

H3670 Camera System



- Line Scan camera
- Matrix camera

H3670 cameras feature easy to use Windows-based software with intuitive operator interface.

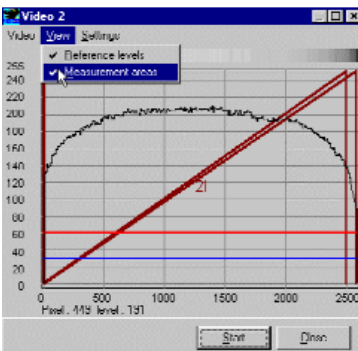
H3670 Camera System



Two remote line scan cameras with processing unit.



Light source



Video level display



Camera head with optional air connection

Camera and Processing Electronics

- Choice of line scan or matrix camera chip for optimal solution
- Excellent linearity for accurate width measurement and precise master/slave laminating applications
- Communication ports for easy setup and transmission of process information

VISI 5000 Line Scan Camera

- 5150 pixel array line scan camera provides high resolution even at large fields of view. Makes camera movement unnecessary for varying strip widths
- Compact camera heads require very little mounting space and can be mounted up to 180 feet (55 meters) from electronics for installation flexibility
- Each electronics enclosure supports one or two camera heads. Ethernet networking possible for more complex control configurations

VISI 40 Matrix Camera

- 640 x 480 pixel matrix array can be configured for line or area scanning. Enables flexibility in application development for unique considerations
- All-in-one integrated unit – camera and electronics packaged together
- 100 feet maximum distance for communication link

Software

- Easy-to-use, Windows-based software with graphical, intuitive operator interface provides complete setup and calibration capability
- Digital inputs and outputs can be configured for measurement scaling, output control, threshold indication, or alarms
- Analog inputs and outputs can be used to scale readings and provide real-time process control
- Integration time can be automatically set to maintain constant exposure with varying environmental conditions
- Video display screens provide focus-quality indicator for precise focus adjustment

System Options

- Air connection for continuous cleaning of measurement head optics
- Special enclosures available for heat and high-contaminant environments
- To foster easy installation, custom mounting stands available for camera and light source

Light Sources

- Compact, self-contained LED and fluorescent light sources are available
- LED light sources provide consistent light output with very high life expectancy (100,000+ hours)
- LED light sources available in lengths from 3.9" (100 mm) to 142" (3600 mm)
- Fluorescent light sources available in lengths from 7.9" (200 mm) to 98.4" (2500 mm)

Applications

Strip Guiding

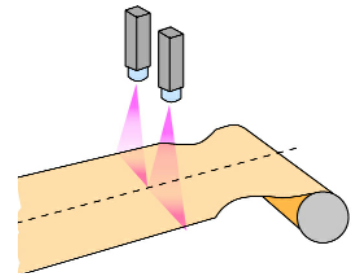
- Center or edge guiding
- Accurate and linear strip position signal facilitates optimum guide performance
- Edge position unaffected by light intensity (dirt)
- System can be programmed to reject larger (scale) particles
- Fixed camera position(s) require no moving parts
- Software capable of rejecting extraneous signals preventing unnecessary line crash
- Cameras are mounted a considerable distance from strip preventing damage and providing heat isolation

Width Measurement

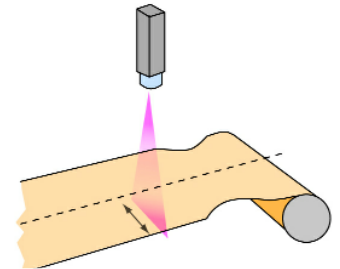
- In-line process verification
- Data logging and storage of measurements enable product quality verification data for resolution of customer issues
- Profile and data-log incoming raw material relative to specification
- Trend analysis can forecast out of tolerance issues and/or impending equipment failure
- Temperature, line speed, alloy and other process variables can be processed within the camera software
- Very accurate and predictable measurements independent of environmental issues
- Multi event alarms can be programmed to annunciate off spec product
- Fast, reliable, and accurate measurement increases productivity by quickly verifying set-up width on-line

Installation Flexibility

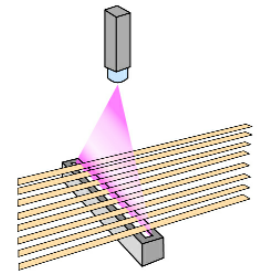
- Single side (above strip) detection/illumination to minimize damage and contamination
- Below strip camera mounting to prevent light source contamination and damage
- "Downstream" of ideal detection location permissible due to linear position output and compensating software
- Environmental enclosures



