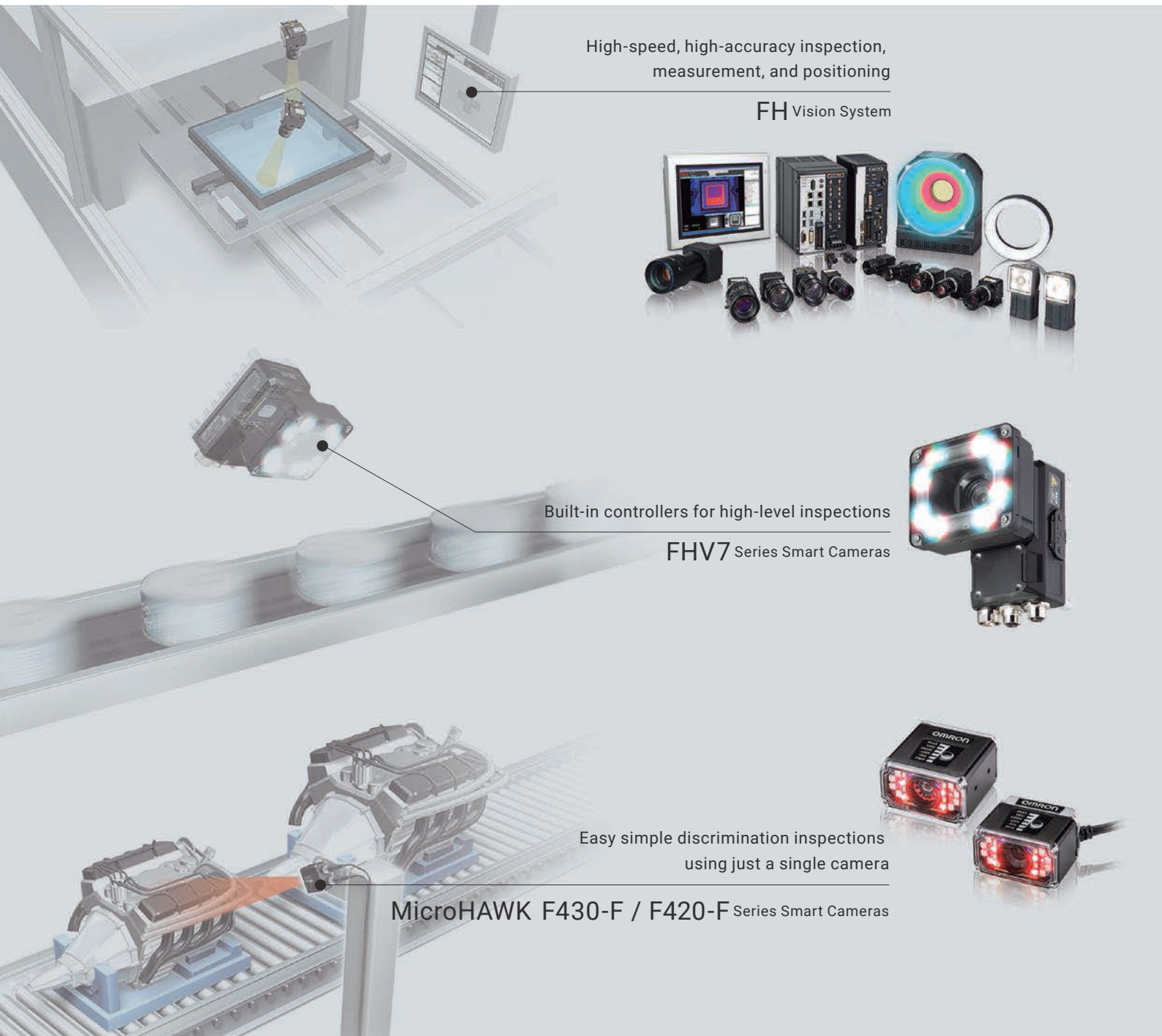


# Selection Guide for Vision Sensors



High-speed, high-accuracy inspection,  
measurement, and positioning

FH Vision System



Built-in controllers for high-level inspections

FHV7 Series Smart Cameras



Easy simple discrimination inspections  
using just a single camera

MicroHAWK F430-F / F420-F Series Smart Cameras



# Choose from our three series of vision sensors that address the most diverse inspections

Vision sensor lineup

From high-speed, high-accuracy inspections/positioning to simple presence/absence inspections, OMRON's vision sensors can address a wide range of image inspections.

