FIFE INSPECTION SOLUTIONS

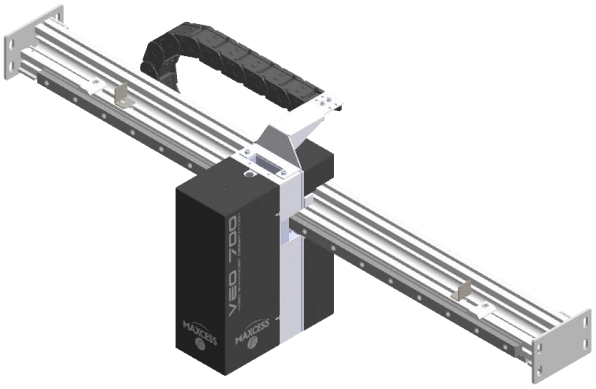
MAXCESS®

FIFE

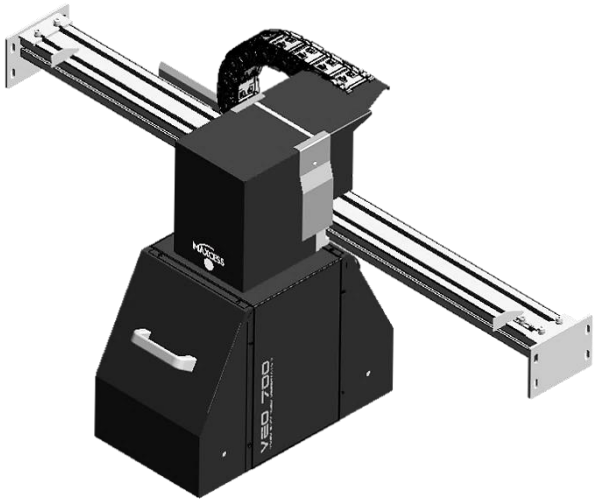
VEO 700

Video Web Viewing System

User Manual



SFOV – Standard Field of View



EFOV – Extended Field of View

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CONTENTS

CONTENTS

CONTENTS

About these operating instructions

All of the information herein is the exclusive proprietary property of Maxcess International, and is disclosed with the understanding that it will be retained in confidence and will neither be duplicated nor copied in whole or in part nor be used for any purpose other than for which disclosed.

Periodically there will be updates to this manual. The latest version is available on our website or by calling the number listed on the back page of this publication.

This web viewing system must not be installed or used in a machine or system which does not comply with the machinery directive 2006/42/EC.

This web viewing system was designed and manufactured to be installed as partly completed machinery into a machine or partly completed machine.

The instructions must be read and used by all persons who have the responsibility of installing and maintaining this video web inspection system.

These instructions must be retained and incorporated in the technical documentation for the machine or partly completed machinery into which the web viewing system is installed.

CE marking

The VEO 700 Web Viewing System complies with the following directives:

2006/42/EC Machinery

2014/30/EU Electromagnetic Compatibility

2014/35/EU Low Voltage

Conventions used in this manual

All dimensions and specifications are shown in the format **mm [inches]** unless otherwise specified.

Language

These are the original instructions, written in English.

Product overview

The VEO 700 web viewing system uses a camera unit to capture images of a moving web material that is to be inspected: typically, the inspection of a printed web. A strobe lamp, integrated into the camera unit, illuminates in sync with the machine speed to capture or "freeze" images on the moving web to allow a visual inspection, via monitor, by an operator.

The camera unit is positioned by motorized control over the web material. A sensor synchronizes capturing of images with the moving web material. The display of the print image that is being observed appears on a monitor.

The camera is operated by touchscreen monitor or a mouse. For remote operation, there is an optional external touchpad. The individual components of the system are connected to a central power supply.

Instructions for use

Problem-free and reliable operation of the VEO 700 requires that the system must be properly transported, stored, installed, and placed in operation. Proper operation will ensure a long service life for your system.

Only persons who are acquainted with the installation, commissioning, operation, and maintenance of the system and who possess the necessary qualifications for their activities may work on the VEO 700.

Please note the following:

- The content of these operating instructions
- Any safety instructions on the device
- The machine manufacturer's specifications
- All national, state, and local requirements for installation, accident prevention, and environmental protection

Safety symbols

The safety instructions and symbols described in this section are used in these operating instructions. They are used to avoid possible dangers for users and to prevent material damage.

SIGNAL WORD
Source of danger and its results
Avoiding dangers

The signal word **DANGER** refers to the danger of death or serious bodily injuries.

The signal word **WARNING** refers to the danger of moderate to severe bodily injuries.

The signal word **CAUTION** refers to the danger of slight to moderate bodily injuries or material damage.

Symbols used

The following safety identification symbols are used in these operating instructions.

WARNING/CAUTION – General danger or important note
Reference to general hazards that may result in bodily injuries or damage to device or material.

DANGER – Danger due to voltage, electric shock
Reference to danger of injury caused by electric shock due to voltage.

WARNING – Danger due to cutting
Reference to danger of injury caused by sharp edges

WARNING – Danger due to crushing/pinching
Reference to danger of injury caused by moving components

WARNING – Injury or equipment damage can result from fire.
Reference to danger of injury or damage caused by fire

CAUTION – Equipment damage can result from static charge.
Reference to general caution that can result in damage to device.

Reference to important information

Basic safety information

Proper use

The VEO 700 is intended to be installed indoors in proximity to a moving web on a printing press for the purpose of inspecting image quality during the printing operation.

Improper use

Operation outside the technical specifications

Operation in an Ex-area or intrinsically safe area

Outdoor operation

Any other use than the proper use shall be deemed inappropriate.

Hazards

Installation and commissioning

WARNING – Death or injury can result from electrical shock.

Turn off and disconnect the power supply before connecting or disconnecting any cable connectors. Damage to the equipment caused by failure to do so may void the product warranty.

Tighten all cable connectors sufficiently to provide the required connection for the cable shielding.

Any component which is damaged must not be installed or put into operation.

The VEO 700 must be securely mounted before being placed in operation.

Only replacement parts obtained from Fife may be used.

No modifications may be made to the VEO 700.

Do not place cables under mechanical strain.

Operation

WARNING – Death or injury can result from static electric shocks.
Moving webs of material can produce large static voltage potentials. To protect against electric shocks, the system must be properly grounded. See page 4-1.

WARNING –Injury can result from cutting
Keep hands away from moving web material.

WARNING –Injury can result from crushing/pinching
Do not grasp moving parts or anything close to them while the device is in operation.

Avoid looking directly at the flashes produced by the system strobe light.

Maintenance and repair

WARNING – Death or injury can result from unexpected movement.
Protect against unexpected movement by removing electrical power from the VEO 700 and the machine into which it is installed.

WARNING – Death or injury can result from electrical shock.
Turn off and disconnect the power supply before connecting or disconnecting any cable connectors. Damage to the equipment caused by failure to do so may void the product warranty.

WARNING – Injury or equipment damage can result from fire.
Protect against fire by keeping lubricants away from the positioning track.

Decommissioning

The VEO 700 must be disposed of in accordance with all the applicable national, state and local regulations.

Camera options

Camera and back strobe		Field of View
Single	SFOV 10 megapixel camera	100 mm X 75 mm
Single	SFOV 10 megapixel camera and motorized back strobe	100 mm X 75 mm
Dual	SFOV 10 megapixel camera	100 mm X 75 mm
Single	EFOV 12 megapixel camera	200 mm X 120 mm
Single	EFOV 12 megapixel camera and motorized back strobe	200 mm X 120 mm
Dual	EFOV 12 megapixel camera	200 mm X 120 mm
Dual	One SFOV (10 MP) and one EFOV (12 MP)	

User control options
Touch screen monitor
Mouse
Touchpad
Touch monitor + touchpad
Mouse + touchpad

Up to 3 monitors at the same time

Monitor ports - all showing the same image

HDMI cable

VGA cable

Camera lens rotation

In Normal viewing mode, the image will appear on the monitor moving left to right as shown below for the standard camera angle (Image view **A**).

If the lens has been rotated 90 degrees, the image appears to move top to bottom as shown in Image view **B**.

This rotation option must be specified when product is ordered, or you may return the unit to Maxcess for modification.

There are options for flipping the image on its vertical or horizontal axis; *page 6.4.*

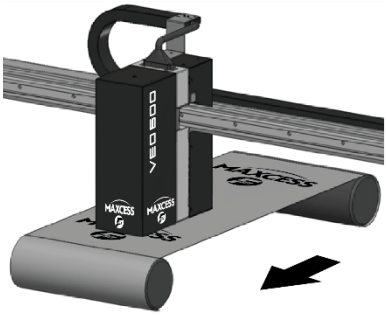


Image view and web travel

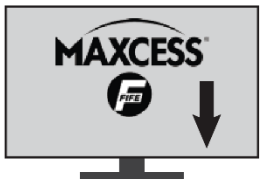


Image view A
Standard camera angle

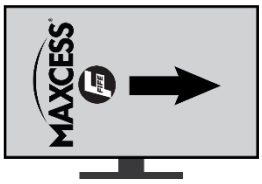
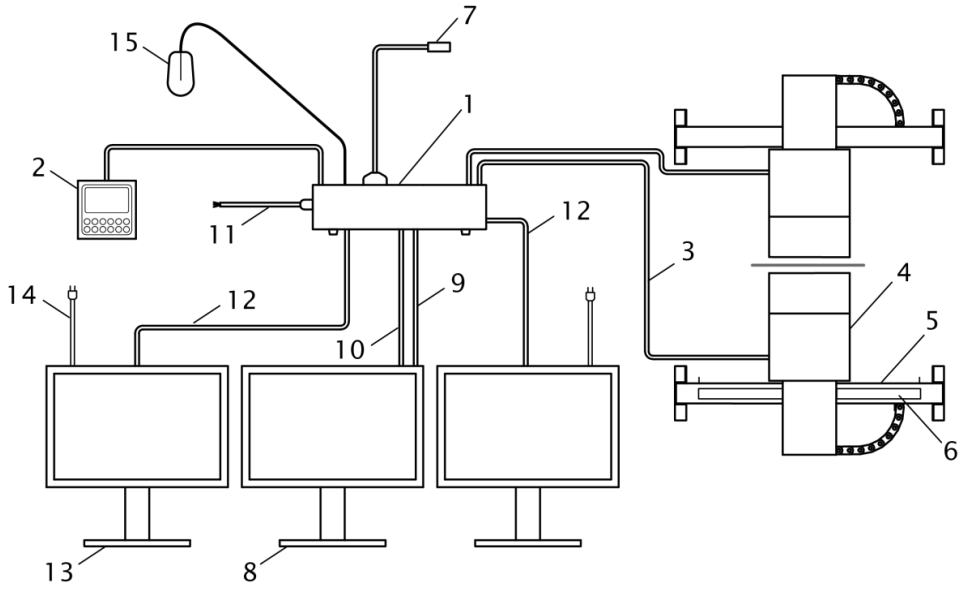


Image view B
90° camera lens rotation

The VEO 700 divides the repeat length in the Y direction (as set in the System Parameters) into 1024 parts, regardless of the length of time between shots.

System components

VEO 700 EFOV with dual cameras is shown here; see *page 3.1* for other configuration options.



Item	Supplied with system
1	VEO 700 power supply / controller
2	Touchpad
3	Camera cable
4	VEO 700 camera(s)
5	Positioning track with mounting brackets
6	Gear rack and mechanical stops for ACS mode and operator safety
7	Gear sensor (single or dual) and cable, or optional signal device
8	Monitor, touchscreen
9	VGA cable
10	Power cable, monitor
11	Power cable, power supply
12	VGA cable for additional monitor – optional
13	Additional monitor(s) – optional
14	Power cable, additional monitor(s)
15	Mouse

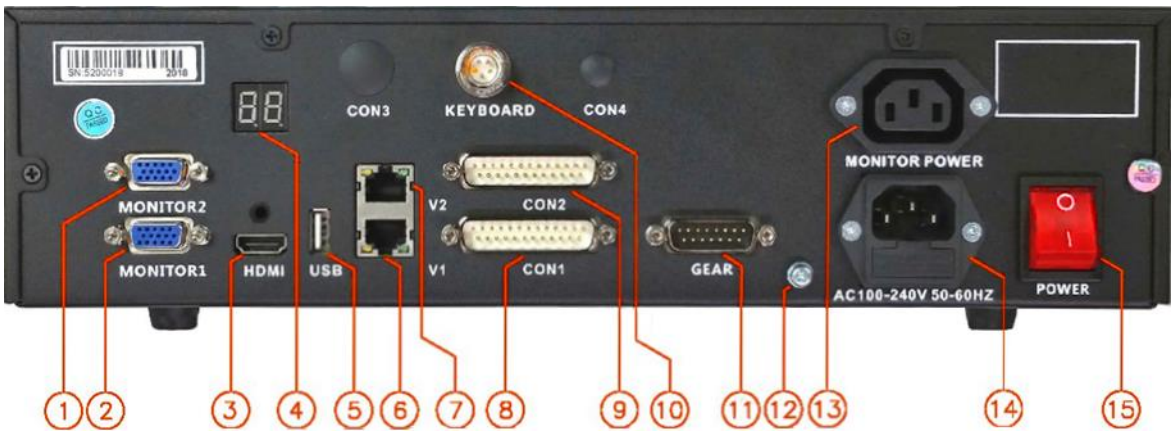
Storage

System components should be stored in the original packaging in a dry room until time of installation.

Temperature: -10 to 55° C (14 to 131° F) maximum

Humidity: 10% to 95%, non-condensing

Power supply connections



1	VGA signal connection to HD monitor 2 (optional)
2	VGA signal connection to HD monitor 1 (optional)
3	HDMI video connection to HD monitor 1, 2 or 3 (optional)
4	LED digits for controller codes such as firmware version
5	USB connection for touch monitor or mouse control
6	Camera 1 RJ-45 cable connection for EFOV
7	Camera 2 RJ-45 cable connection for EFOV
8	Camera 1 connection: Power/signal cable for one camera
9	Camera 2 connection: Power/signal cable for a second camera
10	Touchpad connection (optional)
11	Synchronization input from gear sensor, encoder contrast sensor, or any third-party NPN or PNP signaling device
12	Chassis ground lug screw
13	Monitor power supply (100 to 240 VAC, 50/60Hz)
14	Main power input (100 to 240 VAC, 50/60Hz)
15	Main power switch: illuminated when system is ON

DO NOT cover any air outlets; these provide cooling for the unit.

