

# CJ45ex9.7B / CJ45ex13.6B 4K UHD PORTABLE ZOOM LENSES



**INNOVATION**  
In TV Optics Since 1958

Toward 100 years anniversary

# 4K UHD BROADCAST LENSES WITH 45X ZOOM RATIO

SPORTS | STADIUM

Designed to meet the high demands of field production applications, the new CJ45ex9.7B and CJ45ex13.6B 2/3" 4K UHD portable lenses are suited for sports, documentary, natural history, music stage, helicopter/aerial and other challenging location productions.

By new integrated Multi-Group Movable Zoom System and Floating Focus System, these lenses offer high level 4K optical performance, 45x high zoom ratio and faster servo operation in the size of our HJ40x HD lens, representing an excellent marriage of needs for creative flexibility and mobility, while meeting the demanding performance requirements for 4K image acquisition at a wide range of focal lengths.

Designed to ensure high resolution from center to edges of image with outstanding luminance gradation, these lenses are ideal for HDR shooting. High contrast is ensured by superb control of black reproduction, and design innovations substantially reduced ghosting flare, veiling glare, chromatic distortions and internal reflections.

A new and improved built-in image stabilization system features higher frequency vibration suppression and panning operability, making it ideal for shooting in dynamic environmental situations such as within helicopters, boats and motor vehicles.

A new, full featured digital drive unite improves servo performance compared to our HJ40x generation lenses.



**NEW** 4K UHDxs  
**CJ45ex9.7B**  
9.7-437mm 1:2.0

**NEW** 4K UHDxs  
**CJ45ex13.6B**  
13.6-612mm 1:2.8

“ It provides more focal length than the 40x, with increased range at both the wide and telephoto ends of the zoom, and also good sharpness out to the edges of the frame. When used to shoot a game, the internal stabilization got a nice workout on the close-up shots, dampening vibrations from the energetic fans in the stands. ”



**Tim Gunkel,**  
Executive Director Entertainment  
Marketing & Production  
New York Mets



“ At a recent football game, we had the Canon 40x on one side and the new 45x 4K UHD lens on the opposite side of the field. Both cameras were paired with a Super 35mm 4K live camera system with B4-PL adapter for capturing slow motion video. The new 45x lens was clearly better and provided high quality replays. The edges of the image were the biggest improvement between the two images. There was no noticeable fall off in quality on the edge of frame, even when we zoomed in 400-600%. ”



**Dan Grainge,**  
President  
Fletcher Sports



**Nick Ricciardi,**  
VP Sales  
Global Stabilization  
Systems (GSS)



“ The feature set of this lens is super exciting. I feel that Canon designed this lens for the work we do. With so many people on the cusp of adopting 4K for broadcast, one thing holding us back was the need for long zoom 4K glass. This lens effectively eliminates that hurdle. ”

“ When mounted on a gyro stabilized camera head, size matters. The fact that this lens has the same compact footprint as Canon’s 40X HD lens, but yet offers 4K image quality with 45X zoom is amazing. ”

# NEW INTEGRATED TECHNOLOGIES FOR 4K OPTICAL ZOOM LENS

## NEW INTEGRATED MULTI-GROUP MOVABLE ZOOM FOR EXCEPTIONAL ZOOM CONTROL

The lenses features a new integrated multi-group movable zoom system, compared to the conventional two-group movable zoom system found in most broadcast lenses. This system helps provide exceptional zoom control, working to maintain optical performance throughout the entire zoom range from the center of the image to the edges. Integration of a multi-group movable zoom system also offers wider angle while reducing the  $\phi 127\text{mm}$  diameter of the front lens element that is equal to conventional HD lenses.

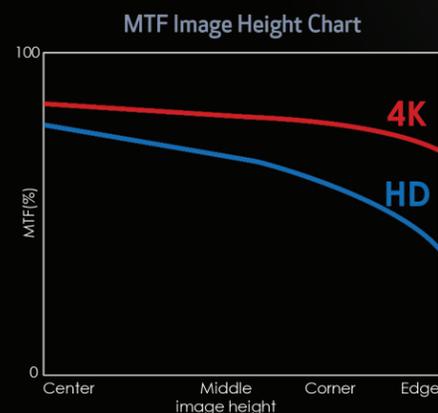


## WIDE FOCUS ROTATION ANGLE

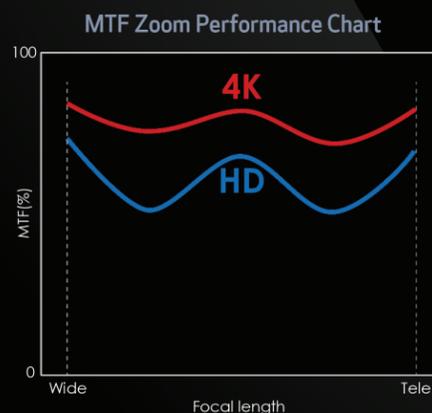
A rotation angle of 180 degrees (compared to 110 degree rotation angle of our HJ40x lenses) facilitates tight control for 4K UHD cameras, helping improve focus operation, even at long focal lengths where focusing is difficult.



