

# ***Nikon Rayfact***

Tochigi Nikon Industrial Lens

TOCHIGI NIKON CORPORATION  
Marketing Sec.  
Industrial Equipment Dept.

## Nikon Rayfact IL Series

### ▪ Features

- Compatible with EL•Nikkor40mmF4N, 50mmF2.8N, 63mmF2.8N and 75mmF4N
- Lineup : 4 models
- New product release : 「NikonRayfactIL95mmF5.6N」
  - \* 4 models cover a wide range of magnification (0.25x ~ 2.0x)
  - \* Image size  $\phi$ 90mm (The largest image size in our standard models)
- Minimal chromatic aberration in the range of 380nm – 700nm.
- Aperture ring lockable screw for easy use.
- RoHS compliant.

### ▪ Applications

- CCD camera photographing. (Both line and area sensor cameras)
- Printed materials inspection.
- Fine pattern inspection – e.g. PCB.
- Fine pattern inspection and detecting defects – e.g. TAB, sheets.

## NikonRavfactIL40mm (Build-to-order product)

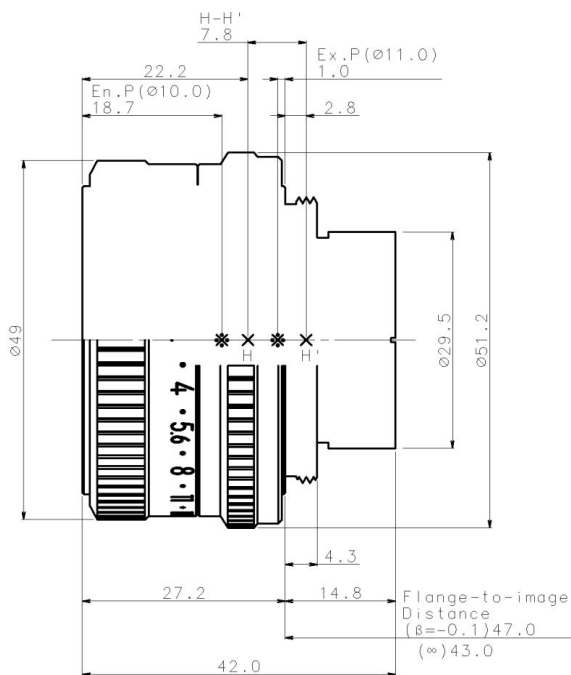


### Specifications

Model	PF4040ML
Focal length	40.1mm
F Number ( $\infty$ )	F4
NA (Diaphragm open)	0.011
Magnification scale	-0.1x
Magnification range	-0.033x ~ -0.2x
Reference wavelength	587.56nm (d-line)
Wavelength range	380 ~ 700nm
Picture angle	52.2° $\times$ 1
Image size	43.2mm $\phi$
Object Size	432.0mm $\phi$ $\times$ 1
Distortion	-0.27% $\times$ 1
Relative illumination	55.3%
Aperture scale	4.5, 6.8, 11, 16, 22 (1/2 dials with a finger stop)
Object-to-image distance	493.7mm $\times$ 1
Working distance	419.5mm $\times$ 1
Mount size	d=39mm 1/P=26 (Leica)
Flange-to-image distance	47.0mm $\times$ 1
Back focus	33.0mm $\times$ 1
Attachment size	M40.5 (P=0.5)
Diameter/length	51.2mm $\phi$ $\times$ 42mm $\times$ 2
Weight	Approximately 125g

$\times$ 1 Data : Magnification 0.1x, F4,  $\phi$  43.2mm

$\times$ 2 Dimension excludes protrusion of screws or other convex parts.



