VISI-TECH

FUSION   Web Inspection Systems

W H Y

Why do you need video web inspection?

Video web inspection is not a new technology and certainly not a passing trend that will be fashionable for a while and then fade away. The first video web inspection systems appeared on the market in the mid 1980s and you may be interested to know that Visi-tech staff were involved in the design of these very first systems.

Over the past twenty years video inspection systems have become extremely popular and common-place on web printing machines all over the world. The reason for its popularity and success is quite simple. The technology works well and produces significant benefits for the printer. If you're running a web printing machine and don't have video web inspection then you are probably losing money.

>> *Video web inspection has been proven time and time again to reduce waste and improve print efficiency.*

It doesn't matter what type of printing process you are using - flexo, offset, gravure or screen - if the product is being printed onto a continuous web then at speeds above 30 to 40 m/min the printer is unable to effectively examine the print quality by eye.

Using a video web inspection system not only allows the printer to view the web at high speed, but with magnification up to almost 100 times he will be able to see detail and dot structures like never before.

Video inspection systems have been proven time and time again to improve the productivity of web fed printing machines and offer the user a remarkably fast return on their investment. Use of a video web inspection system will provide the user with the following benefits:
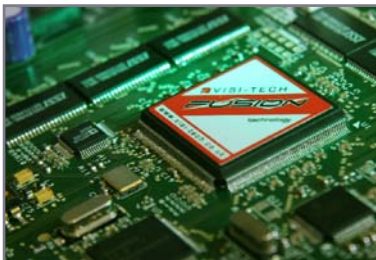
· **Faster running speeds**

· **Reduced set-up times**

· **Reduced waste**

· **Improved product quality**

In summary a printer running a web press equipped with video web inspection will produce superior quality and will be more productive than a printer on a press without video web inspection - and that means the press will be more profitable.

>> *Visi-tech web inspection systems have been installed on printing machines with web widths of up to 4m wide and on machines running at up to 1000m/min.*

Fusion Technology

Fusion Technology has been designed in house by Visi-tech engineers and takes integration and reliability to a new level. At the centre of the technology is Visi-tech's Fusion Processor, a custom high-density integrated circuit designed by Visi-tech specifically for the next generation of print inspection products. The Fusion Processor is completely unique to Visi-tech and cannot be found on other web inspection products. It gains its strength and competitive advantage from the fact that much of the functionality of the web inspection system is integrated into one chip and that means that the system is inherently more reliable than systems with a lower level of integration.

➤➤ *Visi-tech's Fusion Processor is a completely unique Integrated Circuit designed by Visi-tech engineers especially for the highly demanding requirements of video web inspection in the printing industry.*

Apart from handling the complex timing and control functions associated with high speed web inspection, the Fusion Processor also performs Visi-tech's Advanced Vision Processing algorithms to enhance the captured image and ensure that the system produces top quality viewing of your print every time.

Building on Visi-tech's commitment to provide you, our customers, with the best products we possibly can, all Fusion web inspection systems provide a high level of functionality as standard and uncompromised simplicity of operation. This combination ensures that your printers gain the maximum use and benefits from the system and your company achieves the maximum return on investment.

Rich in features

Fusion products offer as standard a rich set of waste saving and productivity enhancing features that are commonly only available as optional extras on equipment from other manufacturers. These features enable the user to be more effective at identifying print defects and are very easy to use and control from the on screen graphical menu. The features described below are standard equipment on all Fusion products ensuring that the user gains the maximum benefit possible irrespective of which model they choose.

Dynamic Scan
Dynamic Scan is a completely automated mode of viewing the web and provides the fastest most complete inspection of a large printed area.

For systems with a manual traverse Dynamic Scan only operates along the length of the web. For motorised systems Dynamic Scan provides 100% scanning of the repeat both longitudinally and laterally, whereby the camera is continuously on the move providing complete coverage of the web in the minimum of time. Dynamic step adjustment allows fine-tuning of the scan sequence for total control viewing and maximum print quality.

>> *Using the Fusion's advanced features can considerably improve the operator's effectiveness at identifying defects early and therefore reduce costly waste and poor quality.*

Image Flip
This function rotates the camera image 180 degrees. It is useful when the web is being printed upside down and corrects the image so that the printer views text and detail more naturally.

Register Mark Memory
When the camera is viewing an important part of the web, for example a register mark, this position can be stored in the Fusion's memory. A single press of a button at any time later will cause the camera to automatically travel back to that same position once again. This reduces the time that your operators spend at the controls of the web inspection system leaving them more time to produce quality print.