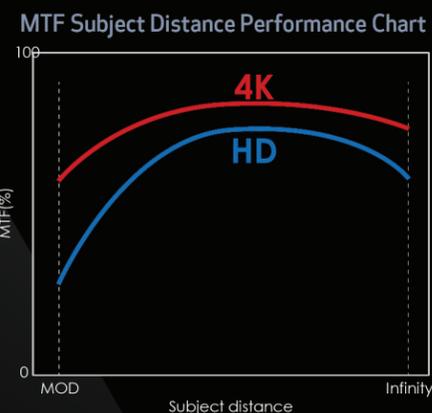
A new integrated multi-group movable zoom system can control at points with major fluctuations in optical performance during zooming (wide middle, tele middle), working to maintain optical performance throughout the entire zoom range from the center of the image to the edges. In addition, a new integrated floating focus system helps reduce changes in aberrations when focusing to different object distances, while maintaining 4K optical performance in color reproduction over the entire focus range, especially on the telephoto side.



Consistently excellent optical performance across entire image, from center to edges.



Low fluctuation and high optical performance across zoom range, from wide angle to telephoto.



Low fluctuation and high optical performance across all distances, from infinity to MOD.

# IDEAL FOR 4K UHD/HDR SHOOTING

HDR images offer excellent gradation representation and enhanced realism and dimension including texture for image representation close to the real thing. However, there can be noticeable color bleeding and flare, so HDR shooting requires high optical performance. The lenses deliver the advanced optical performance that Canon considers essential for a 4K UHD/HDR system, enabling shooting of more realistic images.

## Chromatic Aberration Along Contours With High-Luminance Subjects



Emphasized Outlines Cause Color Bleeding



Lens Not Optimized For HDR



Lens Optimized for HDR

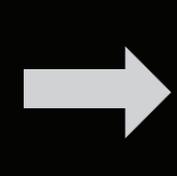
## Flare In Low-Illumination Areas



Emphasized Flare Causes Detail Blurring



Lens Not Optimized For HDR



Lens Optimized for HDR

# OUTSTANDING IMAGE STABILIZATION PERFORMANCE

The lenses feature built-in image stabilization – a newly designed system compared to that in the HJ40x generation lenses. The improvement is significant in the all-important higher vibration frequency range that is typically stimulated when shooting within helicopters, boats, and motor vehicles.

Image stabilization mode settings are enabled from the digital information display in the digital servo drive unit.



Image Stabilization - OFF



Image Stabilization - ON



Mode Settings

# COMPACT, LIGHTWEIGHT DESIGN



## CJ45ex9.7B

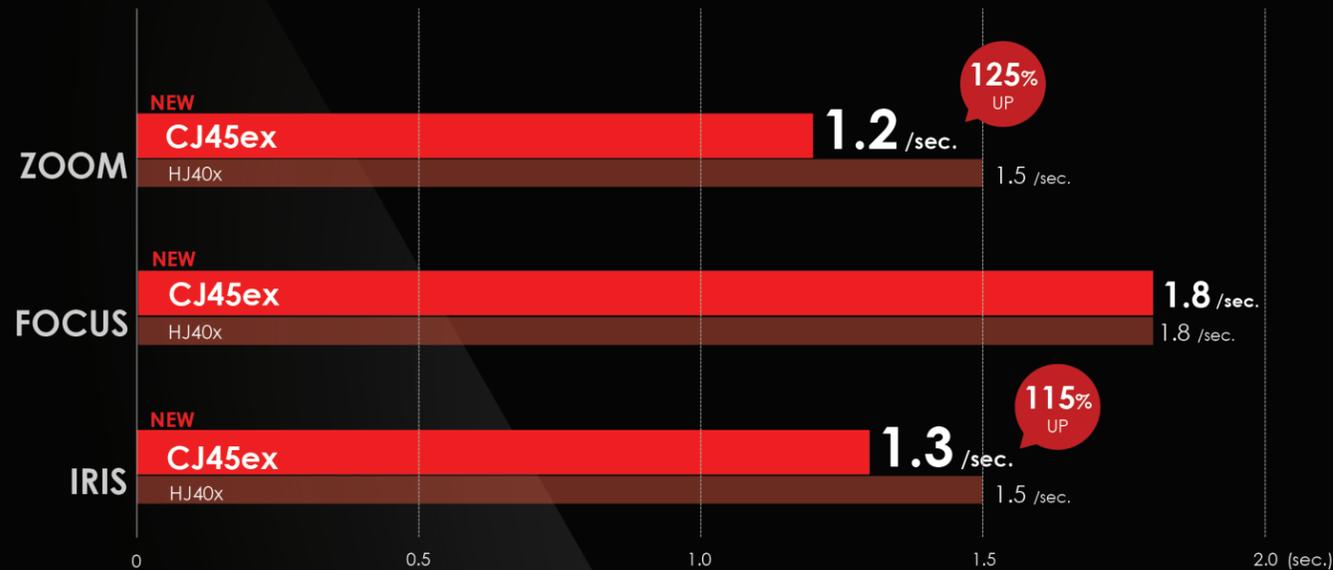
Approx. 12.3 lbs.  
Approx. 6.8" (W) x 5.8" (H) x 13.3" (L)