Installation requirements

Installation site

Normal printing operation environment with a non-explosive atmosphere

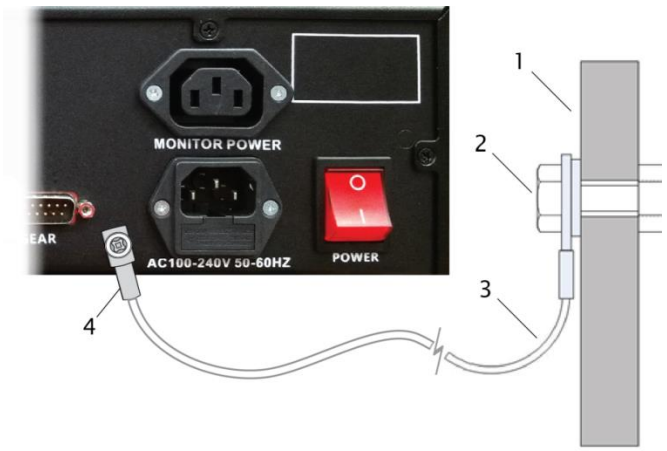
Ambient operating conditions

Temperature: 0 to 40° C max (32 to 104° F)
Humidity: 20% to 80%, non-condensing

Earth grounding

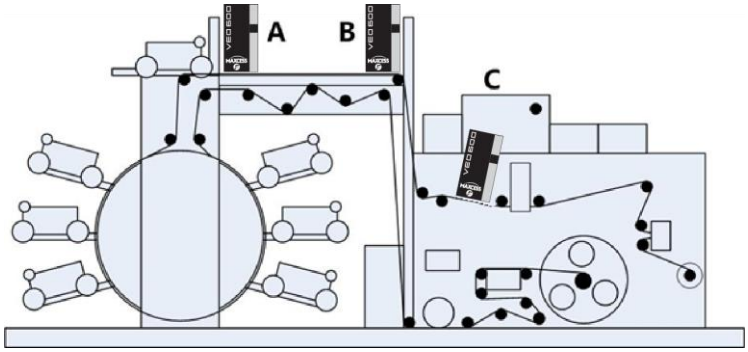
The system must be connected to earth ground to prevent static damage, shock hazard to operator, and interference to the sync signal.

The system power supply plug must be grounded. If the power supply plug does not have a ground terminal, use an earth grounding cable to the power supply and the printing press frame.

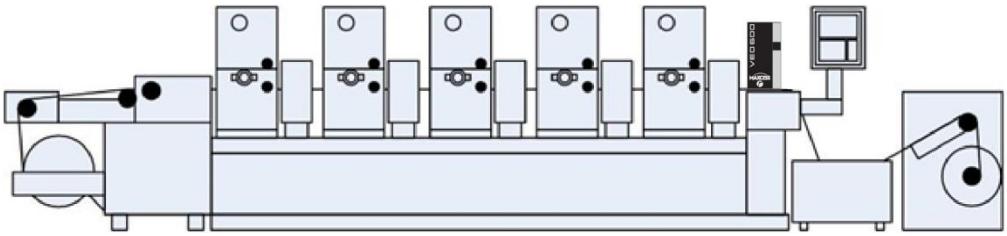


1	Printing press frame
2	Screw
3	Earth grounding cable
4	Ground screw - back side of power supply

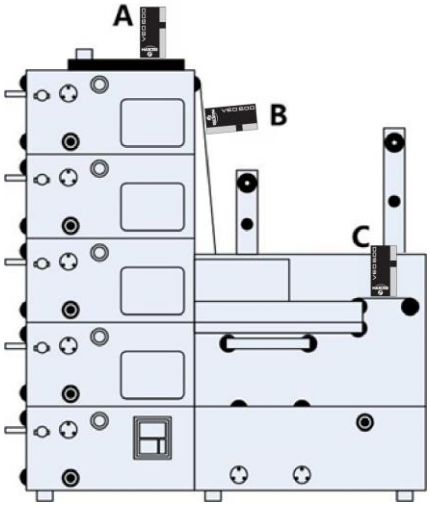
Typical installation locations



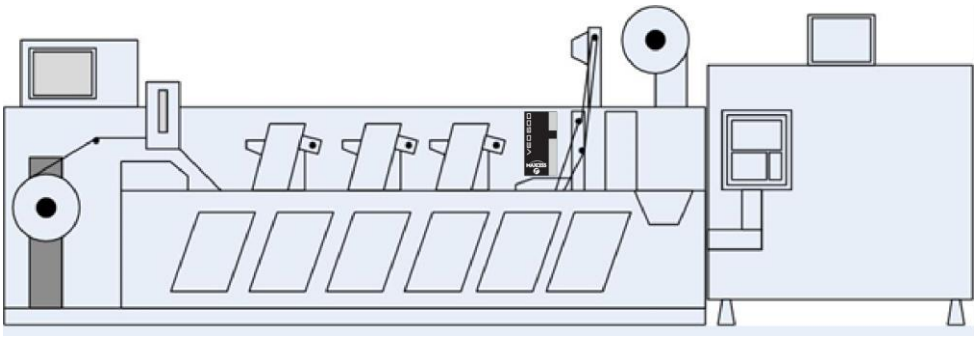
Rotary printing press



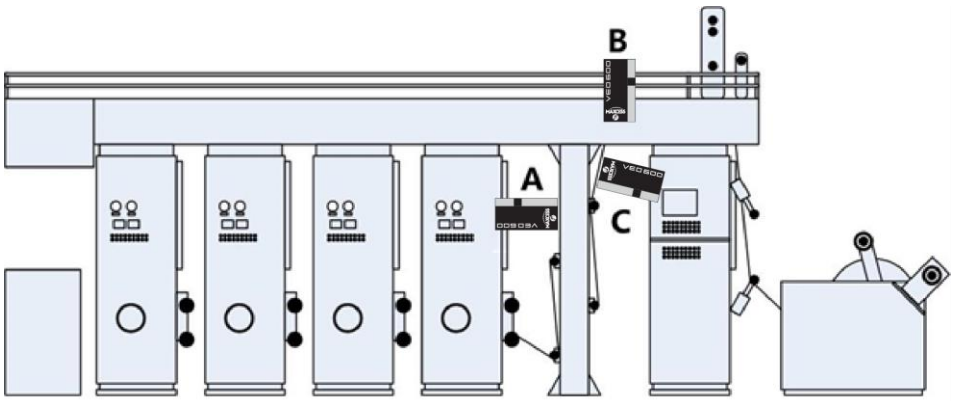
Combination rotary press



Stack printing press

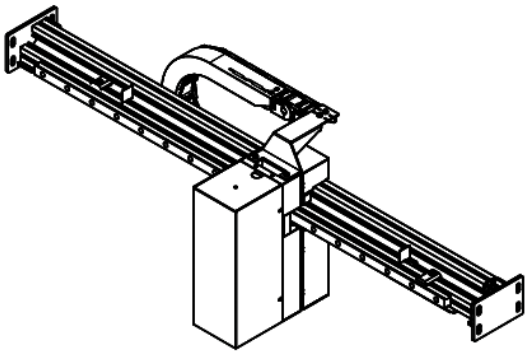
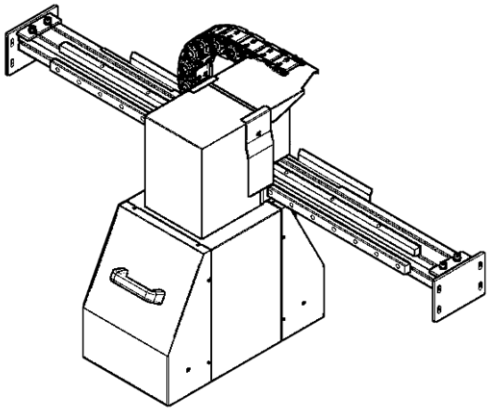


Flexographic printing press



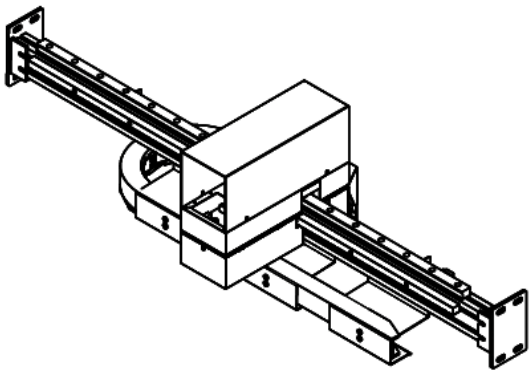
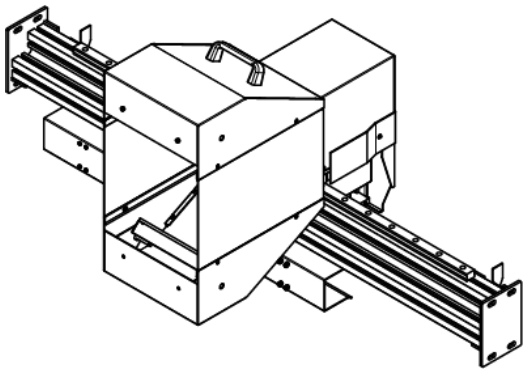
Gravure printing press

Camera mounting options

SFOV	EFOV
	

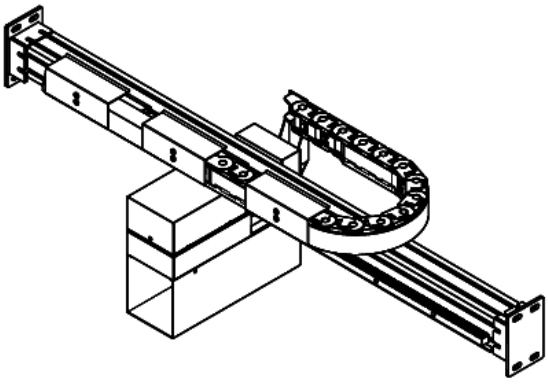
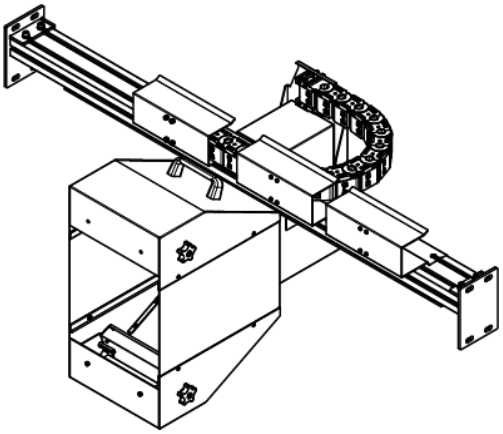
Horizontal web

Camera mounted on top of positioning track

Vertical web

Camera mounted on top of positioning track

Vertical web

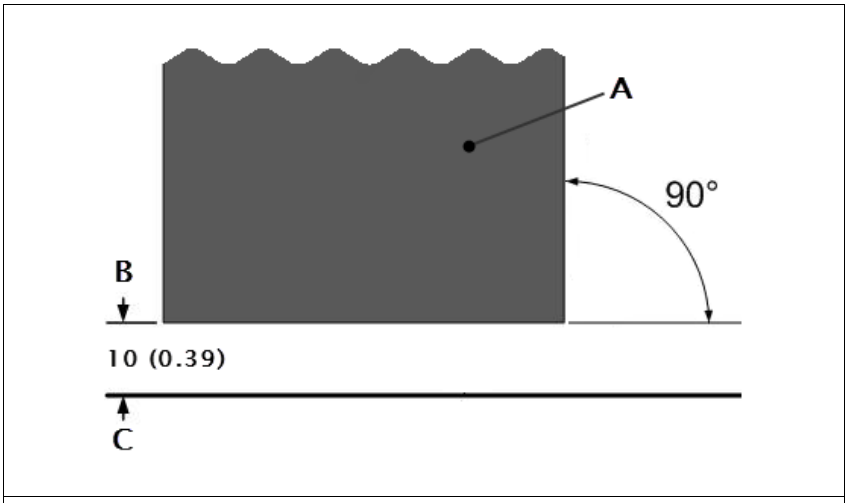
Camera mounted on bottom of positioning track

Mounting dimensions

Web distance

The bottom of the camera must be parallel with the web material at a distance of 8 to 12 mm [0.32 to 0.47 inches] from the web.

10 mm [0.39 inches] is optimal.



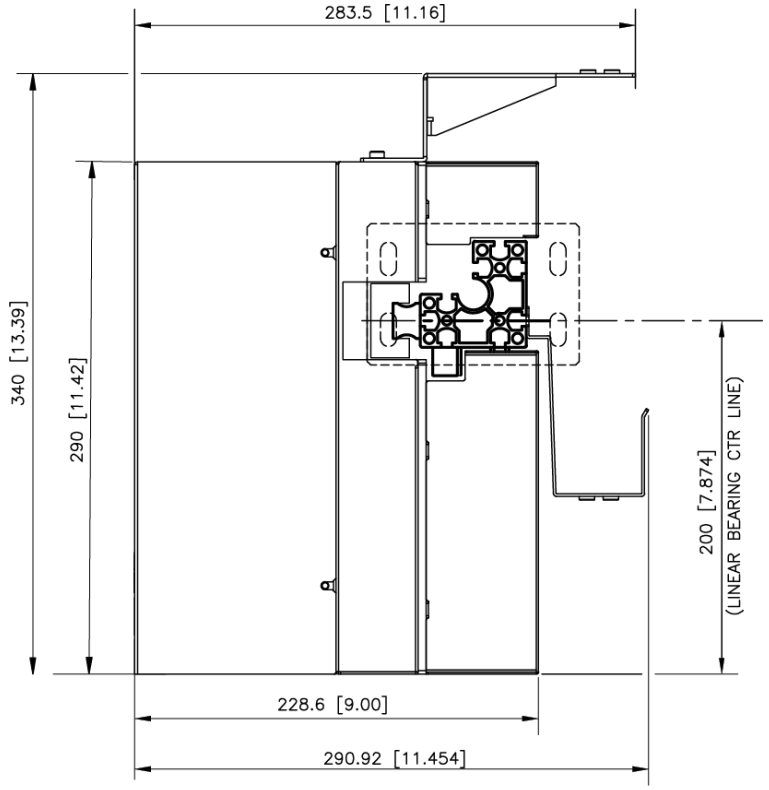
A – Camera
B – Bottom of camera
C – Web material

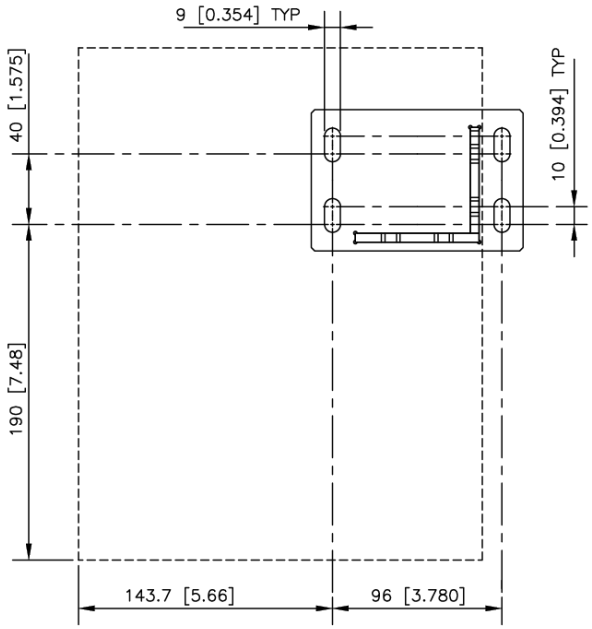
Use the dimensions on the following pages to determine where to mount the positioning track on your printing press frame.

The linear bearing center line dimension is critical to proper installation.

