VE Smart Camera Series
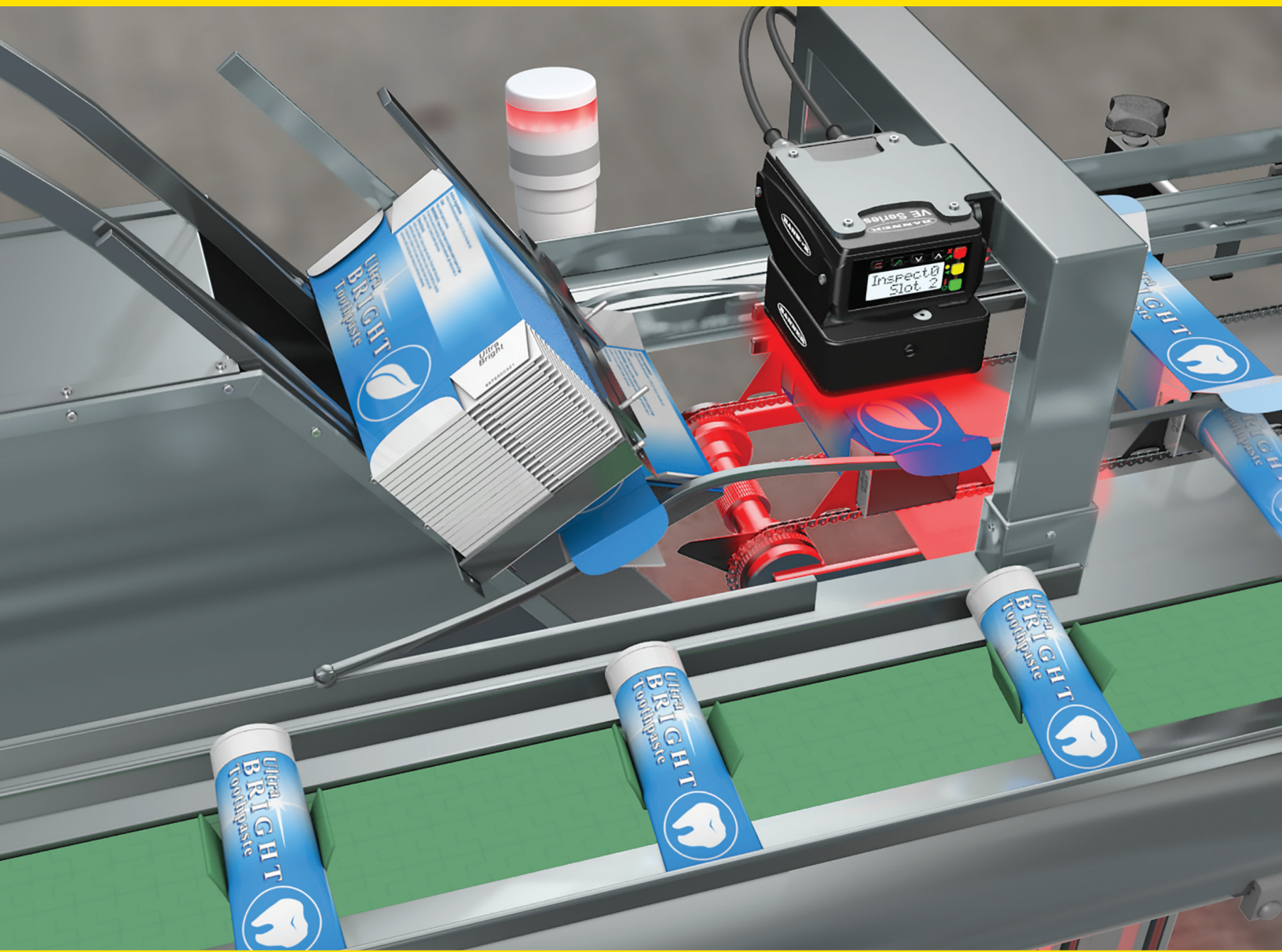

Smart Camera

- Robust metal housing
- Intuitive programming software
- Powerful inspection and ID capabilities

BANNER®

Compact, Durable, Versatile

The VE Smart Camera is built to stand up to industrial environments and can solve many vision applications.