## NikonRavfactIL50mmF2.8N



### Specifications

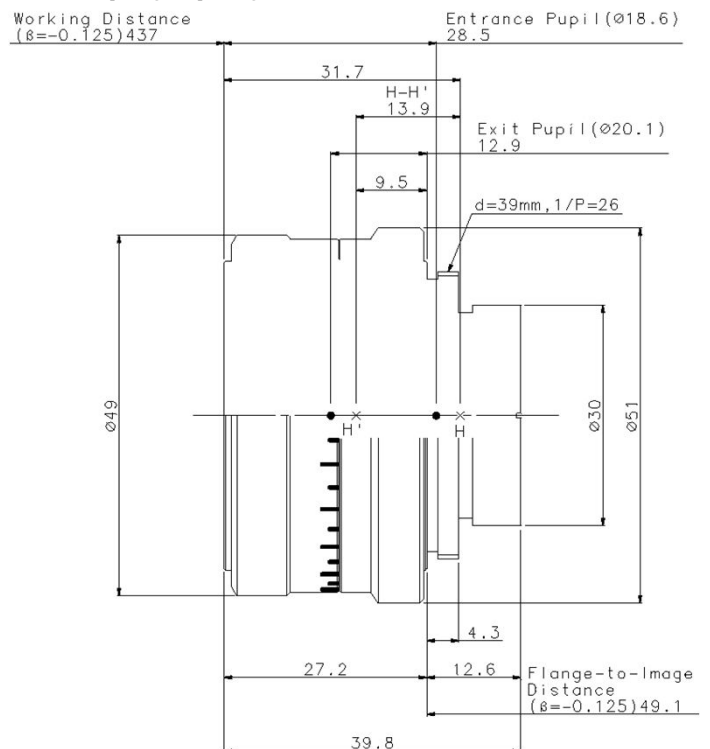
Model	PFM0125020ML
Focal length	52.1mm
F Number ( $\infty$ )	F2.8
NA (Diaphragm open)	0.02
Magnification scale	-0.125x
Magnification range	-0.05x ~ -0.5x
Reference wavelength	587.56nm (d-line)
Wavelength range	380 ~ 700nm
Picture angle	41°
Image size	43.2mm $\phi$
Object Size	345.6mm $\phi$ $\times$ 1
Distortion	-0.48% $\times$ 1
Relative illumination	47.7% $\times$ 1
Aperture scale	2.8, 4.5, 6.8, 11, 16 (With a finger stop $\times$ 2)
Object-to-image distance	513.3mm $\times$ 1
Working distance	437.0mm $\times$ 1
Mount size	d=39mm 1/P=26 (Leica)
Flange-to-image distance	49.1mm $\times$ 1
Back focus	37.7mm $\times$ 1
Attachment size	M40.5 (P=0.5)
Diameter/length	51mm $\phi$ $\times$ 39.8mm $\times$ 2
Weight	Approximately 135g

$\times$ 1 Data : Magnification 0.125x, F2.8,  $\phi$  43.2mm

$\times$ 2 Dimension excludes protrusion of screws or other convex parts.

$\times$ 3 Diaphragm shows by index only - no numerical indication.

(Diaphragm opening index indicated)



• Specifications unless any specific instructions are stated is at the standard magnification.

• Specifications are subject to change without prior notice.

