

## V-Mount Macro Lens

### Apo-Componon 4.5/90-0025

Unlike conventional camera lenses where the optical performance decreases as the magnification increases, Schneider-Kreuznach macro lenses have been developed and corrected exclusively for the close-up range of 1:20 to 1:1. Due to its mechanical stability and the robust V-mount interface enabling simpler adjustment of the best azimuth position, the system is exceptionally well suited to demanding, continuous industrial use.



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#### Key Features

- Excellent optical imaging performance when using large sensors
- Vibration-insensitive for stable optical performance
- Industry-compatible V-mount interface
- Lockable distance and aperture settings
- Continuous aperture adjustment, guaranteed long-term stability
- 100% quality control guarantees reliability and constant quality
- Low maintenance requirements, therefore high system reliability

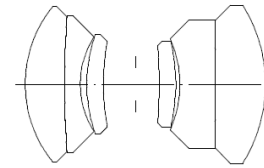
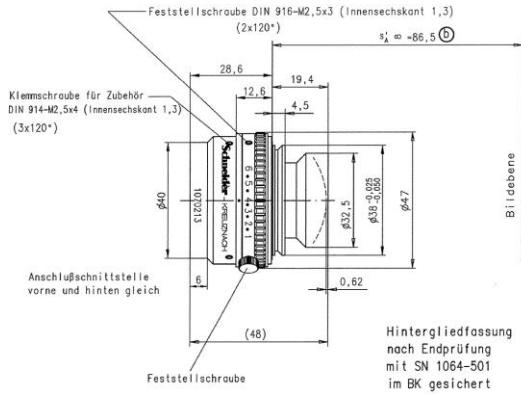
#### Applications

- Machine Vision and other imaging applications
- PCB inspection
- LCD inspection
- OLED inspection
- Solar inspection

#### Technical Specifications

F-number	4.5
Focal length	91.2 mm
Image circle	87.8 mm
Magnification	1:20 to 1:1, optimized for -0.17
Transmission	400 - 700 nm
Interface	V38-Mount
Weight	135 gr.
Filter tread	M37 x 0.75
Code no.	1070213

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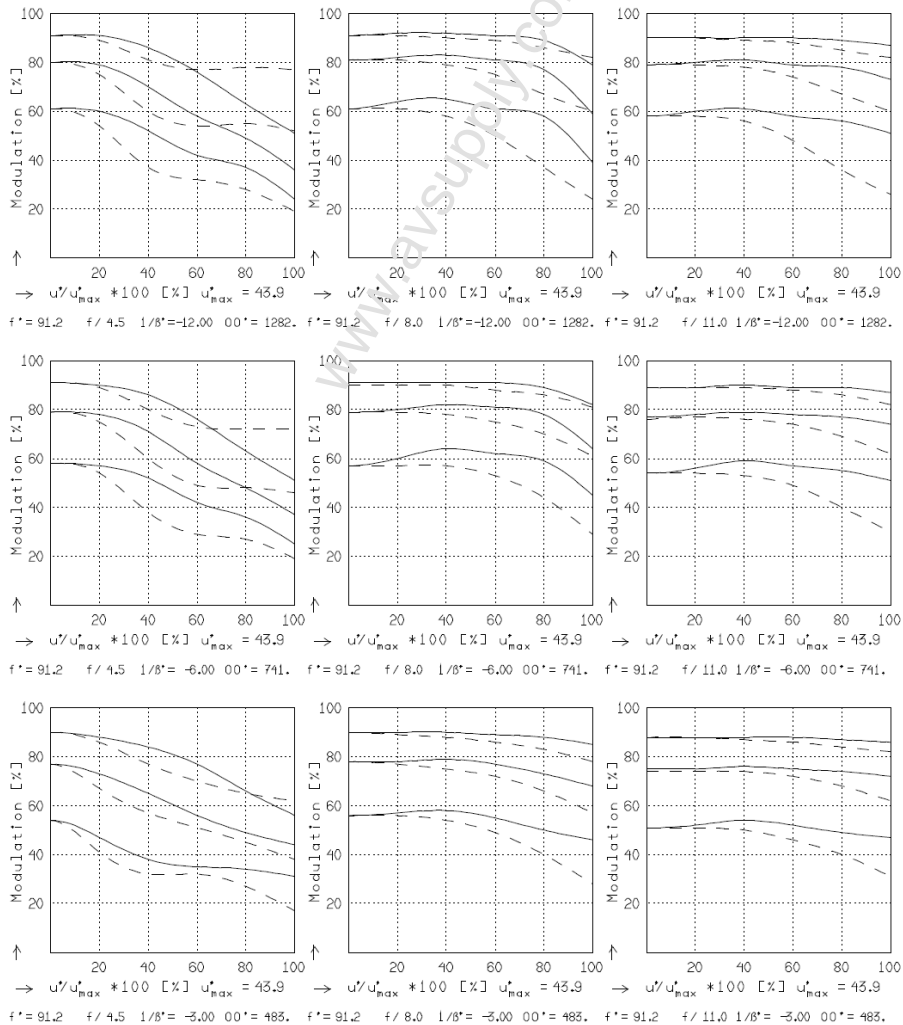
**R4839.3 APO-CPN 4.5/90**