Durable Design

Robust, aluminum housing for harsh environments

C-mount lens for a variety of applications

Status and Troubleshooting

Bright LED indicators to easily view camera status

Two-line, eight-character display and push buttons for troubleshooting and viewing camera status

- Perform product change or trigger
- Troubleshoot and clear errors
- Change or view IP address, MAC address, or Ethernet speed
- View firmware, focus number or status
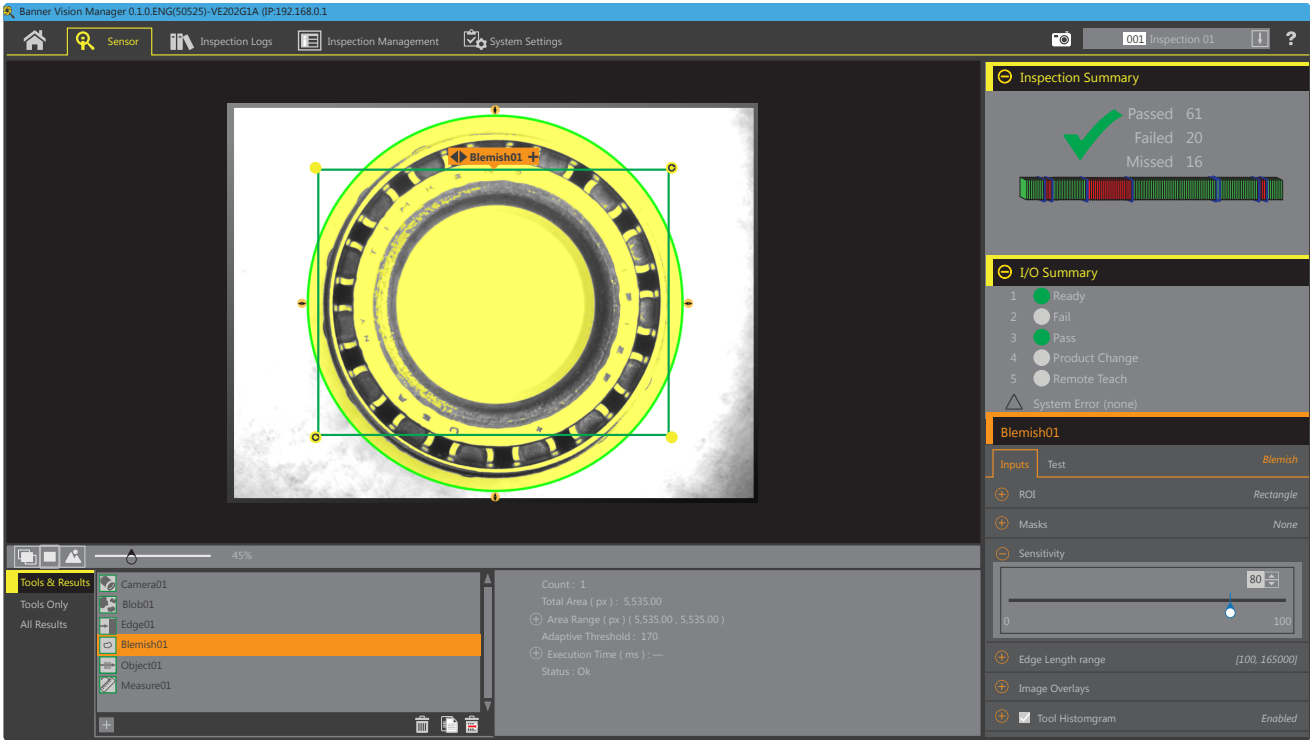
Connections

Ethernet connector with Gigabit Ethernet communication speed

Discrete communication to external devices using five user-configurable optically isolated I/O

Power Banner Vision lights directly from the camera

Compact size

Optional IP67 lens cover for washdown environments

Variety of lights available to accommodate any application

Intuitive Software

VE Vision Manager software: Easy configuration, powerful functions.

Runtime Editing

Easy-to-use configuration software with full runtime editing allows for changes to be made quickly with no costly downtime from stopping and starting inspections. Start using today by downloading at www.bannerengineering.com/vision-manager.

