

# Basler Lenses



- Basler Original Equipment 5 MP lens - optimized for 1/2.5" sensors with high resolution of 2.2  $\mu\text{m}$  [230 lp/mm]
- Basler 2 MP lens - good fit for sensors up to 2/3" with a large pixel size of 5.5  $\mu\text{m}$  [90 lp/mm]
- Best match for sensor technologies with small and large pixel pitch
- Ideal performance for versatile machine vision applications
- Best price/performance ratio

# OVERVIEW

## Get Perfectly Proportioned Performance with Basler Lenses

Advances in the machine vision camera market have brought a host of technological improvements, but have also made the decision-making process more complex. New technologies have enabled smaller and smaller CMOS sensors on the one hand, and bigger sensors with higher resolutions on the other. How can you be sure you are taking advantage of the latest cost-saving developments in sensor technology? The answer is simple. Match the size and resolution of your lens with the right Basler lens series for your application.



### Basler Lenses 1/2.5"

The ideal match for sensors smaller than 1/2" is the **Basler Original Equipment** lens line of high performance lenses. Specially designed for Basler cameras, these lenses deliver exceptionally high resolution and facilitate a sharp image from the center of the frame to the corners.

#### Highlights of the Basler Lenses 1/2.5"

- Exceptionally high resolution of 5 MP to bring out the smallest details in your image
- An orange dot on the iris range indicates the optimal aperture to easily achieve the sharpest image
- Space-saving size
- Designed in cooperation with Fujinon, global leaders in optical manufacturing
- These Basler Lenses 1/2.5" are the perfect addition for Basler ace, dart and pulse cameras with sensors sized smaller than 1/2" and high resolution
- Basler Original quality promise

### Basler Lenses 2/3"

The standard Basler lens series for sensor sizes up to 2/3" is designed for bigger sensors and a common resolution of up to 2 MP. Thus, they are particularly suitable for applications where a lower resolution is sufficient. Moreover, with their excellent price/performance ratio, they enable a cost-effective vision system.

#### Highlights of the Basler Lenses 2/3"

- Suitable resolution for cost efficient machine vision applications
- Optimized design focused on the most important features for quick and easy use
- Produced by a qualified, trusted lens manufacturer
- Basler Lenses 2/3" are a good match for Basler ace, dart and pulse cameras with sensors sized greater than 1/2" up to 2/3" and standard resolution of up to 2 MP

# TECHNICAL DETAILS



## Specifications

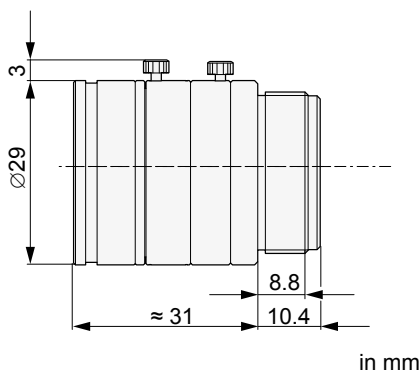
Basler Lenses 1/2.5"	C125-0418-5M	C125-0618-5M	C125-0818-5M	C125-1218-5M	C125-1620-5M	C125-2522-5M
Specifications						
Maximum image circle	1/2.5" (7.3 mm)					
Mount	C-Mount					
Focal length	4 mm	6 mm	8 mm	12 mm	16 mm	25 mm
Maximum relative aperture	1:1.8			1:2.0		1:2.2
Iris range	F1.8 - F22				F2.0 - F22	F2.2 - F22
Focus range	0.1m - ∞	0.1m - ∞	0.1m - ∞	0.2m - ∞	0.2m - ∞	0.2m - ∞
Focus control	manual					
Iris control	manual					
Angle of view, horizontal/vertical, 1/2.5"	76.4°/58.5°	53.1°/40.1°	39.6°/29.9°	27.0°/20.3°	20.3°/15.3°	13.0°/9.8°
Angle of view, horizontal/vertical, 1/3"	66.0°/49.9°	45.5°/34.1°	33.9°/25.4°	23.1°/17.2°	17.3°/12.9°	11.1°/8.3°
Wavelength range	400 - 700 nm					
TV Distortion	-5,9%	-3,3%	-1,6%	-0,7%	-0,3%	-0,2%
Filter size	M46×0.75*	M35.5×0.5*		M25.5×0.5		
Dimensions	31.3×Ø29 mm	30.6×Ø29 mm	29.8×Ø29 mm	40.8×Ø29 mm	41.2×Ø29 mm	41.0×Ø29 mm
Weight	55 g		65 g		60 g	
Operating temperature	-10 °C to +50 °C (14 °F to 122 °F)					

Specifications are subject to change without prior notice. Latest specifications can be found on our website [baslerweb.com/Basler-Lenses](http://baslerweb.com/Basler-Lenses)