SFOV mounting dimensions

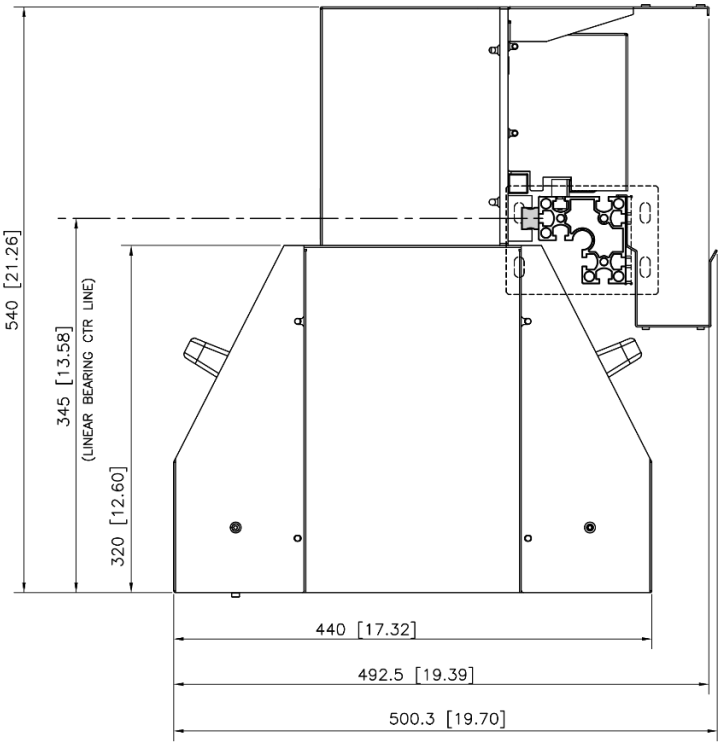
The linear bearing center line dimension is critical to proper installation.

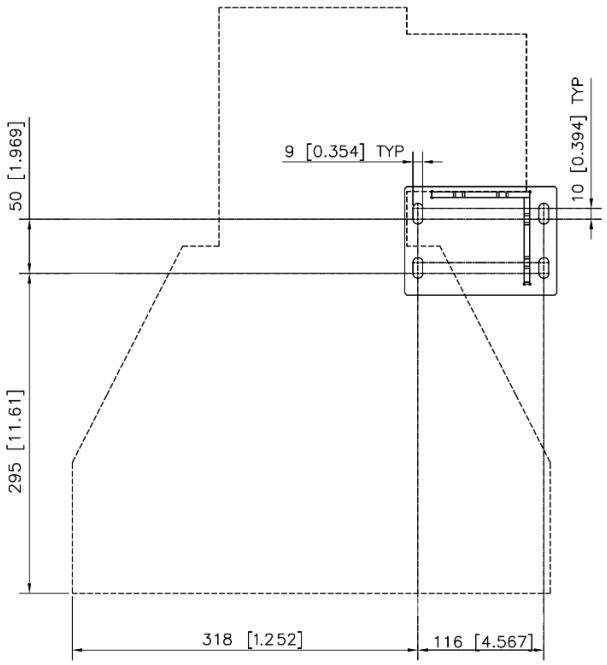




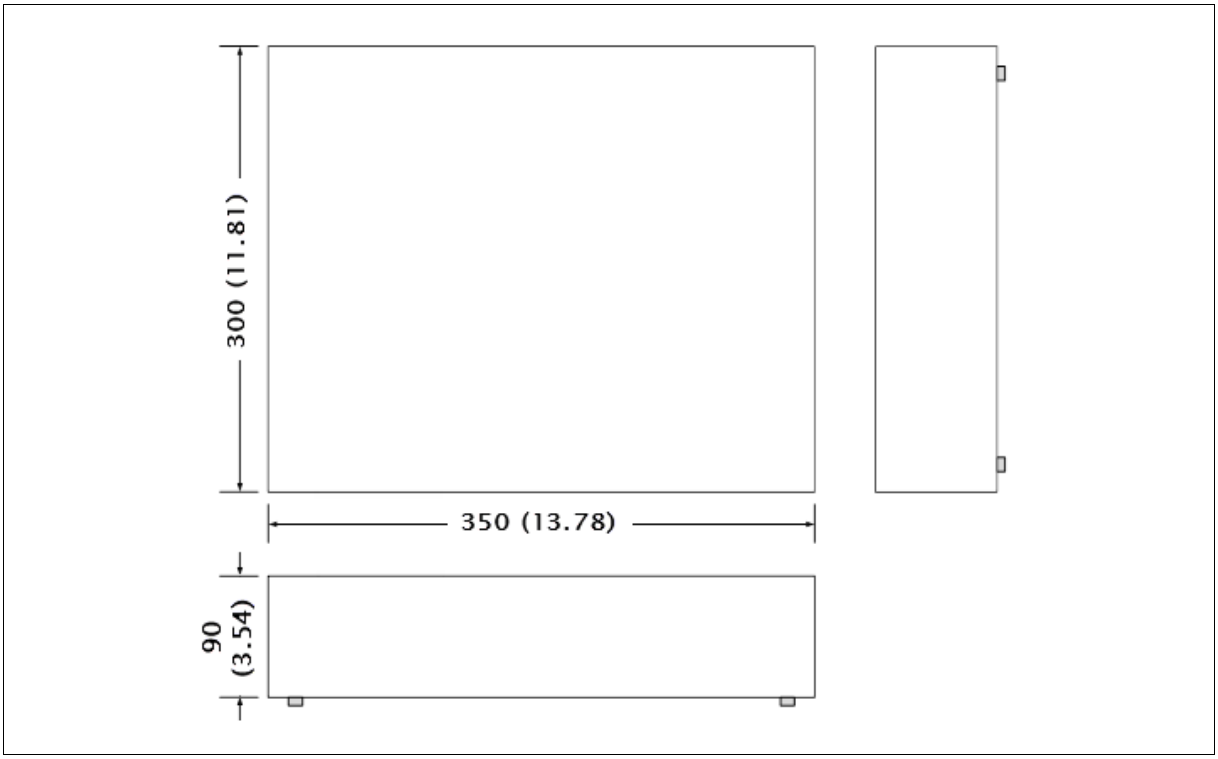
EFOV mounting dimensions

The linear bearing center line dimension is critical to proper installation.

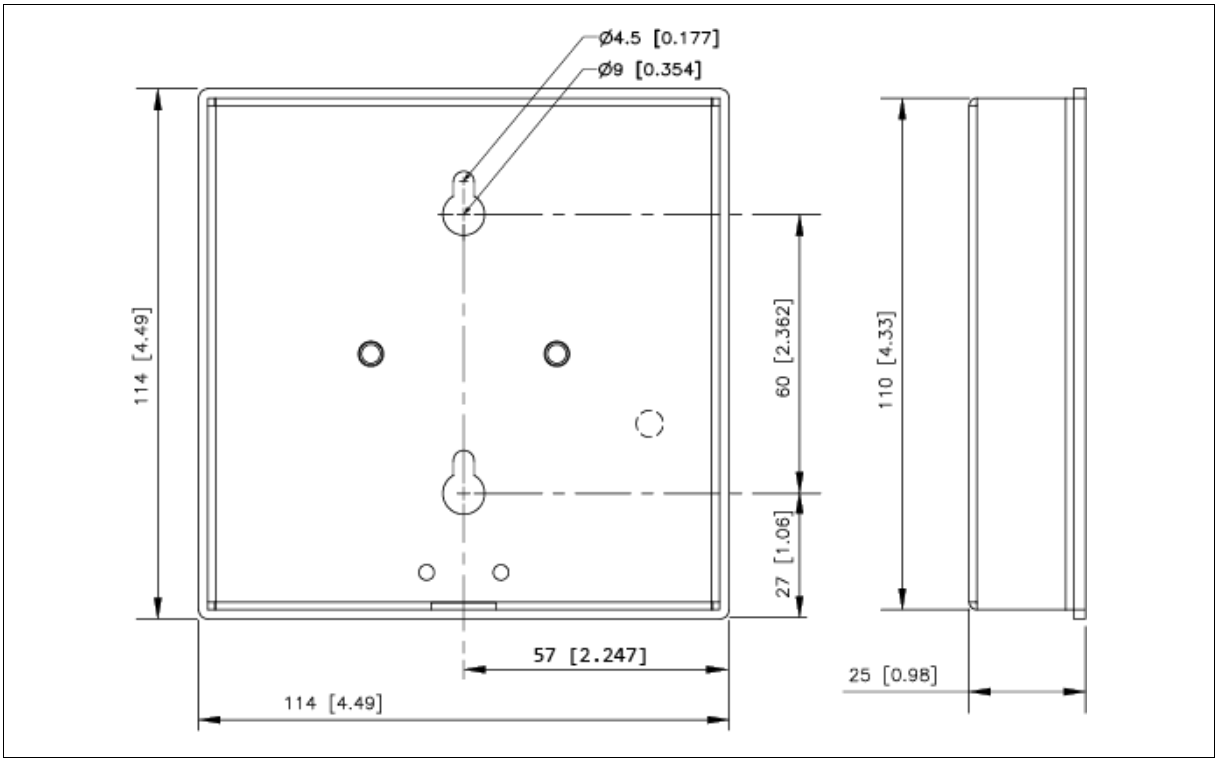




Controller dimensions

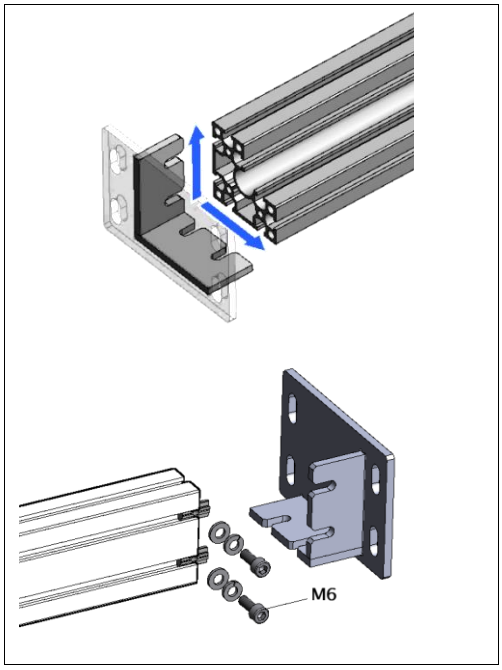


Touchpad - wall mount dimensions



Install the positioning track

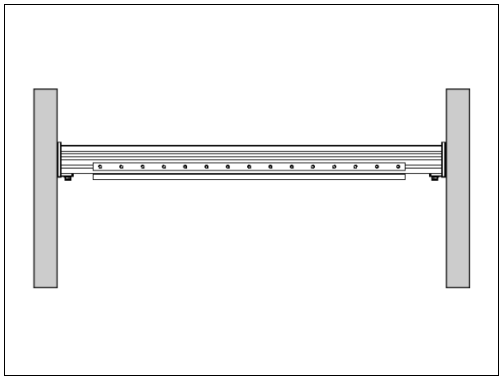
1. Find a suitable location in your process line to install the camera and power supply.



2. Install the mounting brackets onto the positioning track, using the T-nuts and bolts supplied.

When installing the brackets on the positioning track, make sure that both of the full sides of the track are supported whenever possible.

Keep the mounting slots oriented in the direction that the camera will point; you will be able to make small adjustments to the camera/track assembly position after it is installed; *page 4.17.*



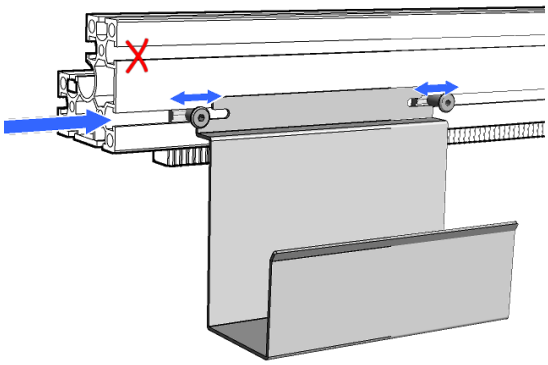
3. Determine the mounting dimensions for the camera/track assembly.
   SFOV - *page 4.6*
   EFOV - *page 4.7*
4. Install the assembly on the printing press frame; ensure that it is level and square.
5. Remove the positioning track from the mounting brackets to install the camera on the track.

Cable chain support brackets

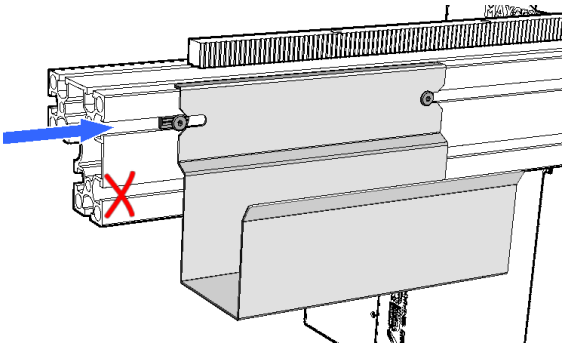
If your camera travel is longer than 610 mm (24.0) inches, your system will be equipped with a cable chain and support brackets. Install the support brackets on the positioning track, oriented as shown for your camera model. Typical spacing between support brackets is 51mm (2.00 inches)

1. For each cable tray, slide two sets of the screw and T-nut assembly into the extrusion; do not tighten.
   SFOV – use ***the lower slot*** on the extrusion
   EFOV – use ***the upper slot*** on the extrusion
2. Align a support bracket on the positioning track and slide a screw and T-nut into the slot on each side of the bracket.
3. Adjust the bracket position, and then tighten the screws.

SFOV



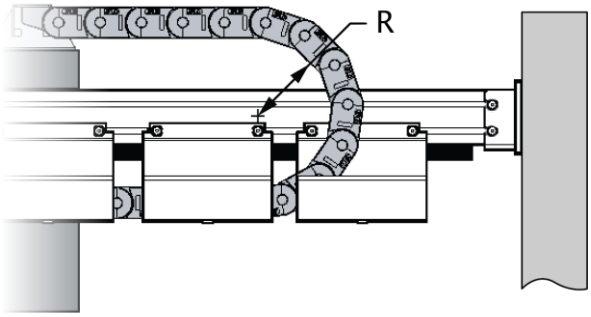
EFOV



Cable chain

Minimum bending radius

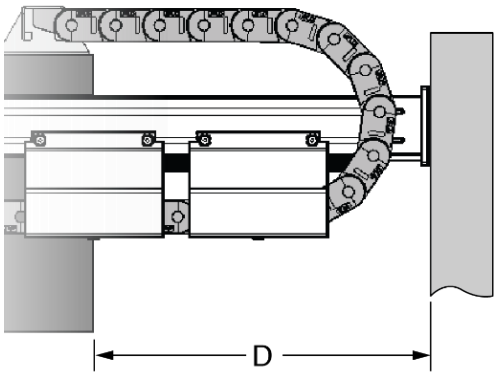
To maintain the life of your cable, the bending radius of the cable chain should be no less than indicated for your camera model.



Dimension 'R'	
SFOV	190 mm (7.5 inches)
EFOV	248 mm (9.8 inches)

Space requirement on positioning track

To prevent damage to the cable chain, ensure that the sensor flags for the safety stops (*page 4.15*) are mounted such that the camera remains a minimum distance from the printing press frame as illustrated.