## NikonRavfactIL63mmF2.8N



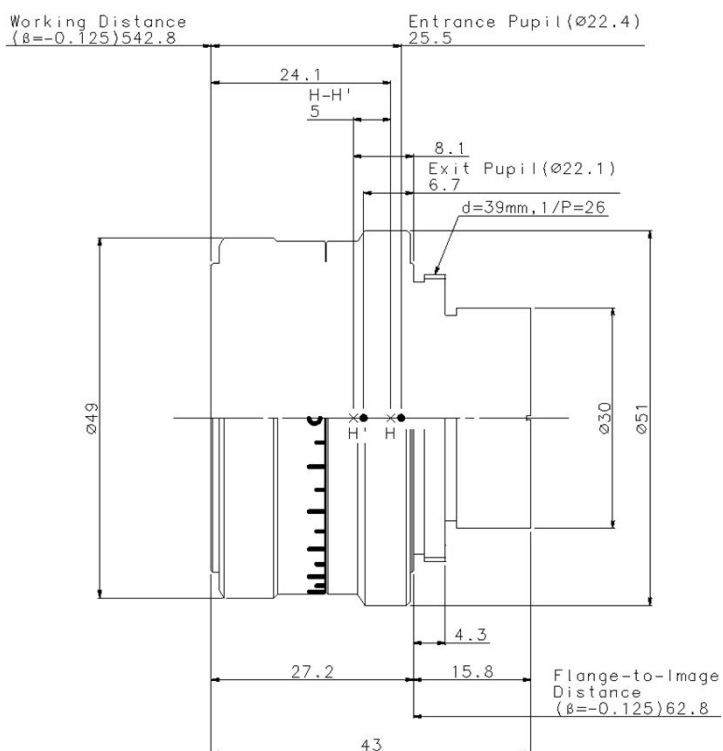
### Specifications

Model	OFM0125020ML
Focal length	63.0mm
F Number ( $\infty$ )	F2.8
NA (Diaphragm open)	0.02
Magnification scale	-0.125x
Magnification range	-0.05x ~ -0.5x
Reference wavelength	587.56nm (d-line)
Wavelength range	380 ~ 700nm
Picture angle	44.4° ※1
Image size	58mm $\phi$
Object Size	464mm $\phi$ ※1
Distortion	+0.12% ※1
Relative illumination	39.3%
Aperture scale	2.8, 4, 5, 6, 8, 11, 16 (With a finger stop ※2)
Object-to-image distance	632.8mm ※1
Working distance	542.8mm ※1
Mount size	d=39mm 1/P=26 (Leica)
Flange-to-image distance	62.8mm ※1
Back focus	48.2mm ※1
Attachment size	M40.5(P=0.5)
Diameter/length	51mm $\phi$ × 43mm ※2
Weight	Approximately 150g

※1 Data : Magnification 0.125x, F2.8,  $\phi$  58mm

※2 Dimension excludes protrusion of screws or other convex part.

※3 Diaphragm shows by index only - no numerical indication.  
(Diaphragm opening index indicated)



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\*Specifications are subject to change without prior notice.