$f^*$ = 91.2 mm	$\beta_p$ = 1.014
$s_F$ = -67.5 mm	$s_{EP}$ = 22.4 mm
$s_F^*$ = 67.8 mm	$s_{AP}^*$ = -24.7 mm
$HH^*$ = -3.6 mm	$\Sigma d$ = 43.5 mm

### R4839.3 APO-CPN 4.5/90

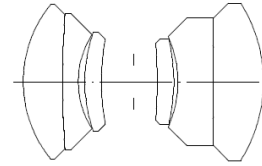
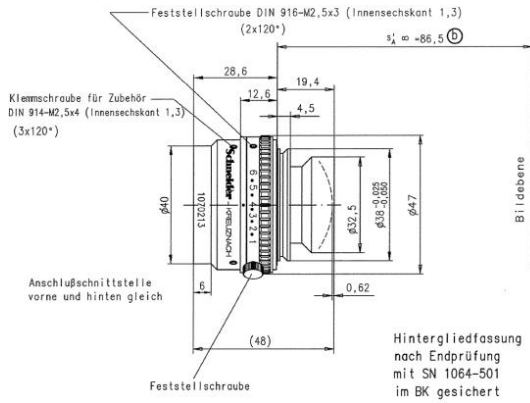
MODULATION with reference to the relative image height

Wavelength $\lambda$	[nm]	546	706	644	480	436	405
Spectral weighting	[%]	27.4	12.4	24.1	18.3	12.6	5.2
Spatial frequency R	[l/mm]	10	20	40			
Format	[mm X mm]	0.0	0.0				
Diagonal $2u'$	[mm]	87.9					



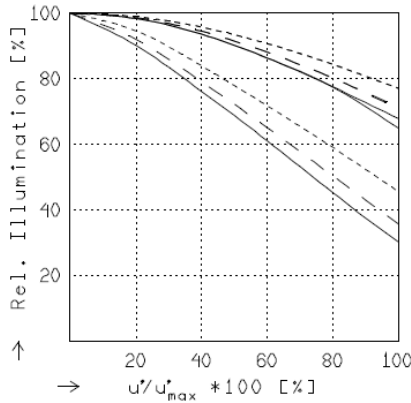
Focusing :  $MTF_{max}$  at  $f / 4.5$  ,  $R = 50$  l/mm,  $u'/u'_{max} = 0$

## Apo-Componon 4.5/90



**R4839.3 APO-CPN 4.5/90**

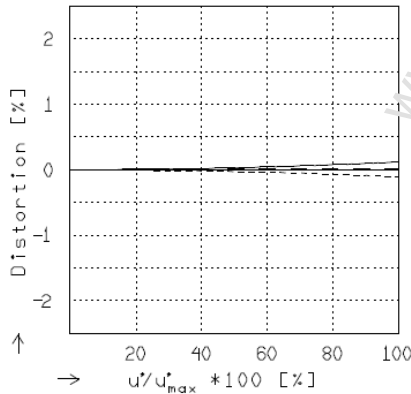
$f^* = 91,2 \text{ mm}$	$\beta_p^* = 1,014$
$s_F = -67,5 \text{ mm}$	$s_{EP} = 22,4 \text{ mm}$
$s_F^* = 67,8 \text{ mm}$	$s_{AP}^* = -24,7 \text{ mm}$
$HH^* = -3,6 \text{ mm}$	$\Sigma d = 43,5 \text{ mm}$



### RELATIVE ILLUMINATION

The relative illumination is shown for the given focal distances or magnifications.

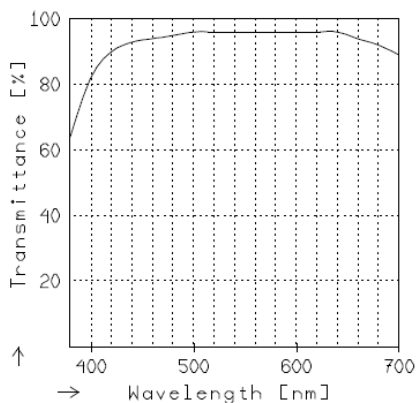
	$f / 4,5$	$f / 8,0$	$f / 11,0$
— $\beta^* = -0,0833$	$u'_{max} = 44,0$	$00^* = 1282$	
- - $\beta^* = -0,1667$	$u'_{max} = 43,9$	$00^* = 741$	
--- $\beta^* = -0,3330$	$u'_{max} = 43,9$	$00^* = 483$	



### DISTORTION

Distortion is shown for the given focal distances or magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

— $\beta^* = -0,0833$	$u'_{max} = 43,9$	$00^* = 1282$
- - $\beta^* = -0,1667$	$u'_{max} = 43,9$	$00^* = 741$
--- $\beta^* = -0,3330$	$u'_{max} = 43,9$	$00^* = 483$



### TRANSMITTANCE

Relative spectral transmittance is shown with reference to wavelength.