Label / Copy Checking
If your print is produced with more than one label/copy per rotation of the print cylinder then the label/copy checking program will automatically move along the web after each image has been taken ensuring that each copy is viewed in turn.

Hyper-strobe
Hyper-strobe is a clever feature of all Fusion products that make life so much easier for the printer. When moving manually around the web, or zooming the lens, the flash rate and image capture frequency automatically increases providing enhanced awareness of camera position and superior more intuitive control for the user.

Split Screen Imaging
This feature allows the printer to store an image on the right hand side of the screen for comparison with a real time image on the left hand side of the screen. This invaluable feature will help with cross web colour comparison, and will help maintain colour consistency throughout the print run.

Advanced User Interface

Although all standard Fusion systems have a very intuitive keypad interface and useful feature set, upgrading to the Pro-Touch Advanced User Interface is highly recommended for wide web Flexo and Gravure printers.

The Advanced User Interface comprises of a versatile Touch Screen and turns the standard Fusion product into a Multi-Positional, Programmable System with Visi-techs unique One Touch Positioning pad for rapid camera navigation.

(See following page on Pro-Touch for more details)

Multiple Monitors and Keypads

As standard, all Fusion systems are supplied with a single monitor. However, on larger printing machines it is a distinct advantage to have more than one monitor. By installing multiple monitors on your machine you greatly increase the chances of the operator spotting defects since he is able to see the image of the web from wherever he is on the machine, and that means reduced waste and higher quality.

In addition to multiple monitors, Fusion products are also able to support multiple keypads so your operators will also be able to control your Fusion system from any monitor ensuring that the web is being viewed in the most effective way at any time.

Double Cameras

The Ultra Fusion products support double camera installations. This type of installation consists of a separate camera and traverse for each side of the web. The cameras are both controlled by the same keypad and viewed on the same monitor. With double cameras, both sides of the web can be viewed with crystal clear clarity at any press speed and with either the back or front camera being viewed separately or both cameras being viewed simultaneously on the same monitor.

Back-strobe

The Back-strobe illumination option consists of a second housed strobe lamp that is positioned behind the web and can provide front to back register viewing on suitable translucent substrates. The Back-strobe has the same effect as that produced when you hold a print sample up to a light or window. If the sample is translucent you will be able to see through the substrate and see the reverse print as well as the front side print. The Back-strobe provides a similar viewing condition and so if your samples pass the window test then the Back-strobe is a low cost option for viewing both sides of your printed web.

▶▶ *Fusion systems can easily be upgraded to suit your particular application, ensuring that you always get a system that is fit for the job in hand.*

UV Strobe

If you print with UV Security inks then you will obviously be aware of the problems associated with viewing this print at high speeds. To overcome this problem Visi-tech are able to offer a special camera with Ultra Violet strobe lighting that will cause your UV inks to fluoresce and be viewed clearly at any press speed. UV strobes can also be combined with normal strobe lighting enabling viewing of both normal and UV security print with the same system.
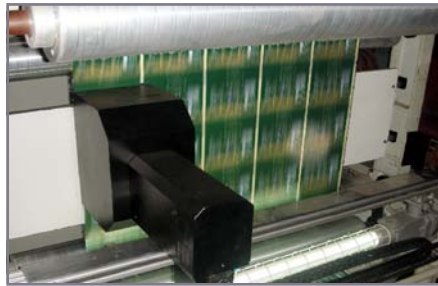
PRO-TOUCH

Pro-Touch Advanced User Interface

Visi-tech's Pro-touch Advanced User Interface turns your standard Ultra Fusion system into an advanced multi-positional programmable system while also increasing user responsiveness by the addition of Visi-tech's unique One Touch Positioning

One Touch Positioning allows users to navigate the camera to any region of the web with a single touch of a dedicated 5.7" touch screen. Simply pointing to the region of interest on the screen sends the camera off to that position, dramatically reducing the time that the operator spends at the camera controls in order to navigate to a particular position.

>> *One Touch Positioning allows the operator to view any location on the web with a single press of the screen.*

In addition to the advanced positional memory features offered by the Pro-touch, advanced Dynamic Scan operations allow automatic scanning in both longitudinal and lateral directions allowing users to set up the system for automatic operation exactly the way they want it.

For regions of interest that need to be inspected frequently, the Pro-touch allows storage of up to ten camera positions in memory for instant recall or playback in an automatic sequence. Each of the ten programmable locations not only stores the cameras positional data but also the camera's zoom and strobe settings, so one second you can be inspecting a large area of print while the very next you can be checking a register mark at 30x magnification with a Back-strobe, and all without touching a button.