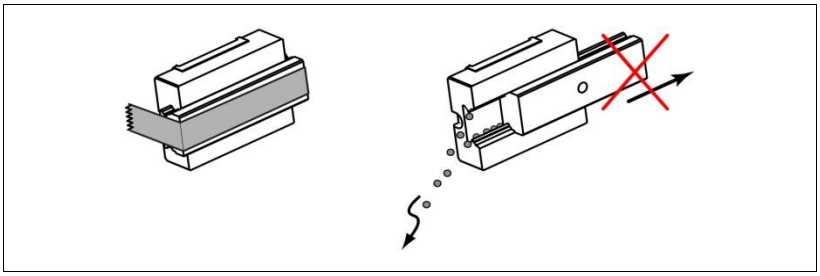
Dimension 'D'	
SFOV	190 mm (7.5 inches)
EFOV	248 mm (9.8 inches)

Installing the camera

Linear bearings

The VEO 700 camera uses a linear bearing and rail to ensure smooth travel on the positioning track.

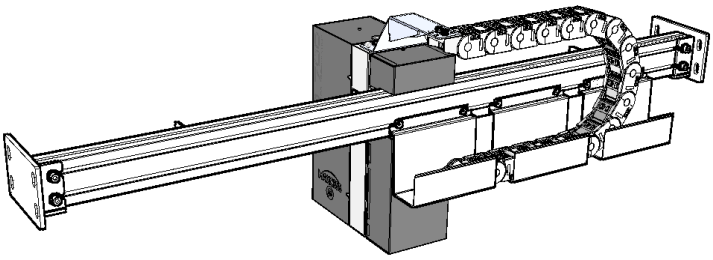
There is a short piece of linear rail installed and secured to the bearing during shipping. Do not remove this piece except by sliding the camera onto the positioning track.



For successful camera installation and to preserve the life of the linear bearing, follow these recommendations.

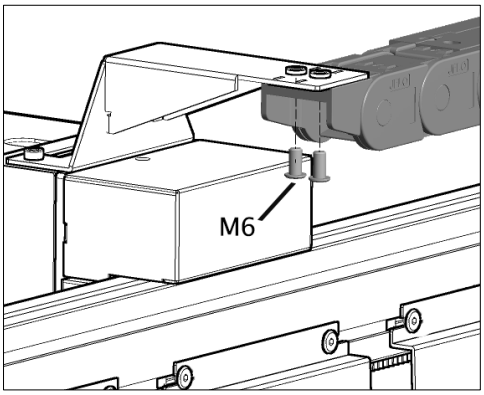
- Do not remove the factory-installed short rail section from the linear bearing: you will use it to install the camera on the positioning track.
- Carefully remove the piece of tape that secures the short rail section, ensuring that the rail remains in place for installation purposes.
- Align the short rail with the linear bearing rail on the positioning track, and then slide the camera from the short rail onto the bearing rail.
- Save the short rail for future use when removing the camera from the track.

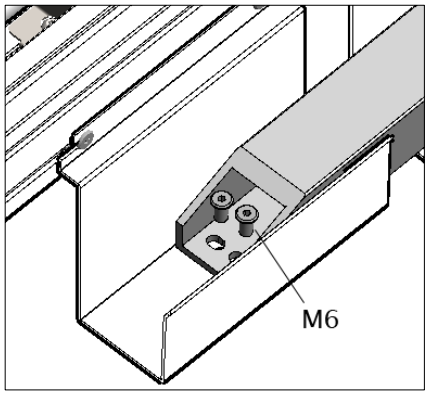
SFOV installation



1. Install the camera on the positioning track; make sure to align the short rail of the bearing with the linear bearing rail, and then slide the camera onto the rail.
2. If your camera travel is longer than 24 inches, your system will come equipped with a cable chain and support brackets. See installation instructions on *page 4.10.*
3. Secure one end of the cable chain to the bracket on the camera and the other end to a support bracket closest to center on the positioning track.

   Use four M6 bolts through the factory-installed press-nuts.

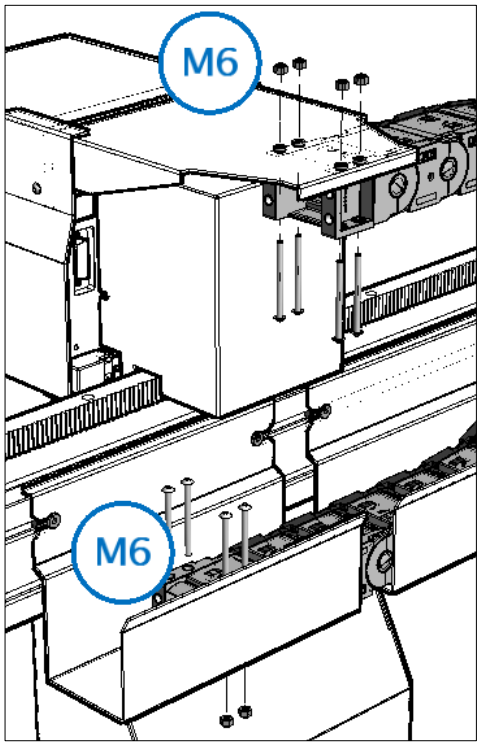




To prevent bodily injury due to pinching or crushing during operation of the VEO 700, the mechanical stops MUST BE INSTALLED as instructed on *page 4.15.*

EFOV installation

1. Install the camera on the positioning track; make sure to align the short rail of the bearing with the linear bearing rail, and then slide the camera onto the rail.
2. If your camera travel is longer than 24 inches, your system will come equipped with a cable chain and support brackets. See installation instructions on *page 4.10.*
3. Secure one end of the cable chain to the bracket on the camera and the other end to a support bracket on the positioning track.
4. Use four M6 bolts through the press-nuts (already installed), and then add an M6 lock nut to each bolt.



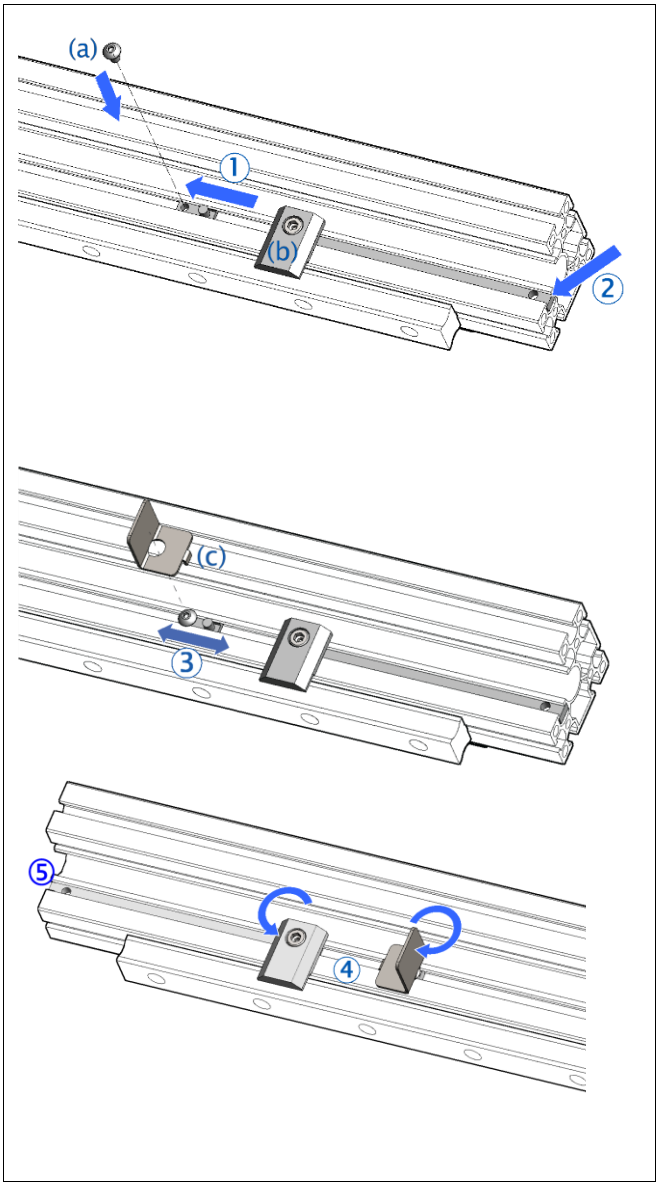
To prevent bodily injury due to pinching or crushing during operation of the VEO 700, the mechanical stops MUST BE INSTALLED as instructed on *page 4.15*.

Safety stops

SFOV

The moveable Autoscan stops tell the camera when to change direction on the track when in Autoscan mode. They are designed to break away if an operator's hand comes between the camera and the stop.

The fixed safety stops, when installed in the extrusion, prevent the camera from traveling past the limits of the gear rack, and prevent crush hazards between the operator's hand and the inside of the machine frame.



① Insert the magnetic Autoscan stop base into the extrusion slot and move it toward the center. Insert screw **(a)** into the base — do not tighten.

This assembly, when complete, will hold the Autoscan sensor flag.

② Insert the fixed stop rail assembly into the extrusion slot; align the end of the fixed stop rail with the end of the extrusion and tighten screw **(b)**.

③ Move the Autoscan stop base to the desired position and tighten the screw.

Place the sensor tab **(c)**, held in place by a magnet, on the rail as shown.

④ Repeat installation steps at other end of track. Rotate the stops as shown.

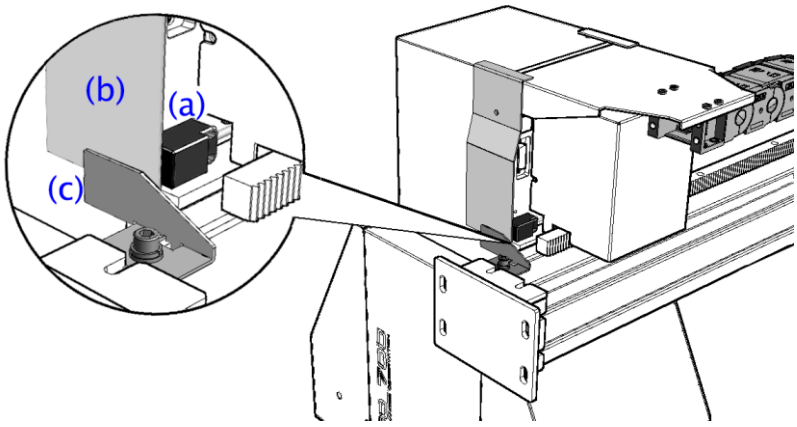
⑤ Depending upon your orientation of the mounting bracket for the positioning track, you may need to install the bracket screw directly into the stop rail. In that case, omit the T-nut from the bracket.

EFOV

The fixed safety stops, when installed in the extrusion, prevent the camera from traveling past the limits of the gear rack, and prevent crush hazards between the operator's hand and the inside of the machine frame.

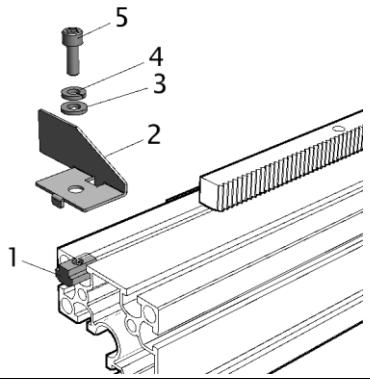
The safety stop consists of a sensor **(a)**, a flexible sensor trigger **(b)** and a fixed stop **(c)**.

The sensor detects the smallest amount of deflection in the sensor trigger and signals the camera to change direction. If the trigger contacts the fixed stop or an operator's hand, the camera changes direction, preventing damage to the camera or operator injury.



The sensors and sensor triggers are factory-installed on each side of the camera. You will need to install and adjust the fixed stops in the positioning track during your installation.

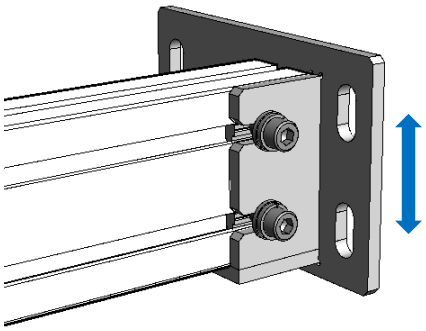
1 – T-nut, M6
2 – Fixed stop
3 – Flat washer, M6
4 – Split-lock washer, M6
5 – Soc hd cap scr, M6



Adjusting the camera position

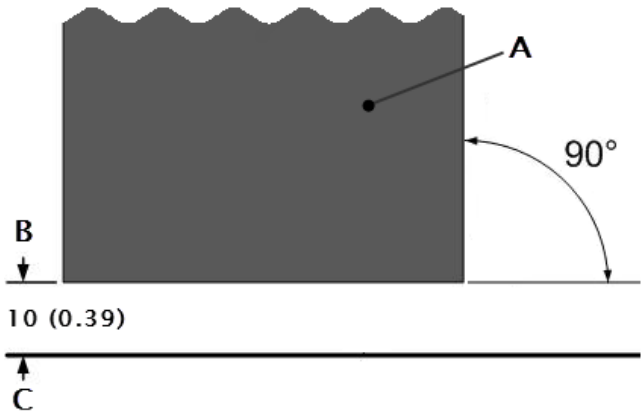
After the camera and other options are installed on the positioning track, place the track in the mounting brackets on your printing press frame.

Loosen the machine mounting bolts in the printing press frame to adjust the positioning track so that the camera is level, front to back, with the surface of the web. (Machine mounting bolts not shown.)



The bottom of the camera must be parallel with the web material at a distance of 8 to 12 mm [0.32 to 0.47 inches] from the web.

10 mm [0.39 inches] is optimal.

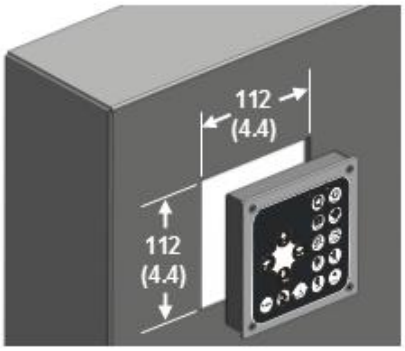


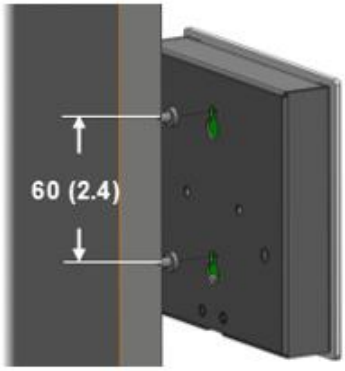
A – Camera
B – Bottom of camera
C – Web material

Touchpad

In addition to the touchscreen display or a mouse, a touchpad is also available for operating the VEO 700. It is designed to be mounted on the top front right side of the controller; the bracket is included. Optionally, it can be mounted on the wall.

