

COB Series Liquid Fixed-Focus Lenses New

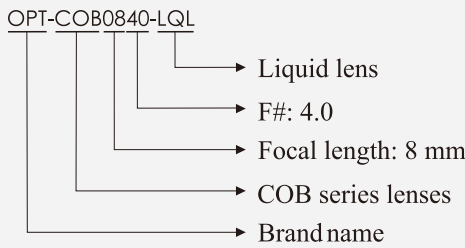


Product Features

- **Faster focus**
Can achieve dynamic autofocus, response time <4 ms, focus can be completed almost instantly.
- **High resolution**
The highest resolution is 145lp / mm, can match 3.45μm image size, maximum compatible with 2 / 3 " chip size camera^[1], focal length of 8 mm to 50 mm optional.
- **Repeatability stability**
The repeated adjustment of the liquid lens can be kept at + / -0.1 dpt.
- **Phase adjustable up to 360°**
The liquid lens digital I/O interface can rotate around the light by 360°, better accommodating applications with limited space.

[1] The sensor size of applicable cameras to OPT-COB0840-LQL and OPT-COB1240-LQL is up to 1/1.8".

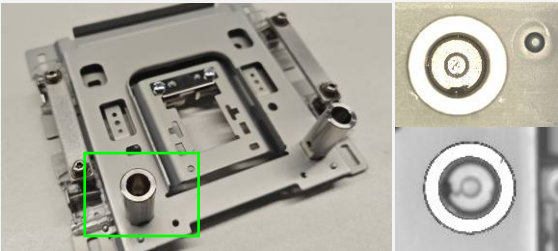
Selection Guide



Application Cases



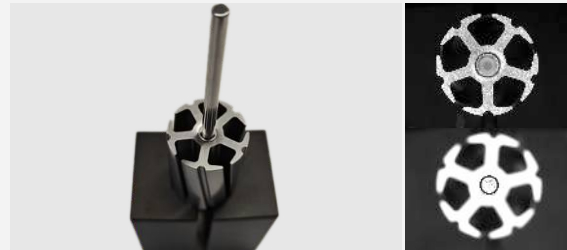
Recognition of labels on different heights of shipping boxes