## NikonRavfactIL75mmF4N



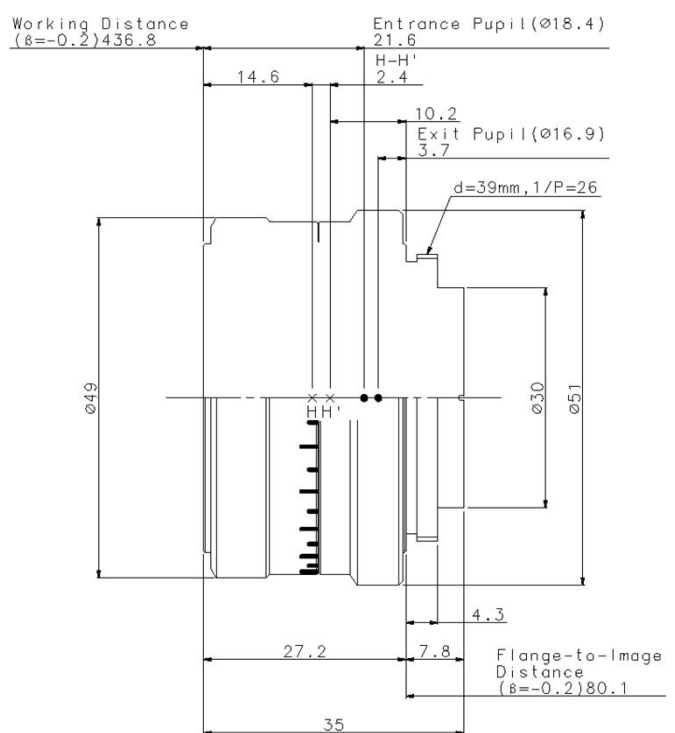
### Specifications

Model	OFM0200020ML
Focal length	75.2mm
F Number ( $\infty$ )	F4
NA (Diaphragm open)	0.021
Magnification scale	-0.2x
Magnification range	-0.1x ~ -0.5x
Reference wavelength	587.56nm (d-line)
Wavelength range	380 ~ 700nm
Picture angle	47.81° ※1
Image size	80mm $\phi$
Object Size	400.0mm $\phi$ ※1
Distortion	-0.04% ※1
Relative illumination	30.2% ※1
Aperture scale	4, 5, 6, 8, 11, 16, 22 (With a finger stop ※2)
Object-to-image distance	544.1mm ※1
Working distance	436.8mm ※1
Mount size	d=39mm 1/P=26 (Leica)
Flange-to-image distance	80.1mm ※1
Back focus	76.5mm ※1
Attachment size	M40.5(P=0.5)
Diameter/length	51mm $\phi$ × 35mm ※2
Weight	Approximately 120g

※1 Data : Magnification 0.2x, F4,  $\phi$  80mm

※2 Dimension excludes protrusion of screws or other convex part.

※3 Diaphragm shows by index only - no numerical indication.  
(Diaphragm opening index indicated)



# NikonRayfactIL63mm(F)



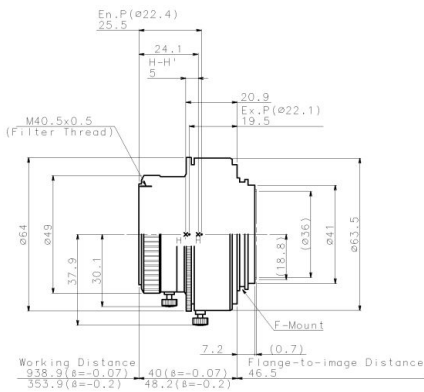
Model: OFM0125020MF-B

Model: OFM0125020MF-T

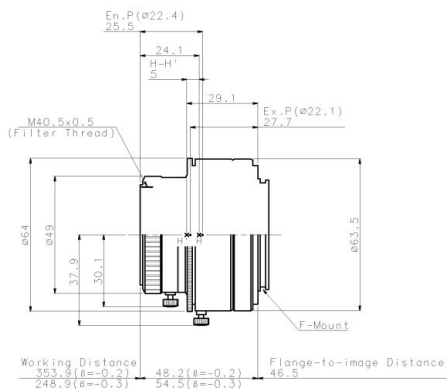
## Specifications

Model	OFM0125020MF-B	OFM0125020MF-T
Focal length	63.0mm	
F Number ( $\infty$ )	F2.8	
NA (Diaphragm open)	0.02 (-0.125x)	0.03 (-0.2x)
Magnification scale	-0.125x	
Magnification range	-0.07x~-0.2x	-0.2x~-0.3x
Reference wavelength	587.56nm (d-line)	
Wavelength range	380~700nm	
Picture angle	-	
Image size	55.2mm $\phi$	
Object Size	788.6mm $\phi$ ~ 276mm $\phi$	276mm $\phi$ ~ 184mm $\phi$
Distortion	-	
Relative illumination	-	
Aperture scale	2.8,4,5.6,8,11,16 (1/2 dials with a finger stop)	
Object-to-image distance	-	
Working distance	-	
Mount size	F Mount	
Flange-to-image distance	46.5mm	
Back focus	-	
Attachment size	M40.5(P=0.5)	
Diameter/length	64mm $\phi$ × 47.2mm ※1	64mm $\phi$ × 52.7mm ※1
Weight	Approximately 270g	Approximately 295g

※1 Dimension excludes protrusion of screws or other convex part.  
 (OFM0125020MF-B=-0.07x OFM0125020MF-T=-0.2x)



Model: OFM0125020MF-B



Model: OFM0125020MF-T

- Specifications unless any specific instructions are stated is at the standard magnification.
- Specifications are subject to change without prior notice.