Wall mount





Sensor signal settings

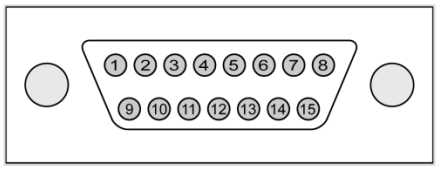
Signal type

The VEO 700 can receive various kinds of synchronization signal inputs, including an incremental (rotary) encoder, NPN and PNP type optical encoders, NPN and PNP type proximity sensors, and a PLC or register signal from a printing press control system.

When your sensor installation is complete, you will need to enter the gear tooth or pulse settings; see *Setup, page 5.6.*

Signal port pinout

The DB15 male connector is on the back of the power supply (controller).



1	+5VCC	6	PNP	11	NC
2	Coder_A+	7	DGND	12	NPN_ZERO
3	Coder_Z+	8	DGND	13	NC
4	NC	9	Coder_Z-	14	+12VCC
5	NPN	10	Coder_A-	15	NC

Turn off the power before connecting the plug.

DO NOT input a servo motor signal into the video web viewer system as a signal source.

Sensor settings

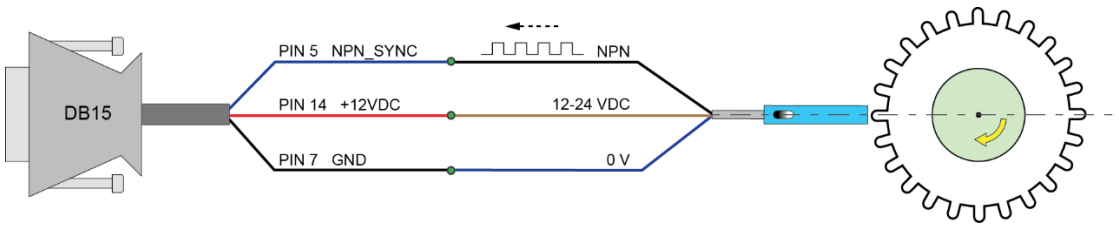
This is the most common wiring diagram for the sensor settings, using NPN as the default.

Num.	Sensor Type	Pin	Function	Note
1	Gear/optical sensor (NPN)	5 7 14	NPN GND +12 VDC	NPN
2	Gear/optical sensor (NPN)	12 7 14	NPN_Z GND +12 VDC	NPN_Zero
3	Gear/optical sensor (PNP)	6 7 14	PNP GND +12 VDC	PNP
4	Incremental encoder (rotary encoder)	1 2 3 8 9 10	+5 VDC Coder_A+ Coder_Z+ (optional) GND Coder_Z- (optional) Coder_A-	Rotary encoder
5	PLC signal (12 to 24V)	5 7 12	NPN GND NPN_Z (optional)	NPN signal

All connections must be covered with shrinkable tubing.

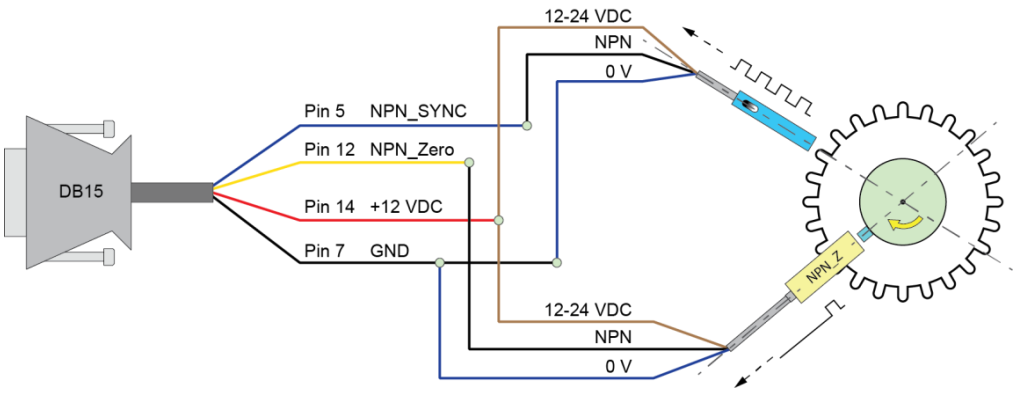
NPN_SYNC	N pulse per revolution (N=number of gear teeth)
NPN_Zero	One pulse per revolution

Single sensor cable connection (typical)



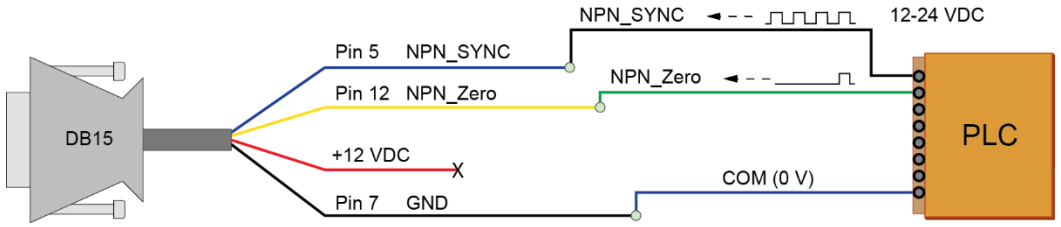
Sensor wires	
Black	NPN
Brown	12-24 VDC
Blue	0 V

Dual sensor cable connection (typical)



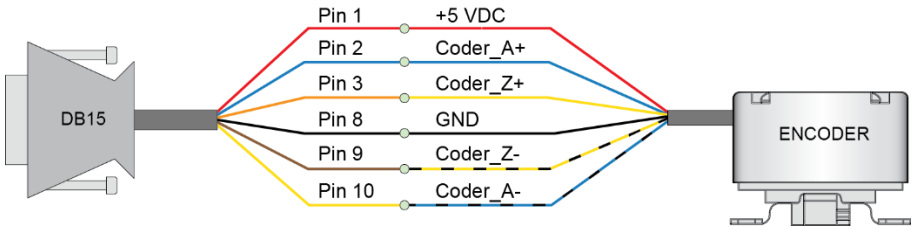
Sensor wires	
Black	NPN
Brown	12-24 VDC
Blue	0 V

Dual NPN signal connection from PLC (typical)



PLC wires	
Black	12-24 VDC
Green	NPN_Zero
Blue	Com (0 v)

Rotary encoder connection (typical)



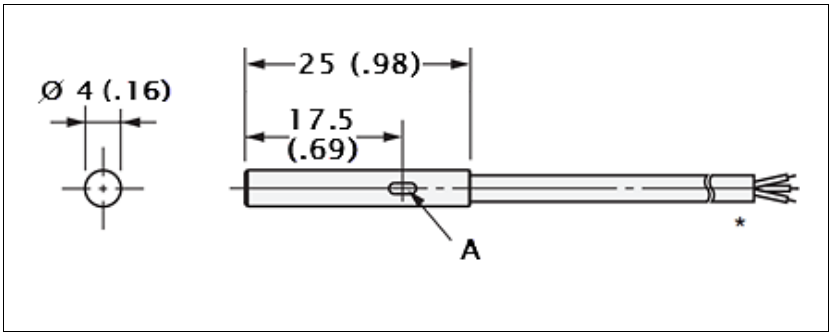
	Encoder wires	
	Red	+5 VDC
	Blue	Coder_A+
optional	Yellow	Coder_Z+
	Black	Gnd
optional	Yellow/blk	Coder_Z-
	Blue/blk	Coder_A-

Gear sensor installation

OMRON sensor

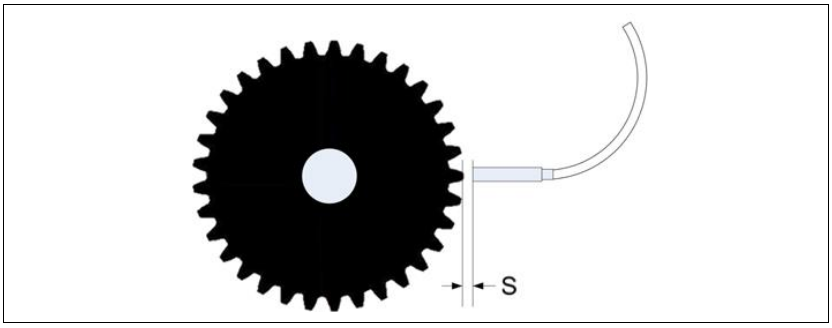
Fife part no. 38600

Dimensions



A = operation indicator (red)

Typical installation



NPN type
S= 0.3 to 0.8 mm (0.012 to 0.03 inches)

DO NOT use a hex key to tighten the screw that holds the sensor in place. Do not overtighten.

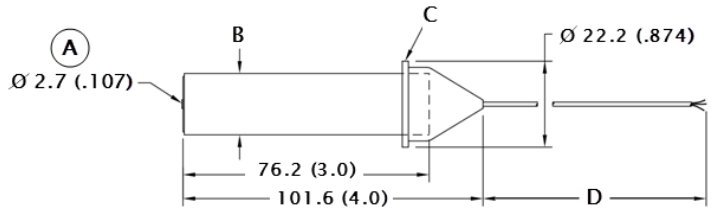
Use a feeler gauge to set the distance from the sensor face to the gear tooth.

Maximum frequency = 5 KHz

Red Lion® sensor

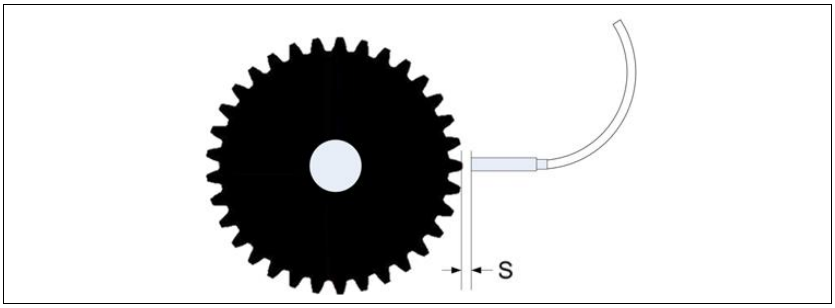
Fife part no. 38601

Dimensions



A	Flush mount pole piece
B	304 SS case Ø .750±.005
C	Neoprene strain relief boot
D	3-wire integrally potted

Typical installation



NPN type

S= 0.4 to 2.5 mm (0.02 to 0.10 inches)

When running printing press under 10 m/min (33 ft/min), adjust the Red Lion sensor at the minimum spacing. The sensor needs to be closer when running at slow speeds.

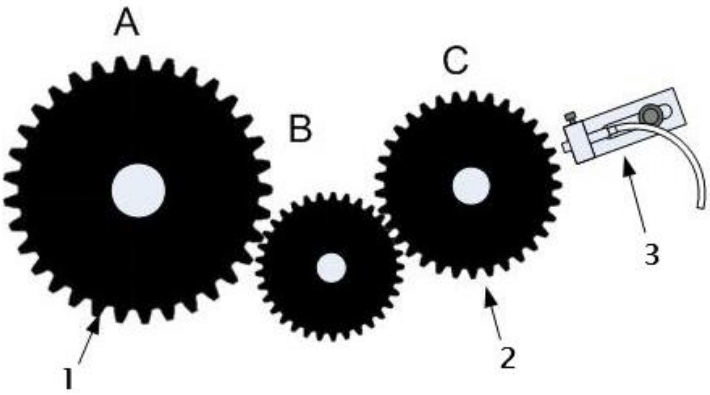
Use a feeler gauge to set the distance from the sensor face to the gear tooth.

Maximum frequency = 5 KHz

Gear selection

Because the cylinder on a printing press is usually removed to install the print plate, the gear sensor cannot be installed on the cylinder gear.

In this case, the gear sensor should be put on a gear that is in sync with the web. In the picture below, gear A and gear C must have a tooth ratio of 1:1. If not, it will be very difficult to obtain a stable image.



1	Cylinder gear
2	Gear with sensor
3	Gear sensor with holder

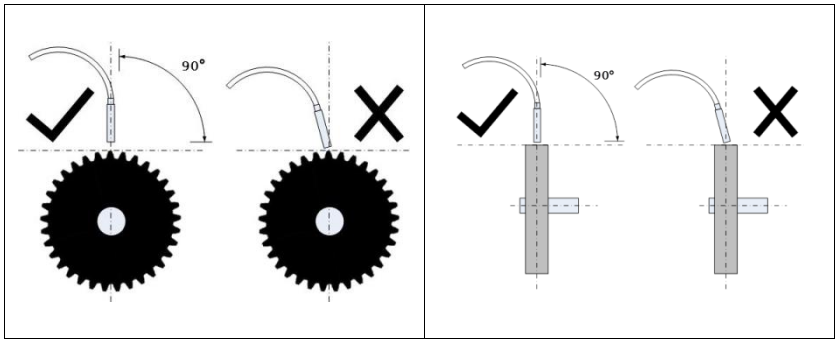
The gear sensor MUST be installed on the gear engaged with the cylinder gear in the same transmission system with the same gear modules and the same line speed.

Mounting the gear sensor

The gear sensor must be installed along the gear axis or perpendicular to the surface of the gear.

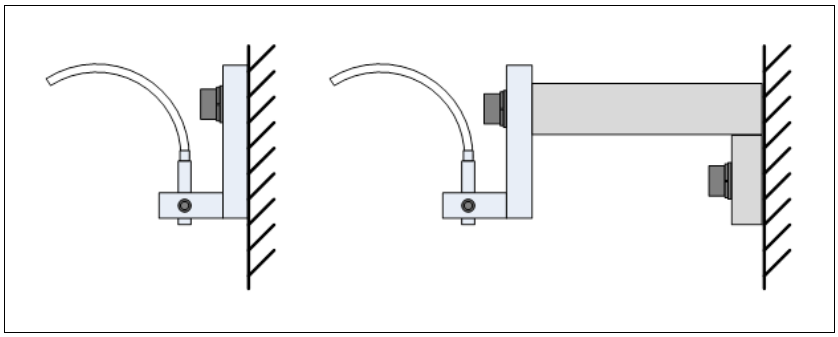
If it is not perpendicular to the gear, the sensor signal will be weak, affecting the image stability.

Only qualified personnel may install the gear sensor.



End view Front view

If the gear is a long distance from the printing press frame, use a support to extend the gear sensor mounting bracket.



Sensor bracket Sensor bracket with adapter

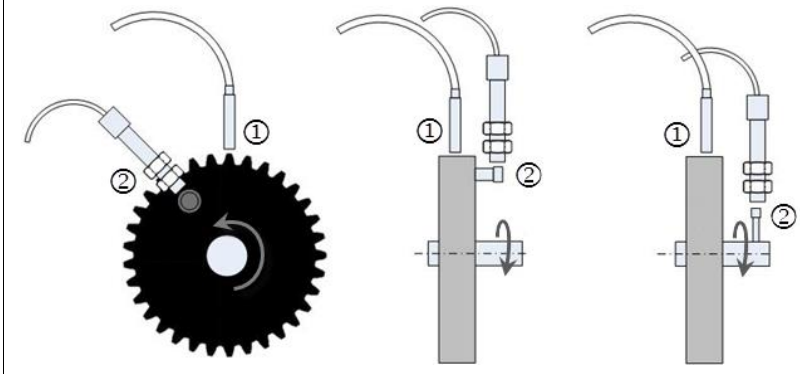
The support to extend the gear sensor must be strong enough to prevent vibration from the printing press.