Full Software Emulator

Connect to live cameras or full software emulator for building inspections offline

Factory Communications

Seamlessly interface with the factory floor using **EtherNet/IP, Modbus/TCP, PROFINET, and Serial** communications

Inspection Analysis

Review past inspection results, view system logs, and quickly configure inputs and outputs

Solutions for:

Presence/Absence
- Count vials in a tray
- Verify correct labeling

Orientation/Position
- Verify the orientation of an IC chip
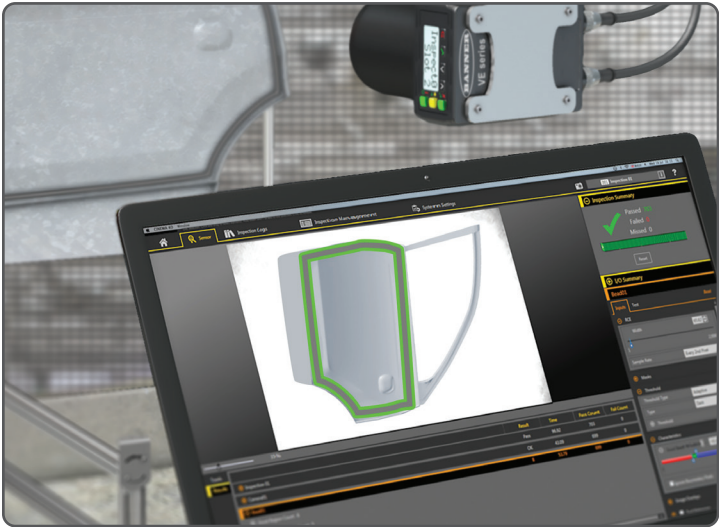- Send part location to a pick-and-place robot

Flaw Detection
- Calculate the eccentricity of pizza crust
- Identify burn marks on a nonwoven web

Measuring
- Measure critical dimensions of a stamped part
- Measure bottle cap height

Identification
- Track and Trace as parts transition through the supply chain
- Package verification for tracking, sorting and inventory management

Door Panel Adhesive Inspection

Challenge

During vehicle assembly, a track of adhesive is applied along the perimeter of a door. Excessive adhesive can burst through the seams requiring cleanup, while an insufficient amount of adhesive will not seal the panel correctly.

Solution

The Bead Tool can inspect each door panel for the presence and amount of adhesive, and provide real time feedback of improper bead application.
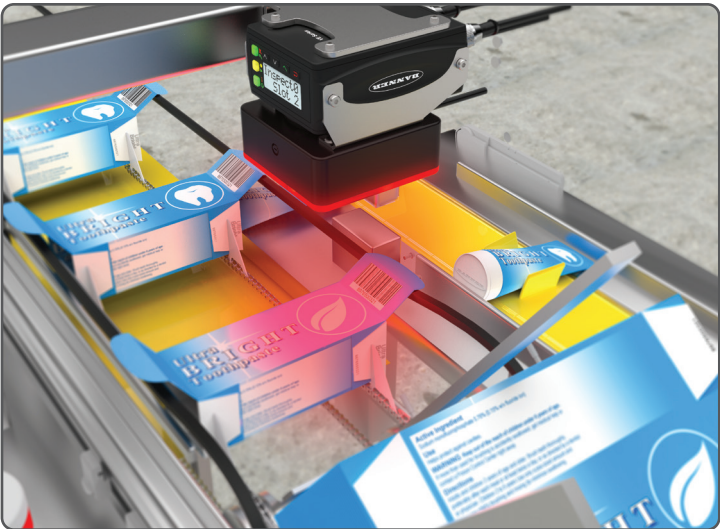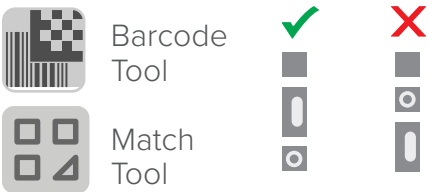
Bead Tool

Cell Phone Inspection

Challenge

Cell phones are comprised of many small electric parts and connectors. Manually inspecting to ensure the components are present and correctly installed is difficult and impractical. In addition, traceability of the production process is critical as parts transition through each phase.