>> *Each of the programmable locations not only stores the cameras positional data but also the camera's zoom and strobe settings.*

PRODUCTS

All-in-One

The Compact Fusion is a fully integrated Video Web Inspection System. Unlike conventional systems that consist of a separate camera housing and control console, the Compact Fusion consists of a single camera housing, with all the electronics and controls built in. Simply plug in a standard computer monitor, and you have a fully working Compact Video Web Inspection System.

Complete with an impressive motorised 18x zoom lens, the Compact Fusion can magnify your print defects up to 58 times on a 17" monitor

Compact Fusion Specification:

Sony Super-HAD CCD sensor - 460 TV lines
18 x Fully motorised zoom lens with 58 x magnification on a 17" monitor
Camera size - 265(H) x 125(W) x 175mm(D)
Power input 110/230vac
Up to 500mm manual traverse as standard
Magnetic gear sensor and brackets included
Internal power surge and ESD protection

Standard Features:
90 x 65mm Maximum Viewing Area
Dynamic Scan and Label Checking programs
Hyper-strobe
Register Mark Memory
Split Screen Imaging
Full colour graphical On Screen Display
180 degree Image Flip
Non-volatile program settings
Simple DIY installation

Standard cable sizes :
Console to gear sensor - 5m
VGA extension - 3m
Power lead - 5m

Optional Equipment:
Standard remote keypad(s)
Multiple monitors
Back-strobe illumination
Cable and traverse length upgrades

» *Small, reliable and extremely simple to use, the Compact Fusion is a complete web inspection system in a single box.*

ULTRA FUSION 90

Designed for the Label Printer

The Ultra Fusion 90 is the smallest camera offering of the Ultra Fusion family, and is probably the most compact camera housing available in the industry. Just 230mm high and 110mm wide it is the ideal camera for narrow webs and can be comfortably fitted to the smallest of machines.

An array of optional upgrade equipment make the Ultra 90 ideal for forward thinking narrow web print companies.

Ultra Fusion 90 Specification:

Sony Super-HAD single chip CCD sensor with 460 TV lines resolution
18 x Motorised Zoom Lens providing 58x magnification on a 17" monitor
90x65mm maximum viewing area
Camera size - 230(H)x100(W)x160mm(D)
Console size - 60(H)x300(W)x230mm(D)
Power input 110/230vac
Manual extruded aluminium traverse up to 500mm
Hall effect device magnetic gear sensor and mounting bracket included
Internal Power Surge and ESD protection

Standard Features:
Console mounted keypad
Dynamic Scan and Label Checking Programs
Hyper-strobe
Register Mark Memory
Split Screen Imaging
Full Colour Graphical On Screen Display
180 degree Image Flip
Non-volatile program settings
Simple DIY installation

Standard Cable sizes:
Console to gear sensor - 3m
Camera to console Umbilical - 3m
Console power cable - 1.5m

Optional Equipment:
Double camera
Standard remote keypad(s)
Multiple monitors
Back-strobe illumination
Cable and traverse length upgrades

>> *The Ultra Fusion 90 system is ideal for the smallest of narrow web presses when available space is at a premium.*

Designed for Demanding Applications

The Ultra Fusion 120M is the workhorse of the Fusion family providing the user with a high specification web inspection system and incredible value for money.

With a large 120mm x 90mm view, a massive 38 times zoom providing magnification of print defects up to 95 times and a built in high-torque stepper motor drive, the 120M is a robust system suitable for both narrow and wide web installations and will give maximum benefit to the most demanding printers.

Ultra Fusion 120M Specification:

Sony Super-HAD single chip CCD sensor with 460 TV lines resolution
38x Motorised Zoom Lens providing 95x magnification on a 17" monitor
120 x 90mm maximum viewing area
Camera size - 320(H)x130(W)x90mm(D)
Console size - 60(H)x300(W)x230mm(D)
Power input 110/230vac
High torque stepper motor traverse drive on hardened "V" rollers up to 500mm
Hall effect device magnetic gear sensor and mounting bracket included
Internal Power Surge and ESD protection

Standard Features:
Standard remote keypad
Dynamic Scan and Label Checking Programs
Hyper-strobe
Register Mark Memory in X and Y directions
Split Screen Imaging
Full Colour Graphical On Screen Display
180 degree Image Flip
Non-volatile program settings
Simple DIY installation

Standard Cable sizes:
Console to gear sensor - 3m
Camera to console Umbilical - 3m
Console power cable - 1.5m

Optional Equipment:
Pro-touch Advanced User Interface
Double camera
Additional remote keypads
Multiple monitors
Back-strobe illumination
UV strobe illumination
Cable and traverse length upgrades

➤➤ *The Ultra Fusion 120M comes complete with a large 120mm x 90mm viewing area and a motorised camera traverse; it is an ideal choice for wide web packaging machines.*

FUSION DX

Cutting Edge Digital Web Inspection

Visi-tech have always been at the cutting edge of new technology, and the Fusion-DX Digital Web Inspection System is a fine example of this.