# NikonRayfactIL95mmF5.6N



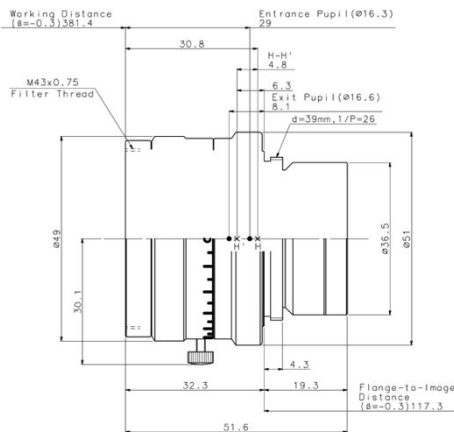
## Specifications

Model	OFM0300020ML	OFM0600033ML	OFM1000044ML	OFM0600033ML
Magnification range	-0.25x~ -0.5x	-0.5x~ -0.75x	-0.75x~ -1.25x	-1.25x~ -2.0x
Magnification scale	-0.3x	-0.6x	-1.0x	-1.66x
Focal length	95.1mm	95.6mm	95.6mm	95.6mm
F Number (∞)	F5.6			
NA (Diaphragm open)	0.021	0.033	0.045	0.056
Reference wavelength	587.56nm (d-line)			
Wavelength range	380nm~700nm			
Picture angle	40.2°	32.8°	26.4°	20.0°
Image size	90.0mm φ			
Object Size ※1	300mm φ	150mm φ	90.0mm φ	54.0mm φ
Distortion ※1	-0.11%	+0.08%	0.00%	-0.03%
Relative illumination ※1	54.2%	69.9%	81.27%	91.4%
Aperture scale	Index (no numeric indication) : at 5.6,8,11,16,22,32(click stop index half aperture)			
Object-to-image distance ※1	531.0mm	402.9mm	377.4mm	402.9mm
Working distance ※1	381.4mm	255.7mm	161.9mm	125.6mm
Mount size	d=39mm 1/P=26 (Leica)			
Flange-to-image distance ※1	117.3mm	144.8mm	183.2mm	225.7mm
Attachment size	M43(P=0.75)			
Diameter/length	51.0mm φ × 51.6mm	51.0mm φ × 51.55mm	51.0mm φ × 51.4mm	51.0mm φ × 51.55mm
Weight	Approximately 120g	Approximately 120g	Approximately 120g	Approximately 120g

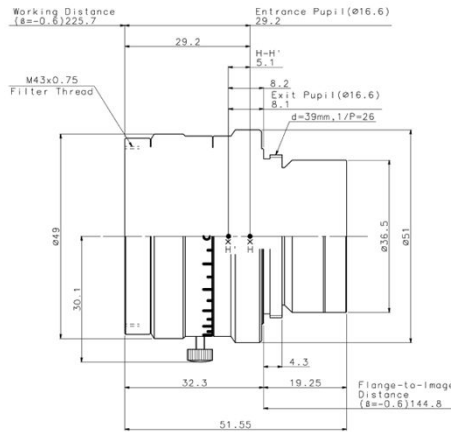
※1 Data : Standard magnification -0.3x, -0.6x, -1.0x, -1.66x F5.6, φ 90mm

※2 Diaphragm shows by index only - no numerical indication.  
(Diaphragm open index indicated)

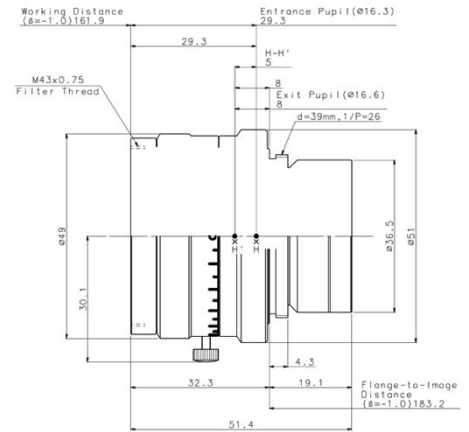
※3 Magnification -1.66x : To use -0.6x lens at the reverse side.  
Lens mount → To use the filter attachment (magnification at -0.6x).



OFM0300020ML



OFM0600033ML



OFM1000044ML

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