Solution

The 5MP VE Series Smart Camera allows for a higher resolution inspection and identification. With vision tools the camera can detect the presence and position of components, and by combining with barcode reading the assembly can be tracked through the entire production process with the use of one device.
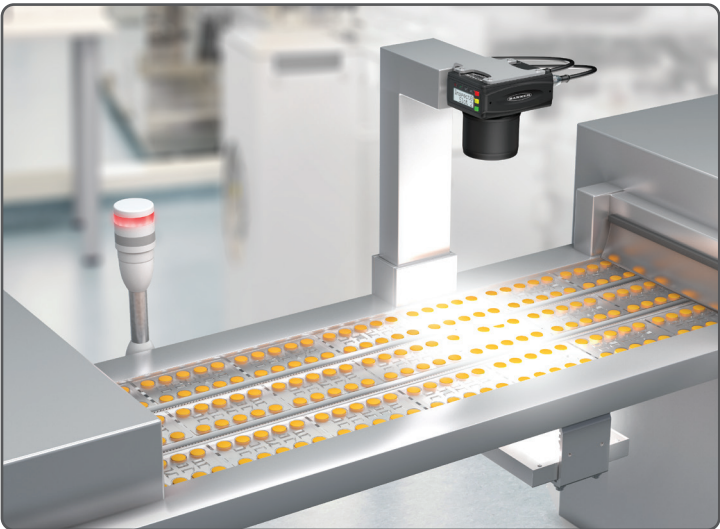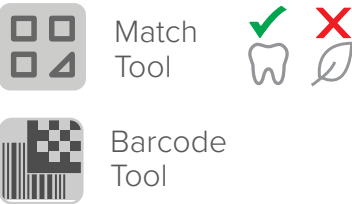
Barcode Tool

Match Tool

Packaging Inspection

Challenge

During packaging, tubes of toothpaste need to be placed into cartons. A logo on the tube indicates the specific type of toothpaste inside the box. Frequent product changeover, printing mistakes, human error and other factors can result in packaging errors.

Solution

A VE Series Smart Camera reads the barcode to check and see if matches the correct product data for the toothpaste tubes being filled. It then uses a Match Tool to inspect and verify the product logo on each box before the corresponding tube of toothpaste is inserted.
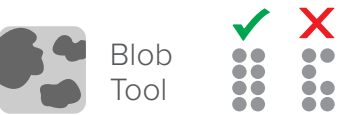
Match Tool

Barcode Tool

Blister Pack Inspection

Challenge

Pharmaceutical companies package medications into blister packs. Before being sealed, each cell must be inspected to verify that the tablet has been correctly placed and that the tablet is whole.

Solution

Using the Blob Tool the VE counts and measures multiple rows of tablets in a single inspection.

Blob Tool

Sortation Conveyor Inspection
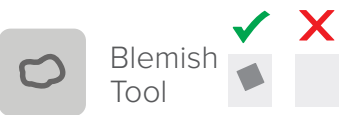
Challenge

Each tray is inspected to verify it is empty before a package is placed on the tray. The package can be any color, shape, and size and can be located anywhere on the tray.

Solution

The VE Series Smart Camera with the 5mp imager uses the Blemish Tool to inspect the entire tray to detect if the smallest package was still on the tray before loading.
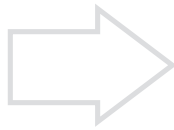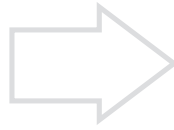
Blemish Tool

