ⁴ LENS MAY MOVE MORE THAN INDICATED UNTIL IT REACHES INTERNAL STOPS.

**FOR INFORMATION ONLY:
DO NOT MANUFACTURE
PARTS TO THIS DRAWING**

SPECIFICATIONS SUBJECT TO CHANGE
WITHOUT NOTICE.
DIMENSIONS ARE FOR REFERENCE ONLY.
FOR DETAILED SPECIFICATIONS,
PLEASE REFER TO THE SPEC SHEET.

Edmund Optics®

TITLE 4.5mm C Series Fixed Focal Length Lens

DWG NO 86900

SHEET
1 OF 1

Enable 3D View