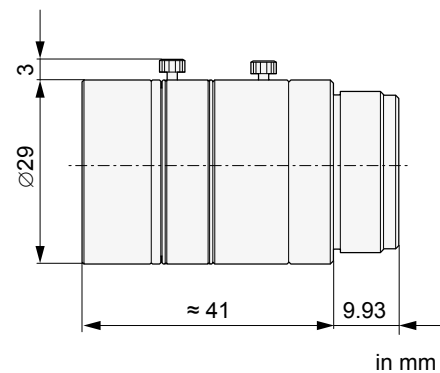
\* filter adapter required

## Dimensions (in mm)

Basler Lens with f = 4 mm, 6 mm, 8 mm



Basler Lens with f = 12 mm, 16 mm, 25 mm



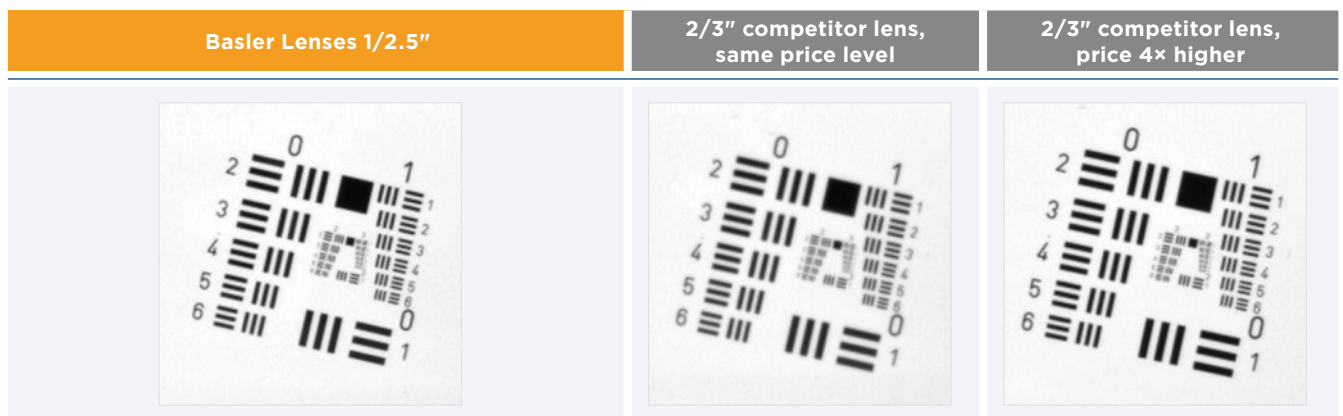
# TECHNICAL DETAILS

## Comparison Images

The following test images show the resolution of the Basler Lens compared to two competitor lenses.

Why is resolution such an important indicator for the performance of a lens? The resolution controls the amount of detail visible in the image. To achieve a high-quality image throughout the entire field of view, the resolution must be excellent from center to corners.

### CENTER OF 1/2.5" SENSOR



### CORNER OF 1/2.5" SENSOR



#### Test set-up:

Camera: acA2500-14gm (sensor: 5MP - MT9P031, pixel size 2.2  $\mu$ m)  
Focal length of lenses: 8 mm  
Test conditions: F# 2.8, exposure time 2.8 ms

# TECHNICAL DETAILS



## Specifications

Basler Lenses 2/3"	C23-0816-2M	C23-1216-2M*	C23-1616-2M*	C23-2518-2M	C23-3520-2M	C23-5026-2M
Specifications						
Maximum image circle	2/3" (11 mm)					
Mount	C-Mount					
Focal length	8.6 mm	12 mm	16 mm	25 mm	35 mm	50 mm
Maximum relative aperture	1:1.6	1:1.6	1:1.6	1:1.8	1:2.0	1:2.6
Iris range	F1.6 - F16	F1.6 - F16	F1.6 - F22	F1.8 - F16	F2.0 - F16	F2.6 - F32
Focus range	0.25 m - ∞	0.1 m - ∞	0.2 m - ∞	0.3 m - ∞	0.35 m - ∞	0.3 m - ∞
Focus control	manual					
Iris control	manual					
Angle of view horizontal/vertical, 2/3"	56°/43°	39°/30°	29.5°/22.6°	19°/14°	14°/10°	9.7°/7.3°
Angle of view horizontal/vertical, 1/1.8"	47°/36°	32.2°/24.4°	24.5°/18°	15.4°/11.6°	11.5°/8.7°	7.9°/5.9°
Wavelength range	400-700 nm					
TV distortion	-2.6 %	-0.21%	-0.5%	-0.25%	-0.19%	-0.04%
Filter size	M40.5×0.5	M27×0.5	M27×0.5	M27×0.5	M27×0.5	M30.5×0.5
Dimensions	58.6×Ø42mm	39.2×Ø35mm	42.4×Ø35mm	38.4×Ø35mm	39.2×Ø35mm	65.7×Ø35mm
Weight	136 g	97 g	104 g	83 g	81 g	110 g
Operating temperature	-10 °C to 60 °C (14 °F to 140 °F)					