BANNER

Select a camera resolution

Choose lens based on Field of View (FOV) and Working Distance (WD)
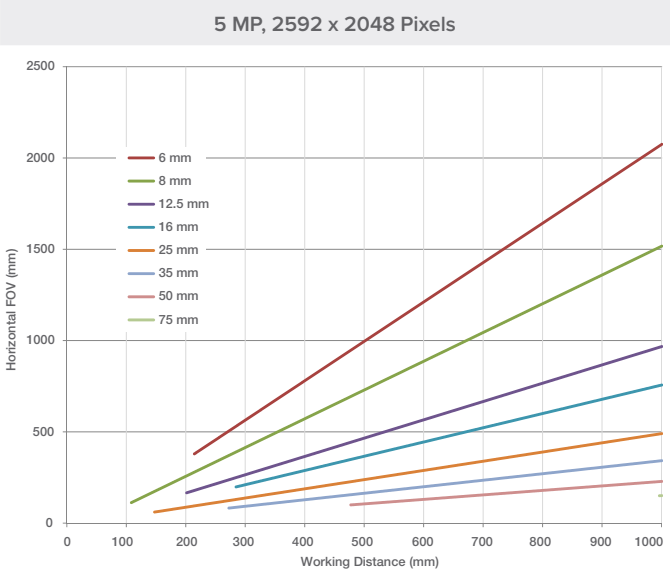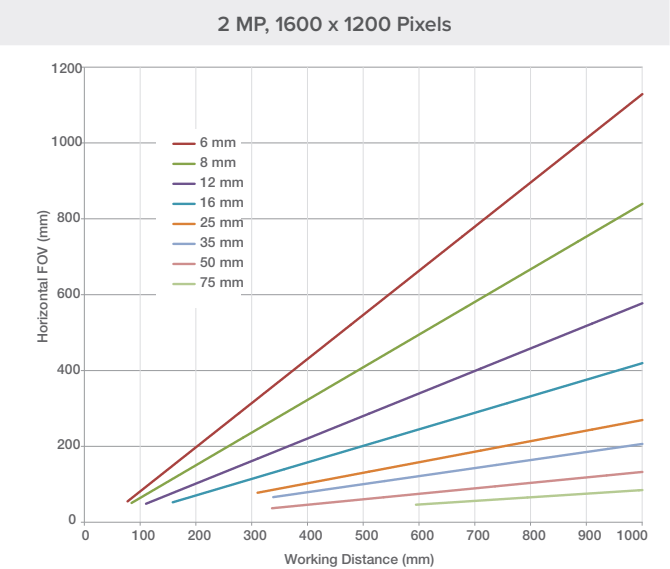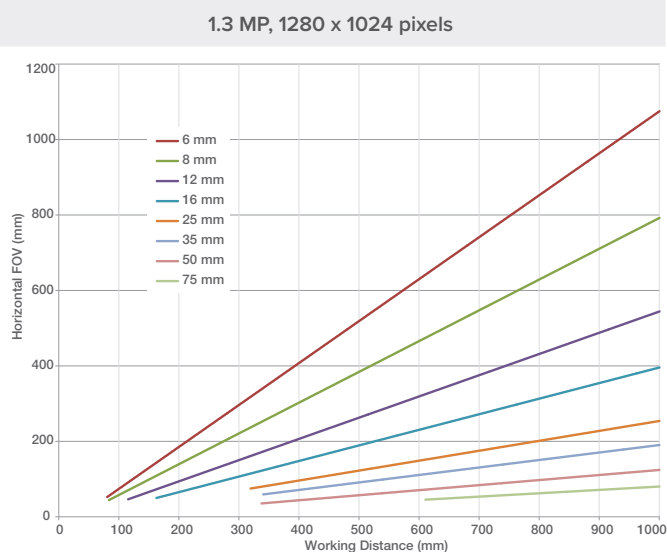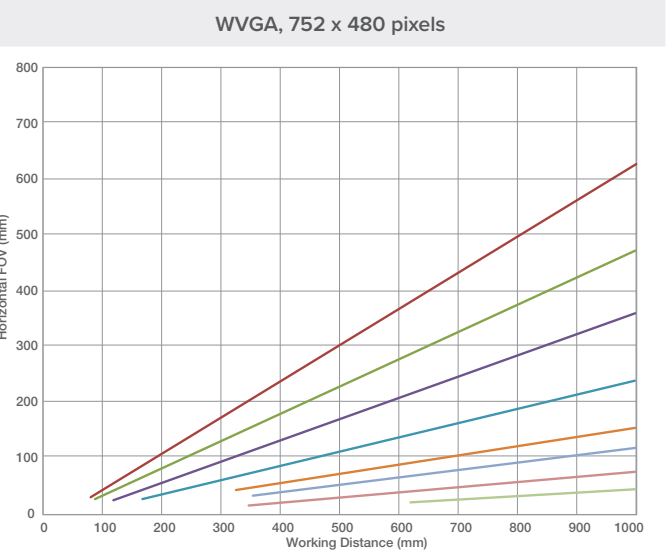
Optional filters create additional contrast

IP67 lens covers or ring lights available for additional protection

WD

FOV
VERTICAL   HORIZONTAL

Family	Resolution	Imager	Device Type*
VE	**202**	**G1**	**A**

200 = WVGA, 752 x 480 pixels
201 = 1.3 MP, 1280 x 1024 pixels
202 = 2 MP, 1600 x 1200 pixels
205 = 5 MP, 2592 x 2048 pixels

G1 = Grayscale

A = Vision
B = ID
C = Vision + ID

* Vision models offer full suite of vision inspection capabilities, Identification (ID) models offer barcode reading capability. Vision + ID models offer full inspection and identification capabilities. See product specifications for full tool listing.