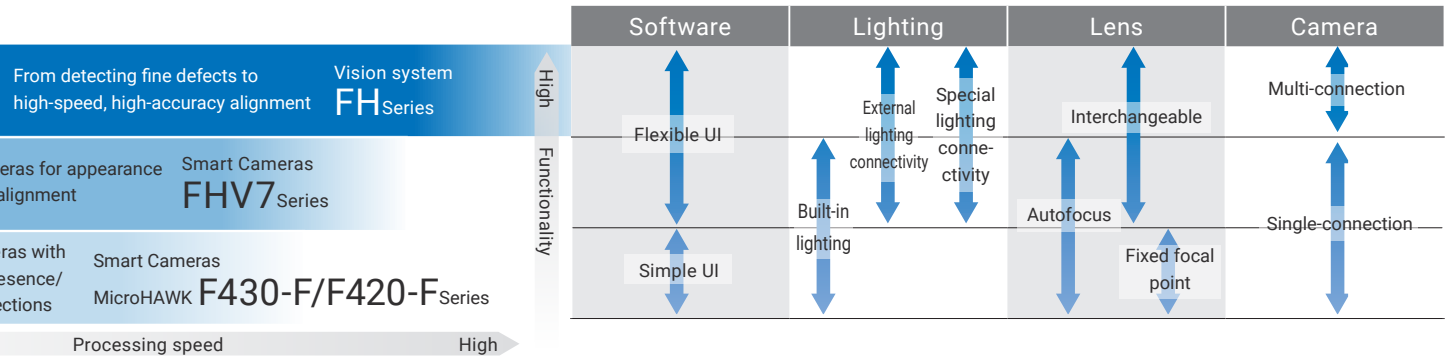
All-in-one smart cameras for simple inspections and pre-

Just one of these ultra-small cameras with simple settings can cover basic presence/absence, direction, and other inspections.

## Comparison chart of main specifications and application examples

Usage/Model		High-speed, high-precision inspection/alignment FH Vision System		High-speed appearance inspection FHV7 Smart Cameras		
Applications	Inspections	Presence/absence, direction, color, and other inspections; high-speed/high-accuracy inspections including position detection				
	Traceability	Code/character reading + Save (image/Measurement data)				
	Positioning	Pick&Place, High-precision positioning		Pick & Place		
Hardware	Processing speed	★★★		★★		
	No. of connectable cameras	Up to 8		1		
	Camera Resolution	0.4/2/4/5/12 MP	5/20.4 MP		0.4/1.6/3.2/5 MP	
	Shutter method	Global shutter	Rolling shutter		Global shutter	
	Lens	Interchangeable (C mount, M42 mount)			Interchangeable (C mount)	
	Lighting	External lighting connectivity / special lighting connectivity (MDMC*2, PS*3)			Built-in lighting (white, red, infrared, multi)	
Software	User Interface	Flexible UI		 Main screen	 Measurement flow setting screen	
	Number of inspection items*1	★★★				
Application examples			<b>High-speed, high-precision alignment</b> <b>FPD stage alignment</b> Cameras, controllers, and algorithms designed for high speed and accuracy and a set of features dedicated to the quick startup of positioning applications help boost the productivity of positioning equipment.			
			<b>High-speed multi-core controllers + Multiple cameras</b> <b>Contamination checks of beverage containers</b> High-speed controllers with multi-core CPUs allow users to reduce the number of controllers from 4 to 1 without compromising takt time, enabling significant cost savings in procedures that involve many lines.			
			<b>Lighting specially designed for appearance inspection</b> <b>6-side circumference inspection of rechargeable battery cells</b> PS lighting specially designed for appearance inspection enables the exclusive detection of dents and scratches on the surface, while dirt and fine hair lines are ignored.			