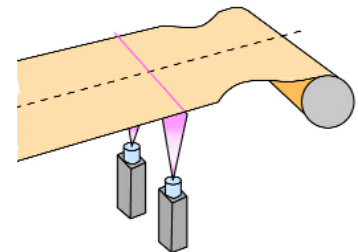
Two camera center guides



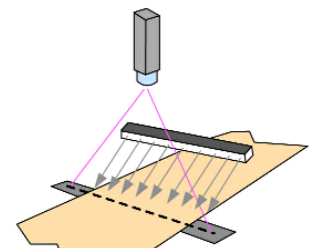
Single camera edge guide



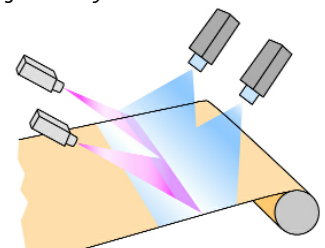
Multiple strip measurement



Below strip camera mounting



Single-sided system



Surface profile and flatness

Specifications

Measurement Head	VISI 5000	VISI 40
Measurement resolution ¹	0.5 pixels	0.1 pixels
Element size	5150 pixels	640 x 480 pixels
Maximum update rate	800 scans / sec	500 scans / sec
Environmental rating	IP65	IP55
Operating temperature range	-10 to +45 C (14 to 113 F)	0 to 45 C (32 to 113 F)
Distance from measuring head to electronics	55 meters (180 feet) maximum	Integrated
Dimensions	Diameter 90 mm / Length 200 mm	Diameter 60 mm / Length 150 mm

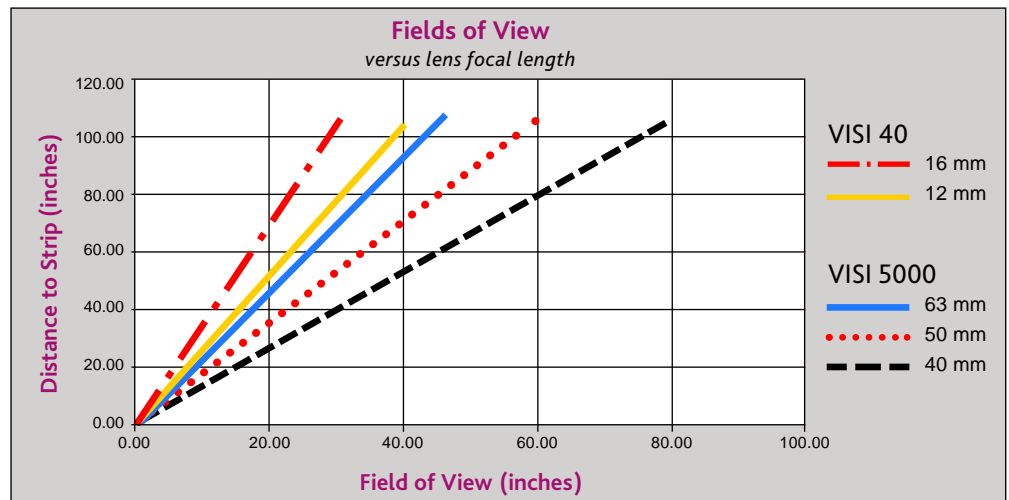
Processing Electronics	VISI 5000i	VISI 40
Processor	Altera Excalibur	ADSP-2185M
Clock frequency	200 MHz	75 MHz
Grey scale resolution	8 bits	8 bits
Light/dark threshold	Fixed or automatically adjustable	Fixed or automatically adjustable
Analog inputs ²	4, 4-20 mA or 0-10 VDC	1, 4-20 mA or 0-10 VDC
Analog outputs	4, 4-20 mA or 0-10 VDC	1, 4-20 mA or 0-10 VDC
Digital inputs ³	8, Opto isolated, 24 VDC, 100 mA	2, 24 VDC, 100 mA
Digital outputs ³	8, Opto relay, 24 VDC, 400 mA	4, 24 VDC, 400 mA
Communication ports	2, RS232, max distance 15 m	1, RS232 (0-20 mA), max dist. 30 m ⁴
Interface options	Ethernet (10/100) / Profibus (slave)	Ethernet (10/100) / Profibus (slave)
Power supply	24 VDC, -10% to +15%, 1.5 A	24 VDC, -10% to +15%, 1 A
PC Requirements	RS 232 Port; Windows 9X, 2K, or XP	

¹ With back lighting and optimal conditions.

² Analog inputs are equipped with adjustable signal isolator / connection.

³ Digital inputs and outputs are isolated with relays or opto relays.

⁴ 30m maximum distance at 115,200 bit/sec baud rate. Longer distances possible with lower baud rate.



Fives North American and SKS Vision Systems Oy

A TECHNOLOGY PARTNERSHIP

The H3670 camera system is commercially available through a technology partnership between the Guiding Systems Business Group of Fives North American and SKS Vision Systems Oy. Fives North American's extensive application experience in strip guiding and width measurement, coupled with SKS Vision System's proprietary and easy-to-use camera software solution, enables FivesNA to offer another solution to our customers for their demanding applications. SKS Vision Systems Oy was founded in 1985 and has specialized in the development and manufacture of high accuracy industrial machine vision products, and has numerous successful installations throughout Europe as well as the rest of the world. Applications include position control, width measurement, and profile measurement spanning industries including steel, copper/brass, aluminum, tire and rubber, and paper.