Using dual sensors

The VEO can use dual sensors to keep the position in the repeat length that was last viewed after stopping and restarting the press.

One sensor **(1)** is used to synchronize the strobe to the web image by reading each tooth on the gear.

The other sensor **(2)** is used to signal the position being viewed in the repeat by reading a signal that is one pulse per revolution.



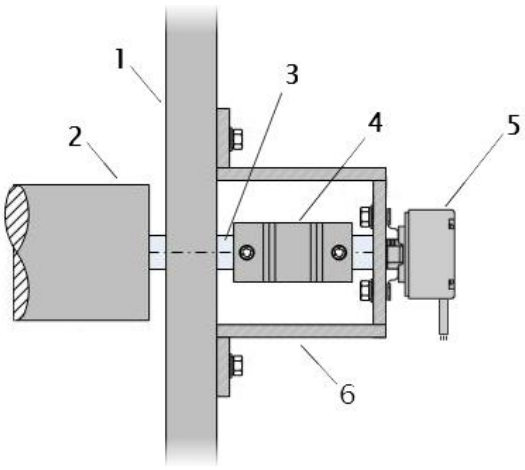
1	Proximity sensor
2	Screw installed on the gear (or gear axis)

You can install a screw on the side of the gear or on the axis of the gear, and then install the repeat sensor against this screw.

Rotary encoder

Fife part no. 38602-xxx

A rotary encoder must be installed with a flexible coupling (illustrated), or on a driven wheel engaged with a gear.



1	Printing press frame
2	Axle
3	Shaft (customer supplied)
4	Coupling
5	Rotary encoder
6	Encoder support

When choosing a rotary encoder, the pulses per revolution MUST be between 1 and 10,000.

Gear setting information

When using a rotary encoder, enter the number of pulses per revolution in the system parameters window; *see page 5.6*.

Optical sensor Q3X

Fife part no. 290010680

The Q3X optical sensor detects differences in contrast on printed material. It is suitable for detecting explicit image marks or (alternatively) suitable image edges with high contrast that occur once or more per image.

Since the Q3X provides significantly less information that the rotary encoder by comparison, the print system must run at a constant speed to be able to display stable images.

Fluctuations in the speed of the print system are reflected in an unstable image position. The image can be improved with a sensor combination

Gear setting information

When using the Q3X sensor, the gear tooth setting is "1".

Turning on the system

The camera will travel the full length of the traverse and then return each time the unit is powered on. Ensure that nothing is in the path of travel.

1. Turn on the main power switch on the back of the power supply; the switch will light up when power is on.
2. Turn on the monitor power.

   During initialization, the VEO 700 will display the Maxcess logo screen and run in test mode for a few seconds:

   - The system will measure the traverse length,
   - test the lens and software, and
   - the camera unit will flash once.

After initialization, your web image appears on the display, and the system is in 'run' mode.

For proper camera operation, you must enter the system parameters; *page 5.6*

RGB color blocks

An abnormal color channel display indicates a poor connection or a system failure.

See *Troubleshooting; page 7.1*

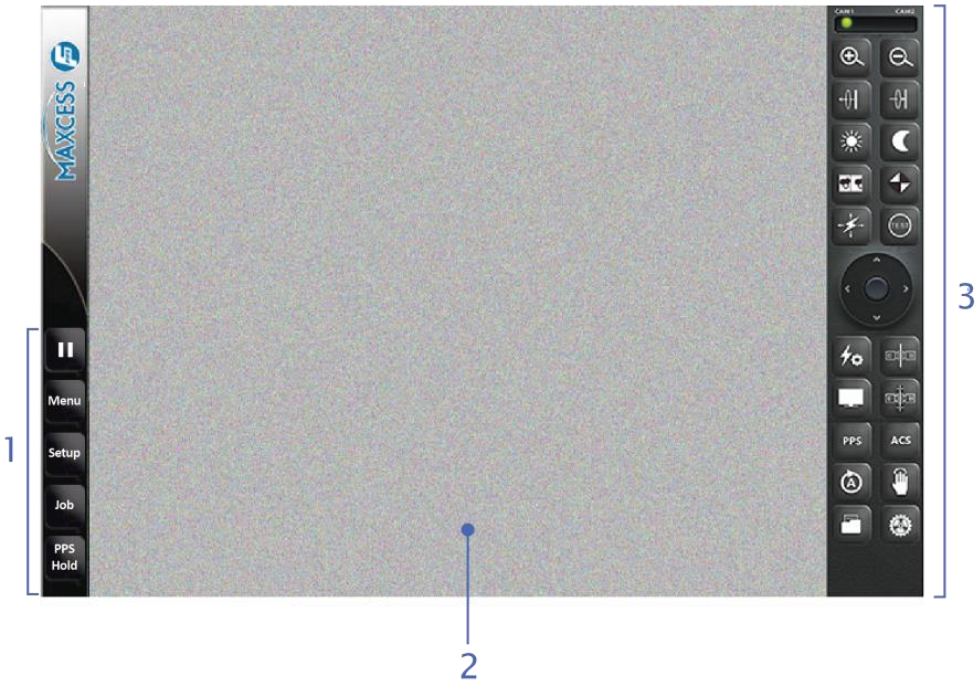
Main screen

The main screen of the VEO 700.

1 – Quick menu; *page 5.5*

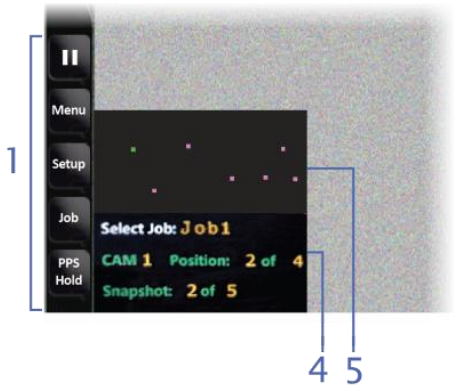
2 – Image viewing area

3 – Controls menu
Camera, image and jobs (selection and control); *page 6.1*.



Optional information

You can also display
4 – Information Bar and
5 – PPS Map



See *page 6.13.*

Input modes

Touchscreen monitor

On the monitor:

- Touch a control button to display the current setting for that function.
- Touch the button repeatedly to increase or decrease by increments.
- Touch and hold the button for continuous function.
- Touch and drag a point on the displayed image to relocate that point on the screen.

Other input devices connected to the controller on system startup, such as a mouse or touchpad, will override the touchscreen function.

Mouse

You can navigate and control all camera functions with a mouse connected to the controller via USB.

When using a mouse, you will need to click control icons repeatedly to make incremental changes; unlike the touchscreen and touchpad, the mouse does not have "press and hold" capability.

continued

Touchpad

The touchpad provides a touch-sensitive pad area for navigation and operation of:

- the on-screen image
- camera controls
- all menu items

The touchpad, when connected to the controller, will override the touchscreen function.

The mechanical buttons below the touchpad area are for commonly used functions:

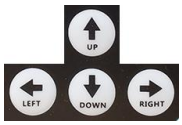
Not used

Display the camera controls menu.

Focus image; pop-up box is momentary for each button press.

Zoom in or out on image; the camera controls menu must be displayed in order to use this function.

Pause or run a job



Move camera manually on the positioning track.

Select which camera will capture the web material images

Blue light = indicates camera selection (CAM1 or CAM2)
Red light = status; power on or off

Some of the control pop-up boxes are momentary; they appear when you make a change and close when you are finished.

Others, such as the zoom function, must be closed by touching or clicking on the X.

Quick menu

The Quick Menu provides access to the basic operating functions. It is located at the bottom left side of the display.

The system starts up in run mode, with the Pause button present.

When you press the Pause button

- the icon changes to the ▷ icon (System Run).
- the Camera Controls menu will close (if open).
- the camera will stop moving and taking pictures.
- none of the other buttons in this menu will work until the System Run button ▷ is pushed.

To stop camera movement only, use the Manual mode button on the controls menu; *page 6.7.*

System PAUSE/RUN button

Open the controls menu on right side of screen; *page 6.1.*

Set up system parameters; *page 5.6.*
You must enter these parameters before operation.

Access pre-programmed positions (PPS job), information and bar and position map jobs; *page 6.13.*

Available only when running a pre-programmed (PPS) job. Touch to hold the camera at its current position (when running a PPS job) while continuing to take snapshots. This allows the operator to adjust the printing press while viewing real-time updates.

System parameters setup

On the Main menu, touch to open parameter settings window.

Select signal type. See *Gear Installation; page 4.23.*

Gear value (pulses per repeat length/image); *page 4.25*
Touch the up or down arrow to edit the value from 0 to 9,999.

The system will synchronize with the sensor if using a proximity sensor.

Units of measure
Touch the button to toggle between imperial and metric. Select units *before* entering the image repeat length

Repeat length
Touch the up or down arrow to edit the value from 0 to 9,999.9.

Enter a value that represents the repeat length of one complete print image.

continued

Web running direction / camera rotation
These are important parameters for ACS mode scan patterns.

Touch *one* of the first two buttons to select the web direction for the camera(s) being used.

You must select this option in order for the ACS mode to create an image correctly.

If your camera lens has been rotated 90 degrees as a factory option, this button must be OFF.

Camera controls menu

Overview

Select camera (enabled only on dual camera systems)

Image viewing controls
- Zoom
- Focus
- Brightness
- Split screen / Mirror
- Not used / Self-test

Direction controls (camera/image)

Dual camera system controls (for use with two cameras)

Operation modes

Extended functions
Factory settings

Camera selection (for dual camera setup only)

Indicates which camera is active.

Camera 1 (CAM1) is active. Touch in the area of the yellow rectangle to switch camera controls to Camera 2 (CAM2).

Camera 2 is now active.
Touch in the area of CAM1 to switch back to Camera 1.

If there is only one camera in your system, you will not be able to switch camera controls to CAM2.

Image viewing controls

Zoom

Increase or decrease zoom

The VEO 700 series has a 10X optical magnification lens.

The default is zero (no zoom); 100 represents maximum zoom. The pop-up box displays a relative number during zoom adjustments.

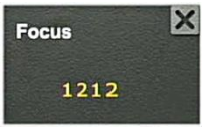
During system start-up, zoom setting remains at the last setting entered.

For quick zoom, touch once on the scale label for **Min, 50%, or Max** and the camera will automatically zoom to that factor.

Focus

Increase or decrease focus

The pop-up box displays a relative number during focal adjustments. Range is 10 to 1760.



The lens adjustment range is factory-set based on the recommended distance from camera to web: 10 mm [0.39 inch].

Brightness

Increase or decrease image brightness

Brightness value is 0 to 96; the default value is 48.

If brightness is set too far from center (the default value), color representation will be skewed. The displayed image will look significantly different from what is actually being printed.

Parameters for individual camera view positions are limited to zoom, focus and brightness.

Image rotation, image split/mirror, and shooting times are applied to ALL positions.

Web with foil printing may need special light to illuminate. Contact Maxcess Technical Support for assistance.

The following controls each offer multiple viewing options.

- Touch a control button to open the associated options box.
- Touch the desired option button once to enable it; touch again to disable it.
- Close the option box when finished.

Split screen/freeze

Split screen and freeze

Freeze full screen image.

Split screen vertically and freeze the image indicated by the ***F***. The other image runs in real time.

Split screen horizontally and freeze the image indicated by the ***F***. The other image runs in real time.

To exit this function

Touch the highlighted menu button

Touch the highlighted option to turn off the function. Close the pop-up box.

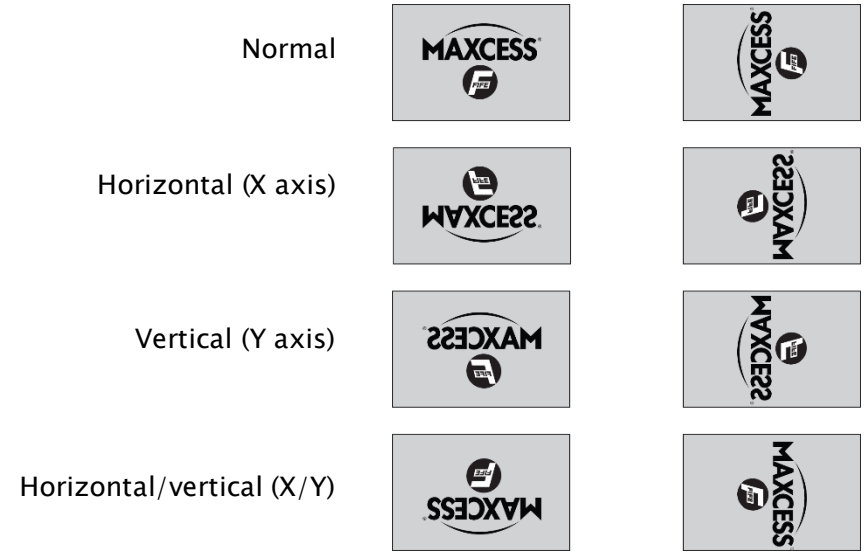
Mirror

Use the MIRROR button to manipulate the image shown on the screen.

Flips the image on its vertical axis.

Flips the image on its horizontal axis.

Each button press flips or rotates the image in the following order:



Self-test mode

Test flash and imaging function

Touch the button; the system will flash at a fixed frequency (two flashes per second) and ignore other signal inputs, including proximity sensor, PLC pulse signal, etc.

If the camera flashes and there is an image on the screen, the flash function is working.

Touch the button again to stop the test mode and return to regular operation.

Direction controls

In Manual mode, the left/right arrow keys move the camera automatically across the positioning track.

Left = the camera moves to its left
Right = the camera moves to its right

- Touch the arrow once; the camera moves incrementally.
- Touch and hold the button for continuous movement; the camera moves until it contacts a stop.

You can switch the directions for the left and right arrow keys; see *Factory Settings, page 6.29.*

Up/down arrow keys

Touch the arrow to electronically navigate the viewing image up and down the image repeat length.

The VEO 700 divides the cylinder circumference into 1024 increments (0–1023) regardless of the length of time between shots. Each touch of the arrow will move one increment.

With these four controls, you can view the complete print image.

Operation modes

The VEO 700 can be operated in one of four modes.

Manual mode

Move the camera using the arrow keys in the Controls Menu. The camera shoots from a fixed position; *page 6.7.*

Auto mode

The camera travels back and forth on the positioning track automatically. Image capture frequency depends upon traverse speed and sync signal; *page 6.8.*

PPS mode

Programmable position scan

The user can define ten different X/Y position points on the print image area and save this collection of coordinates as a job that runs automatically when recalled. Up to five different jobs can be saved; *page 6.9.*

ACS mode

The ACS scan builds a display of the complete image repeat length in a grid format based on user input parameters.

- You can navigate the onscreen image to view desired points, or
- the image can be saved, and then recalled in Auto mode or for defining a thumbnail in PPS mode.
  See page 6.15.

Manual mode

- The camera captures an image at a fixed location on the positioning track.
- Snapshot frequency depends on system signal input; one snapshot per repeat length.
- If the web is moving, the camera captures an image at the same position in each repeat.
- If the web is NOT moving, the camera captures NO image unless you are in TEST mode.