Main functions



<p>Function, pre-alignment</p> 		<p>Simple discrimination</p> <p><b>MicroHAWK F430-F / F420-F Series Smart Cameras</b></p> 	
<p>Color and dimension inspection</p>		<p>Simple discrimination (presence/absence, direction, color, etc.)</p>	
<p>Code/character reading</p>		<p>Code/character reading</p>	
<p>—</p>		<p>—</p>	
<p>★</p>		<p>1</p>	
<p>6.3/12 MP</p>	<p>Rolling shutter</p>	<p>0.3/1.2 MP</p>	<p>5 MP</p>
<p>Fixed focal point / autofocus (mechanical, liquid lens)</p>		<p>Global shutter</p>	
<p>Rolling shutter</p>		<p>Fixed focal point / autofocus (liquid lens)</p>	
<p>Multi-color / external lighting control / special lighting connectivity (MDMC<sup>*2</sup>)</p>		<p>Built-in lighting (white, red, infrared, blue)</p>	
<p>Measurement condition setting screen</p> 	<p>Simple UI (AutoVISION)</p>	<p>Inspection item setting screen</p> 	<p>Inspection run screen</p> 
<p>★</p>		<p>★</p>	
<p><b>High-resolution camera + Autofocus lens</b></p> <p><b>Depalletizing parts packed in stacking pallets</b></p> <p>A high-resolution camera with an autofocus lens allows parts packed in stacked pallets to be picked and placed with high accuracy.</p>		<p><b>Simple discrimination + Code recognition</b></p> <p><b>Inspecting the caps and reading the codes on pharmaceutical bottles</b></p> <p>With its code/character recognition feature, a single camera can perform both inspection and code recognition, allowing for simpler configurations.</p>	
<p><b>Multi-color lighting</b></p> <p><b>Inspection of a high mix of workpieces; character/code recognition</b></p> <p>Multi-color lighting enables high-contrast, stable inspection and character/code recognition by providing the optimal lighting color for each workpiece type.</p>		<p><b>High-resolution 5-megapixel color camera</b></p> <p><b>Inspections for presence/absence of substrate mount components</b></p> <p>A single 5 megapixel color camera can capture high-resolution images which can be used for multi-point inspections.</p>	
<p><b>Wide FOV, high-resolution</b></p> <p><b>Assembly inspection of flooring parts</b></p> <p>With its high resolution of 5, 6.3, or 12 megapixels, a single camera can inspect a wide field of view.</p>		<p><b>Long-life liquid autofocus lens</b></p> <p><b>Quantity inspection of a mixed group of products</b></p> <p>For quantity inspections of products with varying heights, users can set focus for each product so that inspections can be conducted simply and smoothly with just a single device. The long-life liquid autofocus lens frees you from worrying about defect.</p>	

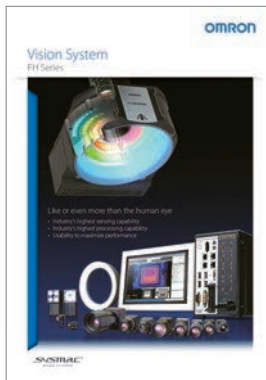
\*1. The higher the number of stars, the higher the performance.

\*2. MDMC stands for "Multi-Direction Multi-Color." MDMC lighting allows for light of different directions, colors, and intensities to be mixed and matched to provide optimal lighting for any of the diverse defects found in different workpieces.

\*3. PS stands for "photometric stereo."

# Vision sensor lineup

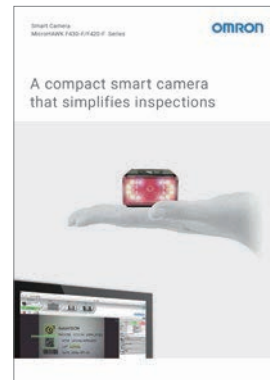
Please see our product catalogs for details.



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Cat. No. Q265-E1



Cat. No. Q272-E1

**Note: Do not use this document to operate the Unit.**

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