Metal circular hole outline positioning and bottom defect detection

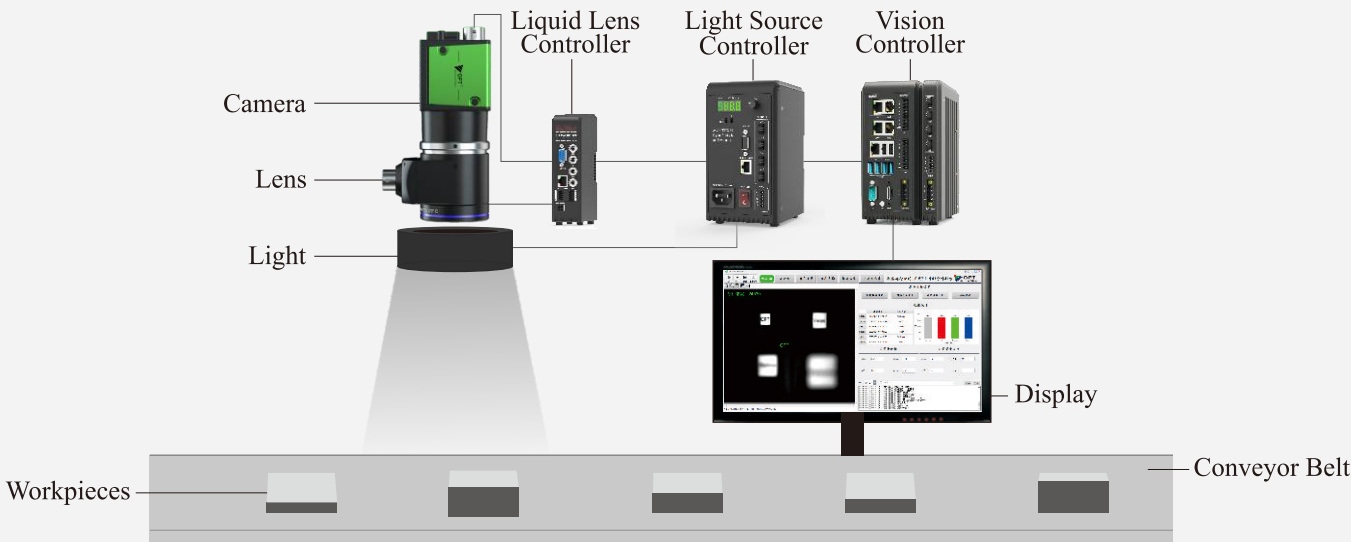


Ice cream cone exterior inspection-liquid lens testing



Bearing outer contour positioning and shaft axial runout detection

System Configuration

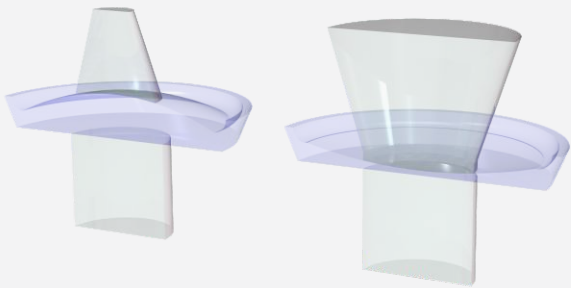


Technology Introduction

The COB series liquid fixed-focus lenses employ high-precision optical design and integrated liquid lens technology, providing rapid electronic focusing, superior image performance, and a quick autofocus solution. When combined with the OPT-LLC0524E-4 liquid lens controller and Smart3 software, the liquid lens can deliver the active autofocus control required for implementing autofocus solutions. Additionally, the digital I/O interface of the liquid lens can rotate 360° to prevent interference with the imaging system's structure.

The core element of the liquid lens consists of a container that contains the optical fluid and is sealed with a thin elastic polymer film. The driver, which is regulated by electric current, causes the curvature of the lens to change by applying pressure to the container.

The OPT liquid lens offers millisecond-level response speeds, enabling rapid autofocus, addressing challenges caused by varying working distances, and reducing the time required for lens movement and adjustments. It is compatible with cameras featuring a pixel size of 3.45 micrometers, allowing for quick and precise capture of high-definition images and providing a solid foundation for efficient image processing. It finds applications in fields such as 3C electronics, new energy, keyboard electronics, electronic components, packaging printing, food, pharmaceuticals, logistics, and automation equipment, among others.



Model Table

No.	Model	Focal length (mm)	Aperture	Sensor Ø(mm)	Pixel Size (μm)	TV Distortion	WD (mm)	Chief Ray Angle	Back Focal Length (mm)	I/O Number	Focal Power Range (20C°(dpt))	Wavefront Error ^[1]	FOV Angle (H×V×D)
1	OPT-COB0840-LQL	8	F4.0	9(1/1.8")	3.45	<0.45% at WD 300	100~∞	< 5°	12.60	6-pin Hirose connector	-13~+13	<0.2λ/0.2λ	58.72° 48.46° 37.30°
2	OPT-COB1240-LQL	12	F4.0	9(1/1.8")	3.45	<0.13% at WD 300	100~∞	< 5°	13.23	6-pin Hirose connector	-13~+13	<0.2λ/0.2λ	41.11° 33.40° 25.36°