  NOTE: You can activate TEST mode if web is not active. Be sure to turn TEST mode off before running the web. *See page 6.4*.
- Use the arrow keys to move the camera on the track.

Touch to enter Manual mode.

Arrow keys

The default movement for left/right arrow keys:

Left = the camera moves to its left
Right = the camera moves to its right

In Manual mode, use the arrow keys to move the camera across the positioning track by increments.

- Use left/right buttons to move the camera along the positioning track (X axis).
- Use up/down buttons to electronically navigate the viewing image up and down the repeat (Y axis).
- Touch the arrow repeatedly; the camera moves incrementally.
- Touch and hold the arrow: the camera moves until it contacts a stop.

1. Use the direction arrows until the image you wish to view appears on the screen.
2. Adjust zoom and focus parameters as needed.

You can reverse the default arrow direction; *Factory Settings, page 6.29.*

Touchscreen/touchpad

Touch and drag your finger on the screen or pad to move the camera to a new view.

Auto mode

The camera moves along the positioning track from one side to the other without stopping. It captures and displays an image on the monitor as it moves.

Image capture positions depend on camera running speed and a synchronizing signal (depends on system signal source).

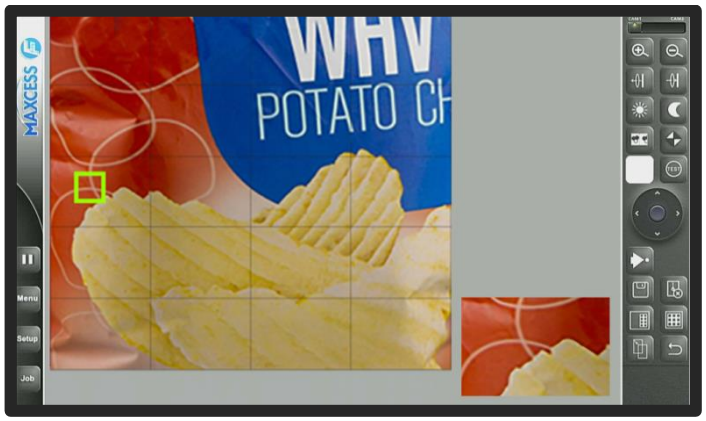
Touch to open AUTO mode control box.

Touch the arrow to start standard AUTO mode as described above, *or*

Touch the grid icon to display a static image previously captured with the ACS function; *page 6.15*. A live image display appears in the lower right hand corner of the screen; the live image is the current camera view.

Touch a point on the grid image; the camera moves to that x/y location and the live image display is updated.

Example below: The small image at bottom right is the live view of a camera location chosen by the operator. It is represented by the green square on the large grid.



Option: Touch the live image display to relocate it to the upper right corner of the screen.

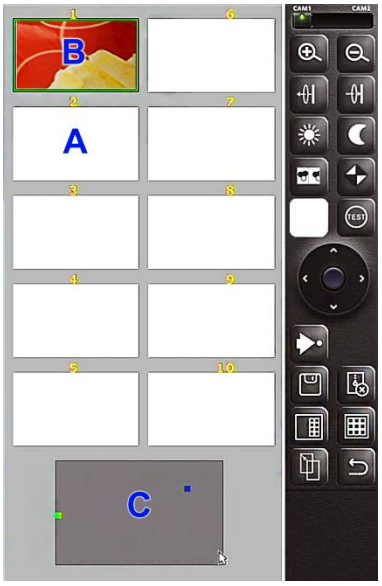
To exit AUTO mode, touch the Manual Mode button.

PPS mode

Programmable Position Scan (PPS) mode scans a collection of manually selected camera positions that have been stored as image thumbnails in a "job".

You can save up to eight PPS jobs for recall.

PPS job setup controls



In a PPS job, you can define and save up to ten camera positions and the view parameters for each of those ten positions. Camera position coordinates are represented by thumbnail images in the job setup menu.

A) Each block in the grid represents one position. A blank white block indicates a position available to be defined.

B) A green box around an existing thumbnail indicates
   a) the position that is currently being viewed, and
   b) that the thumbnail is enabled for editing.

C) Below the thumbnails is the PPS map, which is a visual reference for each saved camera position in your image repeat. In this view, the blue dot represents the camera location, and the green dot is a selected thumbnail, ready to be defined or edited; *page 6.10.*

   If the thumbnail block is blank, the default camera position on the PPS map is to the far left center.

Moves the camera to the currently selected thumbnail position (outlined in green).

Saves the selected thumbnail with the image it contains.

Deletes a selected thumbnail.

Toggles PPS thumbnails on and off; the PPS map remains on.

Displays full image grid (ACS map)

The image grid is a saved image created from a scan configured by the user in ACS mode. You can use the image grid to define and save thumbnails for use in a PPS job.

ACS image capture procedure; page 6.15
To use the ACS image in PPS mode; page 6.18

Sync live view with existing thumbnail coordinates; *page 6.19.*

Back to previous menu

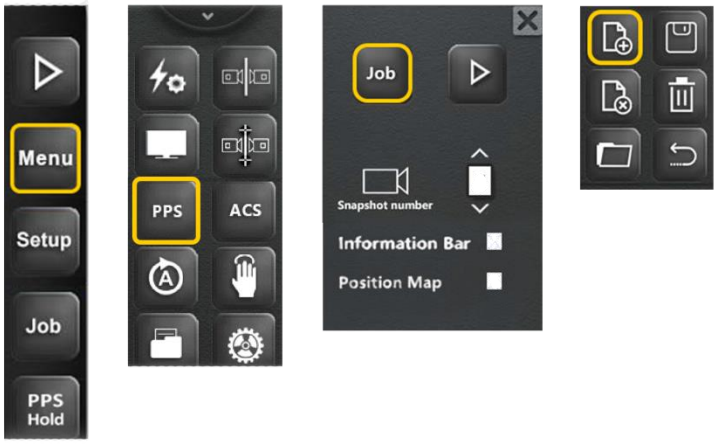
Add a new PPS job

To run an existing PPS job, *see page 6.13*

To add a new PPS job, navigate to the PPS job setup display:

1. From the Quick Menu (on left side of main screen display):

Menu > **PPS** (on right side menu) > **Job** > **Add new job**



2. When the entry keyboard opens

3. Enter the name for a new job.
4. Touch return to save the job name.
5. The job setup display opens and is ready to collect thumbnails; *page 6.11.*

Define and save camera positions as thumbnails

1. Touch an available white block to highlight it with a green border.
2. Move the camera in the X/Y directions until the view you wish to save appears on the screen.
   - You can use the arrow keys to move the camera, *or*
   - Touch the screen and drag that point to a new location on the screen.

3. Save the on-screen image; the new thumbnail appears in the collection.

4. Adjust zoom, focus and brightness as needed for the image. You can also re- adjust the camera position using the arrow keys.

5. Save the new settings for this position.

Deletes the selected thumbnail immediately – without confirmation.

6. Touch on another available thumbnail to highlight it.
7. Move the camera to another view and save again.
8. Continue this procedure until you have saved up to ten thumbnails.

   You can also highlight an existing thumbnail if you wish to replace it with a new image.

   Notice that the PPS map below the thumbnails is now populated; *page 6.12.*

PPS map

The PPS map represents the extents of your image.
Width = limits of camera traverse
Height = length of image or repeat

In this example, the PPS map is populated with camera views that have been saved as thumbnails.
Purple dot = image view position saved as thumbnail
Blue dot = current camera location
Green dot = default position when a blank thumbnail is selected

You can use the PPS map to move the camera to a new position; touch anywhere on the map. Then you can save the new image view as a thumbnail.

To view the PPS map while running a pre-programmed job, *see page 6.13.*

PPS job management menu buttons


New job


Save job



Deletes selected job immediately, without asking for confirmation


Delete all jobs
If enabled, a password is required for this function; *page 6.33.*


Open selected job.

Working with existing PPS jobs

Run a saved PPS job

Quick start

On the Quick menu, touch the **Job** button to open a list of saved jobs.

Select a job name to highlight it.

Adjust the number of snapshots that you want the camera to take at each position as it scans. You can also edit this parameter while the job is running.

Touch the arrow button to start the job.

The **PPS Hold** button appears; touch at any time to pause the job.

Information bar

Displayed in the lower left corner of the image view area. Reports the current camera location and snapshot progress

Position map (PPS map)

Displayed in the lower left corner of the image view area. Defined on *page 6.12.*

Efficient Scan

When this mode is selected, the system will calculate the most efficient travel path for the camera, regardless of the original order of thumbnails in the PPS job.

To stop the job at any time, touch the Manual mode button.

Run/edit/delete a saved PPS job

1. Enter PPS mode from main screen Menu button

2. Touch Job to display list of saved jobs.
3. Select a job number from list; the thumbnail pane will open.

4. Touch the folder to open and edit the selected job.

5. Save your changes.

6. Return to previous menu after editing and saving the job.

ACS mode

The ACS scan builds a display of the complete image repeat length in a grid format based on user parameters. The image grid is temporary until saved.

If you leave ACS mode before saving, the system reverts to a full screen display and the image is lost.

A saved image can be recalled for use in other modes; it is displayed on the screen accompanied by a small 'real time' or 'live' display of the camera view in the lower right corner.

Auto mode – Recall the scanned image and use it to navigate to desired inspection points that you can view in the live display; *page 6.8.*

PPS mode – Recall the scanned image and use it to navigate to desired inspection points; save each live display as a thumbnail to be used in a PPS job; *page 6.11.*

Configure the scan

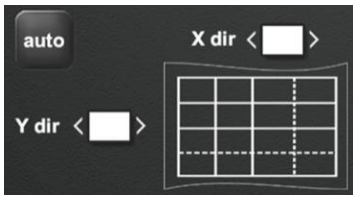
Touch to open the ACS interface.

1. **Set the image grid parameters**

Select only one direction (X or Y) in which to build the grid, *OR*

Select to build the grid in both directions; 100% =X and Y

2. Enter the grid size



X dir < > Enter the number of grid increments you want in each
Y dir < > direction to build the image, or a portion of the image.

If the number is too low, the system may not be able to return the entire image.

The 'auto' option overrides user inputs for X and/or Y.

Using the camera traverse distance (X) and the repeat length (Y), the system determines the number of grid increments needed in each direction to build the entire image.

3. Number of snapshots

Enter the number of snapshots you wish to capture at each camera location as it scans and builds the image grid.

- The system displays only the last snapshot taken.
- A higher number results in a slower scan.

4. Choose a scan pattern

Depending upon your camera rotation, these patterns may appear to be rotated on your display.


from bottom left to upper right – 'N' pattern


from bottom left to upper right – 'S' pattern


from upper left to bottom right – 'S' pattern


from upper left to bottom right – 'N' pattern

5. Set the viewing mode for the scan

The system scans the image and displays the image grid; the camera continues to scan and update the snapshots until the scan is stopped by the operator.

The system scans the image and displays a full screen result of each camera position as configured by the operator; it does not display an image grid. It will continue to scan until stopped by the operator.

6. Scan and save

Touch to start the scan.

The ACS interface closes when the scan starts.

To save the image, touch the highlighted ACS button again to open the interface so that you can save the completed image *before selecting another mode*.

To edit ACS parameters, you must stop the scan and re-enter ACS mode.

To stop the scan, touch the Manual mode button; the current scan will be lost.

Use the ACS image to define a PPS thumbnail image; *page 6.18*

Using an ACS image capture to define a PPS thumbnail image

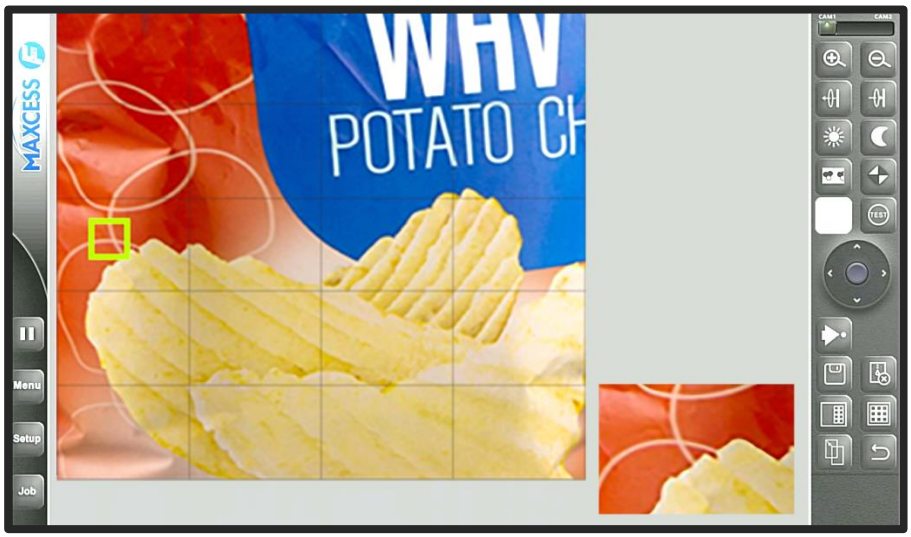
You must have already captured and saved an image in ACS mode; *page 6.15.*

1. Enter PPS mode.

2. Open a job.

3. Toggle thumbnail view ON; select an available thumbnail.

4. Touch the grid icon to recall the image that was previously captured with the ACS function; the current camera view appears as a live image display in the lower right hand corner of the screen.
5. Touch a point on the grid image; the camera moves to that x/y location (the green square) and the live image display is updated to show that block of the grid.



6. Save the updated live display.

7. Touch once to toggle the thumbnail view ON.
   Touch a second time to enter edit mode.

8. Save the new thumbnail.

PPS coordinate alignment

If the web position on the print cylinder changes, you will need to align the coordinates of your programmed position and the new live image.

Example:

Step 1.

Enter PPS mode and enable the thumbnails for editing.

Step 2.

Select thumbnail #5, and then the GO TO button.

Compare the area in the large white square (live camera view) to the small one in #5 (saved thumbnail); note that the views do not match.

In the PPS map, observe that the camera view (blue dot) is directly over the selected thumbnail. The camera does not see a discrepancy, but its view is out of sync with the previously programmed position.

Step 3.

Use the arrow keys to manually align the live view with the thumbnail.

Compare the areas in the two white squares; note that the views are more similar than before.

In the PPS map, notice that the camera (blue dot) has updated its location to the new live view.

Step 4.

Touch the SYNC button, and then the save button.

The thumbnail image will update (you may see it shift slightly) to match the current live view. Compare the areas in the two white squares; they now match.

In the PPS map, the programmed position has shifted to match the camera view.

Repeat the process for all thumbnails.

If you want to sync the views, but do not wish to keep the old programmed positions:

1. Select a thumbnail.

2. Move the camera to that view.

3. Touch SYNC.

4. Save the new live view.

Extended functions

Use the extended functions to achieve finer control of your image view.

Touch to open the extended functions menu.

Buttons left to right, top to bottom
- Image management
- Position limit
- Set zero point
- Slow shooting
- Rolling shoot
- Go to zero point (shortcut)
- Reference crosshairs
- CMYK detector
- Speed meter

Image management

Save and delete singular images.

Touch to open the image management menu.