Lens Charts

WVGA, 752 x 480 pixels

1.3 MP, 1280 x 1024 pixels

2 MP, 1600 x 1200 Pixels

5 MP, 2592 x 2048 Pixels

Megapixel C-mount Lenses
for use with WVGA, 1.3 MP, or 2 MP cameras

Focal Length	Model
6 mm	LCF06LEVMP
8 mm	LCF08LEVMP
12 mm	LCF12LEVMP
16 mm	LCF16LEVMP
25 mm	LCF25LEVMP
35 mm	LCF35LEVMP
50 mm	LCF50LEVMP
75 mm	LCF75LEVMP

1" Format C-Mount Lenses
for use with 5 MP cameras

Focal Length	Model
6 mm	LCF06LK1F
8 mm	LCF08LK1F
12 mm	LCF12LK1F
16 mm	LCF16LK1F
25 mm	LCF25LK1F
35 mm	LCF35LK1F
50 mm	LCF50LK1F
75 mm	LCF75LK1F

Contact factory or visit www.bannerengineering.com for additional lens information and a comprehensive product offering.

Bandpass Filters
for use with Megapixel C-mount Lenses*

Type	Model
Blue	FLTB470-27
Green	FLTG525-27
Infrared	FLTI850-27
Red	FLTR635-27
Dark Red	FLTR660-27
Linear Polarizer	FLTPR032-27

* For use with 8 to 35 mm focal lengths. Contact the factory for additional options.

Sealed Lens Covers
painted aluminum covers for IP67 rating (work with most lenses)

	Borosillicate Glass Window	Polycarbonate Window
60 mm	VELC60-BG	VELC60-PC
85 mm	VELC85-BG	VELC85-PC

Sealed Ring Lights
IP67 lights that are powered and controlled by camera (work with most lenses)

	Borosillicate Glass Window	Polycarbonate Window
Blue	LEDBRV75BM	LEDBRV75PM
Green	LEDGRV75BM	LEDGRV75PM
Infrared	LEDIRV75BM	LEDIRV75PM
Red	LEDRRV75BM	LEDRRV75PM
White	LEDWRV75BM	LEDWRV75PM

BANNER

Specifications

67.0 mm

41.4 mm

88.0 mm

Power	12 to 30 V dc
Discrete I/O	1 Trigger IN 5 programmable I/O
Output Configuration	Optically isolated
Lens	C-mount
Communication	10/100/1000 Mbps Ethernet
Communication Protocols	Ethernet/IP, Modbus/TCP, PCCC, PROFINET, TCP/IP, FTP, HTTP web server, and RS-232
Acquisition	256 grayscale levels - Image Size / Frames Per Second (fps)*: 752 x 480 pixels / 60 fps 1280 x 1024 pixels / 60 fps 1600 x 1200 pixels / 50 fps 2592 x 2048 pixels / 22 fps * Frames per Second: maximum listed, depends on inspection settings
Construction	Housing: Aluminum Label: Polyester
Connections	Communications: M12, 8-pin Euro-style male Light Connector: M8, 3-pin Pico-style female Power, Discrete I/O: M12, 12-pin Euro-style female
Environmental Rating	IEC IP67 with optional lens cover
Software Tools	Vision Models: Average Gray, Bead, Blemish, Blob, Line Detect,Circle Detect, Edge, Locate, Logic, Match, Math, Measure, Object ID Models: Barcode, Locate, Logic, Math Vision+ID Models: All Tools listed above
Certifications	

This product includes software developed by the University of California, Berkeley and its contributors

Accessories

SMBVERA
Right-angle bracket

SMBVEMP
Mounting plate with M8x1.25, 10-32, and 1/2-20 adapter holes

Type	Length	Model
	1.83 m (6 ft)	**MQDC2S-1206**
	4.57 m (15 ft)	**MQDC2S-1215**
12-Pin M12/Euro-Style with Open Shield	9.14 m (30 ft)	**MQDC2S-1230**
	15.2 m (50 ft)	**MQDC2S-1250**
	22.9 m (75 ft)	**MQDC2S-1275**

For right-angle models add **RA** to the model number (example, **MQDC2S-1250RA)**

Type	Length	Model
	1.83 m (6 ft)	**STP-M12-806**
RJ45 Ethernet to 8-Pin Threaded M12/Euro-Style (Cat5e Shielded)	4.57 m (15 ft)	**STP-M12-815**
	9.14 m (30 ft)	**STP-M12-830**

Vision Lighting

Lighting is the key to creating all-important contrast between the feature of interest and its background. Contact Banner for more information about our wide Vision Lighting product offering.