## HJ40x10B

Approx. 11.9 lbs.  
Approx. 6.6" (W) x 5.2" (H) x 13.2" (L)

## FULL FEATURED DIGITAL DRIVE UNIT

The lenses feature a new digital drive unit that improves servo performance compared to our HJ40x lenses, and an advanced 16-bit absolute value encoder that supports communication with compatible 2/3" 4K UHD cameras.



### QUICK STARTUP AND EASY CALIBRATION

The drive unit of the lenses can output accurate lens position data from the moment the power is turned on and does not require initialization, contributing to the quick start when shooting. Eliminating initialization of the encoder at power-on simplifies calibration when composing virtual and live-action images, and helps to create more accurate composites.

### HD DEMAND COMPATIBILITY

This feature allows for compatibility with a broadcast-use HD demand. It enables the use of the zoom and focus electrical drive system accessories (such as the ZSD-300D and FPD-400D) which are currently used by HD equipment.



### MOTORIZED MECHANICAL LOCK RELEASE MECHANISM

A motorized mechanical lock release mechanism improves operability by enabling easy release in situations when the lever is hard to reach, such as when mounted on a tripod.



## SPECIFICATIONS

	CJ45ex9.7B		CJ45ex13.6B	
	1.0 x	2.0 x	1.0 x	2.0 x
Built-in Extender	1.0 x	2.0 x	1.0 x	2.0 x
Focal Length	9.7 - 437 mm	19.4 - 874 mm	13.6 - 612 mm	27.2 - 1224 mm
Zoom Ratio	45x		45x	
Maximum Relative Aperture	1:2.0 at 9.7 - 224mm 1:3.9 at 437mm	1:4.0 at 19.4 - 448mm 1:7.8 at 874mm	1:2.8 at 13.6 - 312 mm 1:5.5 at 612mm	1:5.6 at 27.2 - 624 mm 1:11.0 at 1224mm
Angular Field of View	52.7° x 31.1° at 9.7mm 1.26° x 0.71° at 437mm	27.8° x 15.8° at 19.4mm 0.63° x 0.35° at 874mm	38.9° x 22.5° at 13.6mm 0.90° x 0.51° at 612mm	20.0° x 11.3° at 27.2mm 0.45° x 0.25° at 1224mm
M.O.D	2.8 m (10mm with Macro)		2.8 m (10mm with Macro)	
Object Dimensions at M.O.D.	254.3 x 143.0 cm at 9.7mm 5.8 x 3.3 cm at 437mm	127.2 x 71.5 cm at 19.4mm 2.9 x 1.7 cm at 874mm	182.9 x 102.9cm at 13.6mm 4.2 x 2.4 cm at 612mm	91.5 x 51.5 cm at 27.2mm 2.1 x 1.2 cm at 1224 mm
Approx. Size (W x H x L)	6.8 x 5.8 x 13.3 in. (173.2 x 147.5 x 337.0mm)		6.8 x 5.8 x 14.0 in. (173.2 x 147.5 x 355.0mm)	
Approx. Weight	12.3 lbs. (5.60kg)		12.4 lbs. (5.64kg)	

## RECOMMENDED LENS SYSTEM / ACCESSORIES

#	Unit	Description
①	FPD-400D	Focus Positional Demand
②	ZSD-300D	Zoom Servo Demand
③	FDJ-D02	Digital Focus Demand
④	FDJ-P01	Digital Focus Demand
⑤	ZDJ-D02	Digital Zoom Demand
⑥	ZDJ-P01	Digital Zoom Demand

Focus Servo Controllers (For IASE Lenses)

Zoom Servo Controllers

※1 127mm diameter P0.75 filters for CJ12ex, 105mm diameter P1.0 filters for CJ20ex. The filters are to be attached to the threaded hood unit. (UV/Clear/Cross/Snow Cross/Sunny Cross/Polarized Light/Softon/ND8)

※2 BDC-11 conversion cable is necessary to connect between New Digital Drive Lens and ZDJ-D02/FDJ-D02

※3 BDC-21 conversion cable is necessary to connect between New Digital Drive Lens and ZDJ-P01/FDJ-P01

Specifications subject to change without notice.

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