Save image

Delete selected image

Delete all images

Return to previous screen

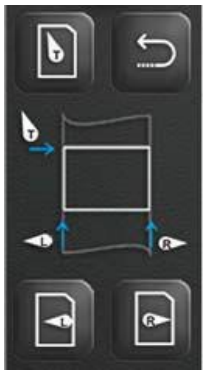
Position limit

When printing a web that is narrower than the printing press cylinder width, you can define the limits of the camera view to exclude the area where there is no web.

The system will use the defined limits when scanning in Auto and ACS modes.

Touch to open Position Limit box.

Navigate to the desired camera view.



Touch button **'T'** to define a datum from which to define the left and right limits of the camera view.

Use the arrow buttons to move the camera to show the left side of web on the screen.

Touch button **'L'** to define left camera view limit.

Use arrow buttons to move the camera to show the right side of web on the screen.

Touch button **'R'** to define right camera view limit.

User-defined zero position for automated modes

You must have a dual sensor setup installed; *page 4.27.*

You can define the start of your repeat length (zero point) anywhere on the image.

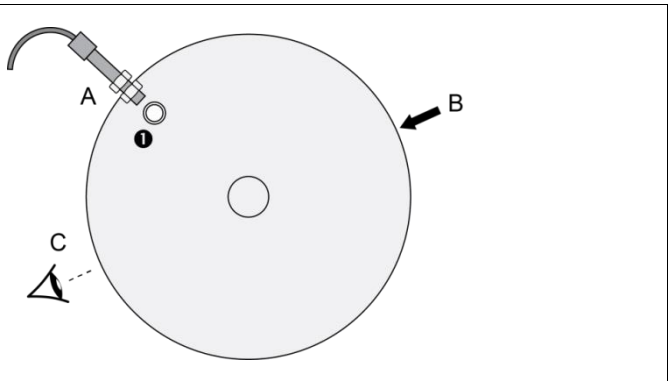
Whenever the system restarts, the camera moves to the last view coordinates.

When the system starts up at the last view, you can use a shortcut button to return to the zero position that you defined.

Navigate to the desired camera view.

Touch to define a new position for the start of the repeat length (zero or 'home' position).

This button provides a shortcut to the user-defined zero position; press to move the camera to that location.



❶	Screw
A	Sensor – system default zero position (start of repeat length)
B	User-defined zero position
C	Current camera view position

Slow shooting

Slow shooting reduces the camera traverse speed.

Touch to toggle the slow shooting function ON and OFF. The button is highlighted when the function is ON.

See *page X* for camera speed specifications.

Roll shooting

For very small labels that have many images on a printing plate, you can use the roll shooting function to view each label on one print plate.

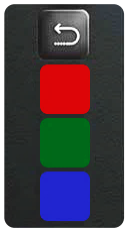
In roll shooting, the camera system will automatically index up and down the repeat length to allow viewing of the multiple images on a single plate. This allows cyclical viewing of each printed image, without having to strobe the camera to see all images in a single plate.

Touch to toggle the roll shooting function ON and OFF. The button is highlighted when the function is ON.

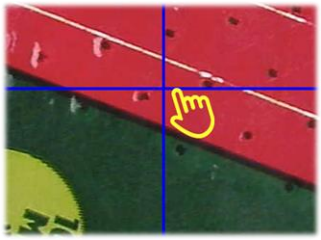
Reference lines (crosshairs)

Use the reference lines (crosshairs) to help align the image during shooting. You can change the line color for easier viewing against a variety of backgrounds.

Touch to toggle the reference lines ON or OFF.



Select a line color for best viewing against your background; red green or blue.



Using your input device, touch and and drag the reference lines to the desired location on the image.

CMYK value detection

Use to monitor CMKY value of printing color. The system will continually monitor ink density for correct color results.

Touch to open the CMYK detector function.

The green box (cursor) on the screen is the sampling box. The RGB/CMYK values of the color inside the box are displayed in the analysis data zone.

Touch the green sampling box on the screen and drag it to desired points on the image to review color information as displayed below.

The system continually monitors the RGB/CMYK and displays the values for each.

Speed meter

Touch to open the speed meter functions.

Line speed

Web running length

Touch to reset the current length data to zero.

Factory settings

The VEO 700 is configured at the factory for standard operation. The settings can be adjusted for your process line.

Touch to open the factory settings menu.

- Left/right key direction change
- System information
- Camera distance adjustment
- One-touch white balance
- System reset
- Password lock and unlock

Left/right key direction

The default movement for left/right arrow keys:

Left = the camera moves to its left
Right = the camera moves to its right

You can reverse the default.

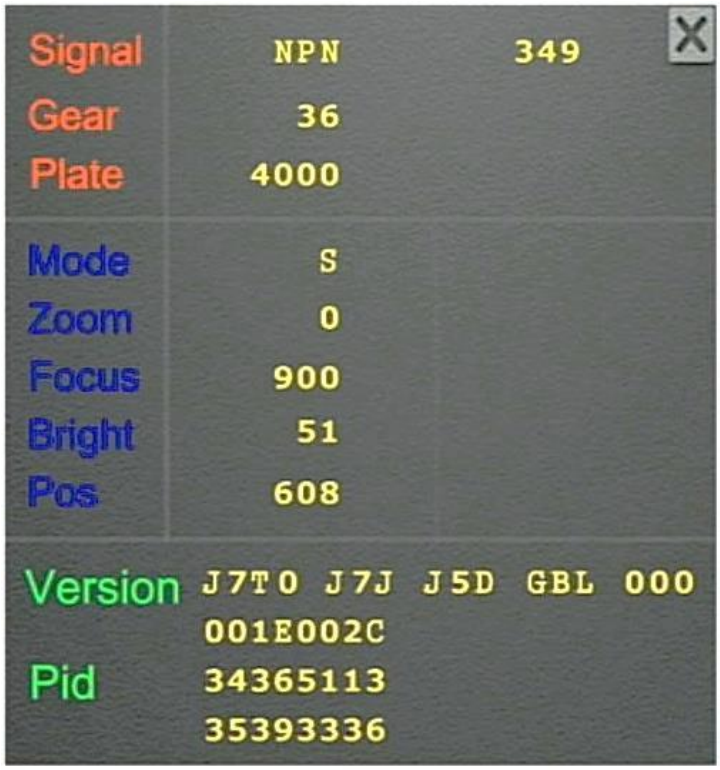
Touch to open the left/right direction change function.

Touch to reverse the direction of movement for the camera in use.

Return to previous menu.

System information

Touch to display current system settings.



Camera lens distance adjustment

The lens zoom curve has been factory set to provide best viewing results when the bottom of the camera is parallel with the web material at a distance of 8 to12 mm (0.32 to 0.47 inches) from the web.

The optimal distance is 10 mm (0.39 inches). *See page 4.5.*

If camera is installed at optimal distance and focus cannot be achieved, you may need to adjust the curve. See page

Adjusting the lens curve

If the recommended distance cannot be maintained, you can adjust the lens curve.

1. Ensure that the zoom factor is zero (no zoom)
2. Adjust the focus for a clear image.

3. Close the Focus pop-up box.

4. Touch to start the adjustment.

5. Zoom the camera lens out to at least 64.
6. Adjust the focus again to get a clear image.
7. Restart the system.
8. System will store the lens new curve.

During system start-up, the zoom function retains its last setting.

White balance

A number of factors can affect white balance, such as factory lighting or older electronic equipment. The human eye will compensate for this loss, but the system may need to be calibrated for the best white balance.

There must be a white material running under the camera lens during the calibration.

1. Touch to start the automatic white balance calibration.
2. When the calibration is complete, the screen will stabilize and appear white or light grey, indicating that the process is complete.
3. Touch the button again to stop the white balance function.

System reset

Touch to reset the system parameters to the defaults; this action requires a password. *See page 6.33.*

No = Cancels the request

Yes = Parameters will be reset and the system enters Test mode. The camera will display images, but there is no signal.

Go to Setup and enter all parameters. Close the Setup window

Password

Some functions of the VEO 700 can be password protected.

The factory-set system password is 000000.

To change the password, touch the lock icon to open the password entry keypad.

Enter a new 6-digit password; press ↵ .

= Delete entry

= Character space

= Enter

= Return to previous screen

When prompted, enter the password again.

If you have lost or forgotten the password, you must return the controller unit to Maxcess to be reprogrammed.

7.1 TROUBLESHOOTING

If you cannot resolve errors with the solutions provided here, call Maxcess Technical Service.

Problem	Possible cause	Solution
Strobe does not flash in any mode	No power to the unit	Turn on system power.
	The cable between the power supply and the camera is not in good condition.	Shut off system power and check the cable carefully.
	Power supply fuse open	Inspect and replace, if necessary.
System works correctly, but image is unstable	System is in AUTO mode	Change to Manual mode.
	Gear number is wrong	Configure to correct gear number according to plate cylinder gear number.
	System in Auto-rolling mode	Set the Auto-rolling to "stop" and check again.
	The install angle or distance does not match the system requirement.	Adjust the distance or angle to the gear.
	Sensor is damaged.	Replace the sensor.
	Repeat length is not accurate.	Set repeat length to correct interval.
Image brightness begins to fluctuate, or image is consistently dim, regardless of brightness setting.	Failed strobe lamp	Replace the strobe lamp unit.
	EFOV only: Strobe unit needs adjustment.	**EFOV only:** Adjust knobs on side of camera housing to improve strobe angle.
In Manual mode, the system works correctly in low speed, but not in high speed.	The installation angle or distance of the sensor does not match the system requirement.	Adjust the distance or angle to the gear.
	Metal debris near the sensor	Metal debris on the sensor will affect the signal; keep the sensor clean at all times.

7.2 TROUBLESHOOTING

Problem	Possible cause	Solution
The initial screen is lacking some color when powering on the system	Poor connection of the monitor cable	Secure the cable connection or replace the cable.
System display welcome screen is pink in color.	CMOS sensor error or damage	Replace the camera.
OSD parameter showing 1 or 2 and does not work when the system is turned on	Camera motor position error	Replace the camera.
The strobe lamp works, but the system does not display an image on the monitor.	Monitor power is off	Turn on the monitor power.
	Monitor power cable is loose	Re-connect or secure the power cable.
	Monitor signal cable is loose	Re-connect or secure the signal cable.
	Camera cable is loose or damaged	Re-connect or secure the camera cable.
Camera focus is clear in one position, but not clear on other points on the positioning track	The positioning track is not parallel with the printing material.	Adjust the positioning track so that it is parallel with the printing material.
System and image are correct, but image moves slowly in one direction in Manual mode.	Gear number setting is wrong	Configure to correct gear number according to plate cylinder gear number.
	System is in Auto-rolling mode	Set the Auto-rolling to “stop” and check again.
	Gear sensor sync signal is unstable	System MUST have a good earth ground. If it does not have a ground connection, connect it to the printing press frame.

Maintenance schedule

The VEO 700 is commonly used in a printing environment where paint and dust build-up can contaminate or damage the system equipment.

- The camera lens may be contaminated by paint, affecting the image.
- The power supply fan may be blocked by dust.
- The positioning track may be contaminated by dust and oil.
- The gear sensor may be contaminated by oil and metal powder.

Fife recommends the following maintenance schedule to keep your equipment in good working order.

	Component	Maintenance work
Weekly	Positioning track	Clean the linear guide and the gear rack.
	Touchpad	Clean the keypad or keyboard surfaces.
	Sync sensor	Clean the gear mating surface.
Monthly	Camera unit	Clean cover, lens, and strobe cover.
	Power supply	Clean the cover.
	Monitor	Clean the screen.

Turn off the power before unplugging any cables from the unit to prevent damage to the system.

Do not use any chemical solvent, such as gasoline or paint thinner, to clean any system components.

Do not lubricate the positioning track or gear rack. It can wick into the camera and cause a fire.

9.1 SPECIFICATIONS

Complete system

Power supply	100 to 240 VAC, 50/60 Hz	
Fuses	Ceramic fuse, 7.5 A/250 VAC	
Web speed	600 m/min maximum (1968 ft/min)	
Number of teeth per gear sensor	10,000 maximum	
Ambient operating conditions	Temperature:	0 to 40° C max (32 to 104° F)
	Humidity:	20% to 80% Non-condensing
Place of installation	In closed buildings	
Protection class	IP 20	

Power supply

Case dimensions	90 x 350 x 300 mm 3.5 x 13.8 x 11.8 inches
Weight	Approx. 6 kg (12.4 lbs)
Power cable	Standard: 1.8 m (5.9 ft)

Monitor

Monitor size	Standard:	19 inch LED 16:10
	Optional:	22 to 43 inch LED 16:9
Monitor connecting cable length	Standard:	1.8m (5.9 feet)
	Optional:	3 m (9.8 feet)
		5 m (16.4 feet)
Power cable	Standard:	3 m (9.8 feet)
	Optional:	1.8 m (5.9 feet)
		3 m (9.8 feet)
		5 m (16.4 feet)

Camera unit

Standard field of view model (SFOV)

Visible field of view	100 mm X 75 mm (3.5 inches x 2.6 inches)
Traverse speed per second	Low 50 mm (1.9 inches) High 150 mm (5.9 inches)
Image recording frequency	10 images per second, maximum
Magnification	10X optical
Case dimensions	290 x 110 x 160 mm 11.4 x 4.3 x 6.3 inches
Weight	Approx. 3 kg (6.4 lbs) (without traverse system)
Cable (camera to controller)	Standard: 2.5 m (8.2 feet) Optional: 1.8 m (5.9 feet) 3 m (9.8 feet) 5 m (16.4 feet)

Extended field of view model (EFOV)

Visible field of view	200 mm X 120 mm (8.0 inches x 5.0 inches)
Traverse speed per second	Low 50 mm (1.9 inches) High 150 mm (5.9 inches)
Image recording frequency	10 images per second, maximum
Magnification	30X optical
Case dimensions	540 x 240 x 440 mm 21.3 x 9.4 x 17.3 inches
Weight	Approx. 14 kg (31.3 lbs) (without traverse system)
Cable (camera to controller)	Standard: 2.5 m (8.2 feet) Optional: 1.8 m (5.9 feet) 3 m (9.8 feet) 5 m (16.4 feet)

9.3 SPECIFICATIONS

Positioning track

Track length, maximum	SFOV: 3 m (9.10 feet) EFOV: 6 m (19.7 feet)

Sensors

Gearwheel sensor	NPN/PNP type Diameter: Ø4/Ø8/Ø12/Ø19
Inductive sensor	NPN/PNP type
Rotating sensor	Incremental encoder
Without sensor	Receives register signal from a printing press control system
Sensor cable	4 m (13 feet) standard

Service requests and replacement parts

To request service or to get replacement parts, contact one of the following addresses:

Fife, a Maxcess Brand
222 West Memorial Rd.
Oklahoma City, OK, 73114, USA
Phone: +1.405.755.1600
Fax: +1.405.755.8425
Web: www.maxcessintl.com

Fife-Tidland GmbH
Max-Planck-Strasse 8
65779 Kelkheim
Deutschland
Telefon: +49.6195.7002.0
Fax: +49.6195.7002.933
Web: www.maxcess.eu

OR

Siemensstrasse 13-15
48683 Ahaus
Deutschland