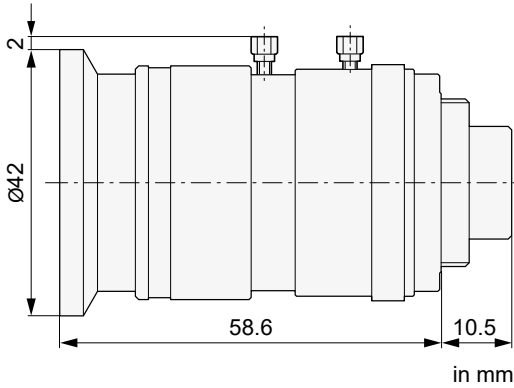
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\* vignetting visible

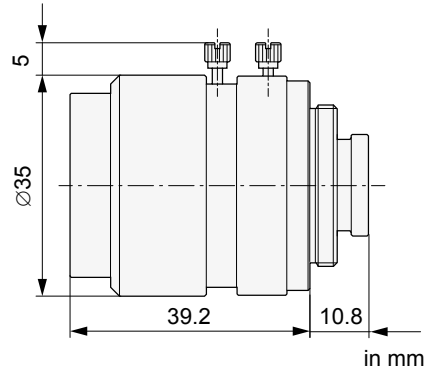
# TECHNICAL DETAILS

## Dimensions (in mm)

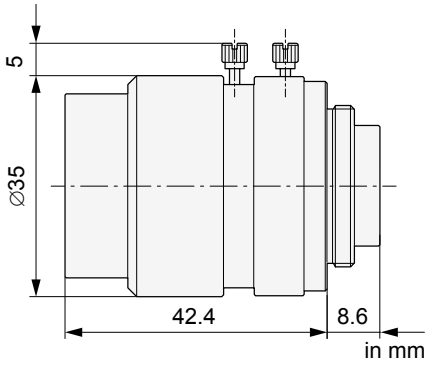
Basler Lens with  $f = 8.6$  mm



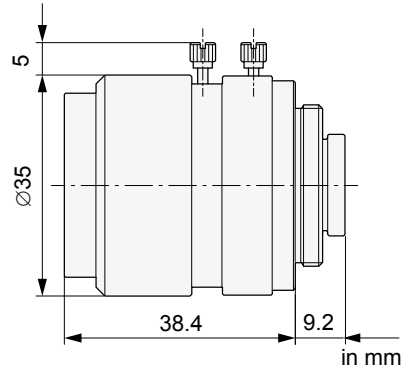
Basler Lens with  $f = 12$  mm



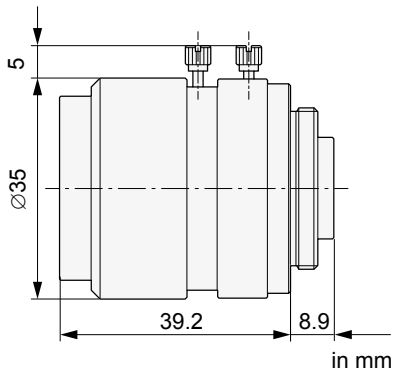
Basler Lens with  $f = 16$  mm



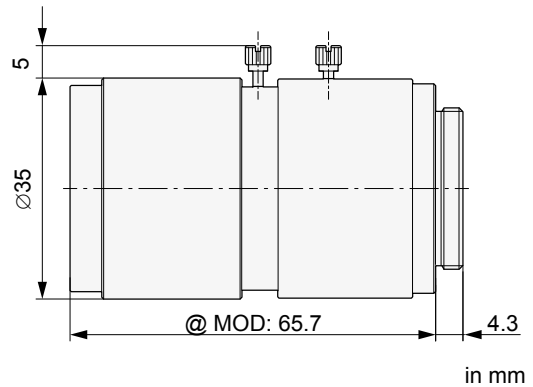
Basler Lens with  $f = 25$  mm



Basler Lens with  $f = 35$  mm



Basler Lens with  $f = 50$  mm



## OTHER INFORMATION

### Basler Original Equipment



The accessories market for machine vision cameras is broad and deep. Therefore, Basler offers products specially developed for our cameras, meaning camera and lens or cables harmonize perfectly with one another. The products are produced exclusively for us and are available only from Basler. All products with the Basler Original Equipment seal allow top performance when combined with Basler cameras.

### 3-Year Warranty

Basler offers a 3-year warranty for their cameras and Basler Lenses 1/2.5". We make this unprecedented promise because we have unparalleled confidence in our products. We continually reinvest in research, development and superior manufacturing capabilities so that our customers can fully rely on the products we manufacture.

### About Basler

Basler is a leading manufacturer of high-quality cameras and camera accessories for industry, medicine, traffic and a variety of other markets. The company's product portfolio encompasses area scan and line scan cameras in compact housing dimensions, camera modules in board level variants for embedded vision solutions, and 3D cameras. The catalog is rounded off by our user-friendly pylon SDK plus a broad spectrum of accessories, including several developed specially for Basler and optimally harmonized for our cameras.

Basler has three decades of experience in computer vision. The Basler Group is home to approximately 800 employees at its headquarters in Ahrensburg, Germany, and at other locations in Europe, Asia, and North America.



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