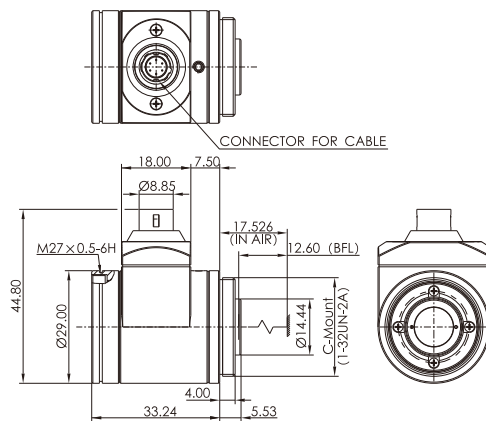
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3	OPT-COB1656-LQL	16	F5.6	11(2/3")	3.45	< 0.35% at WD 300	100~∞	< 5°	14.89	6-pin Hirose connector	-13~+13	<0.2λ/0.2λ	37.94°	30.75°	23.31°
4	OPT-COB2556-LQL	25	F5.6	11(2/3")	3.45	< 0.5% at WD 300	150~∞	< 5°	14.58	6-pin Hirose connector	-13~+13	<0.2λ/0.2λ	24.81°	19.96°	15.04°
5	OPT-COB3564-LQL	35	F6.4	11(2/3")	3.45	< 0.4% at WD 450	150~∞	< 5°	15.54	6-pin Hirose connector	-13~+13	<0.2λ/0.2λ	17.86°	14.33°	10.77°
6	OPT-COB5080-LQL	50	F8.0	11(2/3")	3.45	<0.2% at WD 400	150~∞	< 5°	18.69	6-pin Hirose connector	-13~+13	<0.2λ/0.2λ	12.55°	10.06°	7.55°

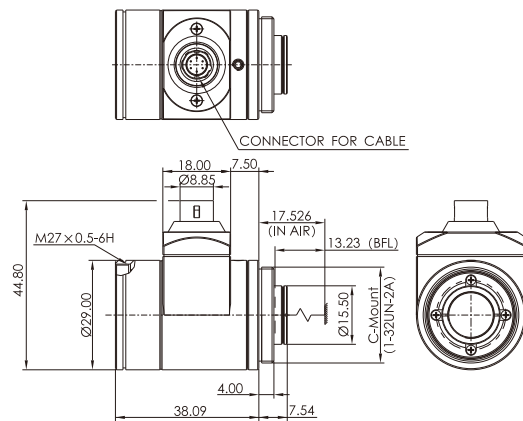
[1] The wavefront error is the mean variance in the vertical / horizontal optical axis direction at the 525 nm wavelength (RMS)λ.

Dimensions (mm)

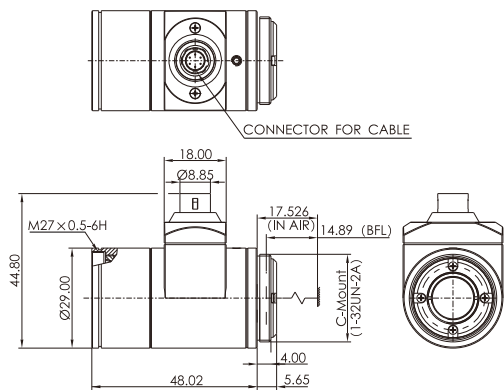
1.OPT-COB0840-LQL



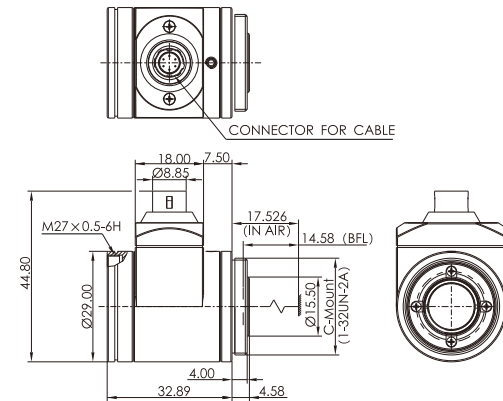
2.OPT-COB1240-LQL



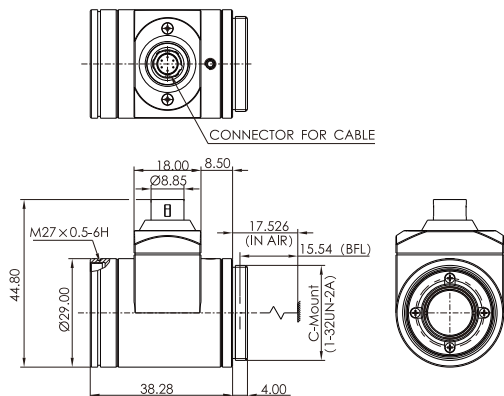
3.OPT-COB1656-LQL



4.OPT-COB2556-LQL



5.OPT-COB3564-LQL



6.OPT-COB5080-LQL