Although not strictly built upon Visi-tech's Fusion Processor, the Fusion-DX was justifiably named, and added to the Fusion product family since it inherits many of the great attributes of the Fusion product range, such as intuitive operation, excellent image quality, robustness and reliability.

Having taken on the basic qualities of all Fusion products, the Fusion-DX then simply leaps into a class of its own. Utilising a state of the art GigE, Hi-Resolution Digital Camera with Infrared Cut filter for improved colour rendition, the Fusion-DX provides crisp, clear web inspection on a generous 19" Touch Screen monitor.

To take full advantage of its high quality imaging, the Fusion-DX provides its users with a time saving and intuitive touch screen user interface allowing the user to take full advantage of the Fusion-DX's advanced features and to enable rapid navigation to points of interest on the web.

The **Webmap** feature creates a full scan of the entire print repeat at the touch of a button. This scanned image can then be used to rapidly navigate any position on the web by simply touching that point of interest on the Webmap.

For particular points of interest on the web Fusion-DX offer its users the ability to easily store the position and zoom setting of those points along with a **Thumbnail** image. Up to 18 Thumbnails can be stored per Job, and the camera position for any Thumbnail can be quickly recalled by simply touching the appropriate Thumbnail on screen.

We have said that a Webmap can be created and up to 18 Thumbnail points of interest can be stored, but with the Fusion-DX, this can be done for up to **250 Different Jobs**. The Fusion-DX includes a powerful SQL Server Database that allows the storage of Job specific settings, Webmaps and Thumbnails. By simply saving those settings, next time the same job is reprinted the Job Settings, Webmap and Thumbnails can all be restored in seconds and the Fusion-DX is then ready for rapid inspection before a drop of ink is laid on the web.

>> *Webmap rapid camera positioning, Thumbnails, and Job Storage for up to 250 Jobs are provided as standard with the Fusion-DX*

Designed for Wide Web Flexo and Gravure

The Fusion-DX offers quality conscious printers a leap forward in web inspection technology, and is particularly suited to companies printing on wide webs and difficult substrates.

The advanced Quad Strobe Illumination of the Fusion-DX camera eliminates many of the viewing problems common in other web inspection systems. Reflections, shadows and bright spots are all minimised providing an overall better image quality and more natural inspection for the printer.

Fusion-DX Specification:

GigE Digital Camera with Sony Progressive Scan CCD Sensor (Max Resolution 1392 x 1040)
Infrared Cut Filter for Improved Colour Rendition
10x Optical Motorised Zoom Lens providing 23x magnification on a 19" monitor
160 x 120mm Field Of View
Quad Strobe Lamps for Uniform Non Reflective Illumination
Camera size - 550(H)x340(W)x300mm(D)
Console size - 60(H)x300(W)x230mm(D)
Power input 110/230vac
High Torque Micro-stepping Motor Drive
Internal Power Surge and ESD protection
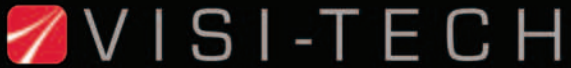
Standard Features:

19" Touch Screen user interface
Webmap - Rapid camera positioning
Thumbnails - Visual position storage
Job Manager - Store Settings, Webmap and Thumbnails for up to 250 individual Jobs
Dynamic Scan - Three modes of Dynamically adjusted 100% web scanning
Program Playback - Automatically recall and move to up to 18 programmed positions
One Touch Zoom - Rapid zoom to user defined magnification
Split Screen Imaging
Full Screen Viewing mode
180 Degree Image Flip

Optional Equipment:

Double camera
Multiple monitors
Back-strobe illumination
UV strobe illumination

The Fusion-DX Digital Web Inspection System is the Ultimate Choice for wide web Flexo and Gravure printers.

FUSION

Visi-tech Systems Limited were founded in 2001 in the South Wales valleys in the UK. Since that time Visi-tech has grown to become a major supplier of video web inspection system with an international network of distributors providing Visi-tech products to all corners of the globe.

The company prides itself in the assurance that its success has been built on quality and by always putting the customer first.

VISI-TECH

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