

# VSC<sup>®</sup>400

for checking the integrity of  
Passports, Visas and ID cards



HIGH RESOLUTION  
**3.2M  
PIXEL**  
3.2M PIXEL CAMERA

IMAGING TECHNOLOGY  
**HFi**  
IMAGING TECHNOLOGY

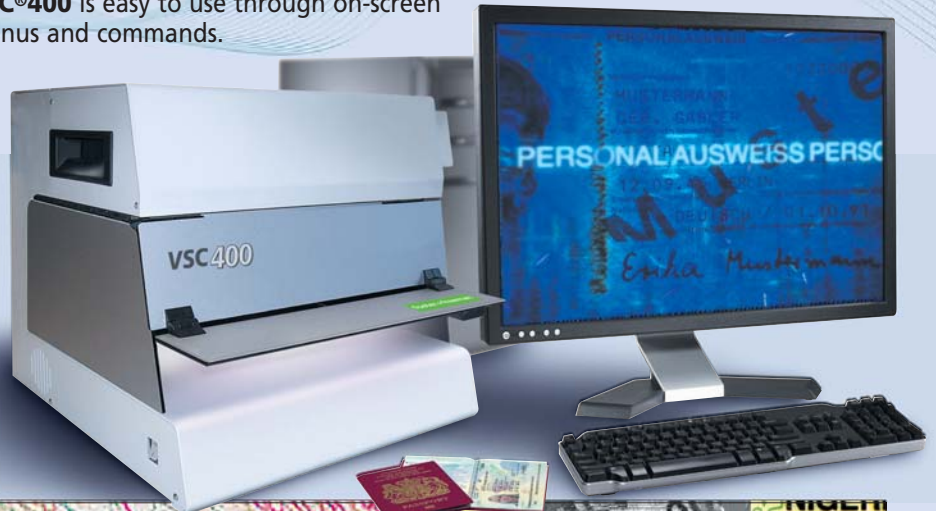
- Detects alterations and counterfeits
- Reveals covert security features
- Non destructive
- Provides documentary evidence for prosecutions
- Helps generate alerts
- Gives instant results
- In use by immigration and forensic laboratories worldwide

foster+freeman

# VSC<sup>®</sup>400 SECURITY DOCUMENT EXAMINATION

## For checking the integrity of Passports, Visas and ID cards

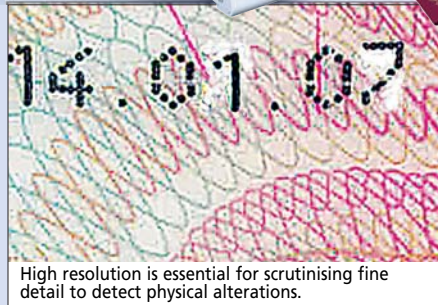
The VSC<sup>®</sup>400 is a color and infrared digital imaging system designed for the verification of passports, visas and ID cards and for the general examination of suspect or questioned documents. PC or laptop operated through Windows Vista, VSC<sup>®</sup>400 is easy to use through on-screen menus and commands.



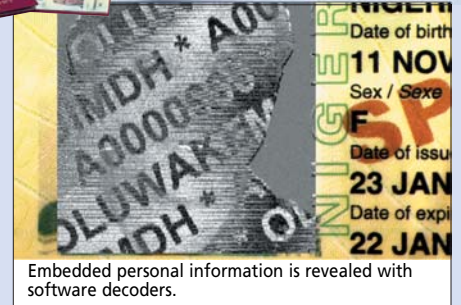
Variations in the infrared absorption of printed text



Coaxial lighting reveals retro-reflective features



High resolution is essential for scrutinising fine detail to detect physical alterations.



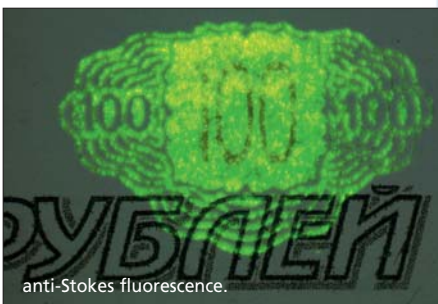
Embedded personal information is revealed with software decoders.



Passport under normal lighting and security features (shown inset) under 365nm incident UV.

## Comprehensive facilities for examining...

- UV activated luminescent features under short, medium and long wave UV.
- Tampering and photo-substitution under high magnification.
- Anti-Stokes security features using intense IR lighting.
- Retro-reflective features with coaxial lighting.
- Embossed stamps under oblique lighting.
- Holograms using sequential multi-angled lighting.
- Watermarks using transmitted lighting.
- Suspected alterations exploiting the differential infrared absorption and luminescence properties of inks.
- ICAO coded data reader.



anti-Stokes fluorescence.



Sequential images of a banknote OVD using programmed multi-angled lighting.

# VSC<sup>®</sup> 400 SECURITY DOCUMENT EXAMINATION

## Offering the questioned document examiner...

### High resolution

3.2 million pixel CCD firewire color camera with 360nm to 1100nm spectral response.

### 'HFi' imaging technology

Provides exceptional image quality.

### On-screen magnification

x1.6 to x58 ±5% on the standard 24inch (61cm) display monitor and an optional 2x digital magnification to x116 ±5%.

### Simple to use on-screen controls

Interactive guidance on instrument operation.

### Illumination

Wide range of illumination for the examination of all security and travel documents from short wave UV to infrared including incident, oblique and transmitted modes plus high intensity lamps for generating weakly fluorescent features.

### Integration

On-chip integration from 8ms to 22s to enhance weakly fluorescent features.

### 'Quick Check' programmed examinations

An option for applying standard examination tasks using pre-set instrument parameters to ensure consistent examination procedures.

### Casework management

Systems to create casework files with images, including instrument settings. Features include a pull-out gallery of recent work, notepad and a key word search engine.

### Wide field of view up to 160 x 118mm

### On-screen image comparisons.

### Image measurement and enhancement.

## VSC<sup>®</sup> 400 optional upgrades include

- Embedded Personal information Decoders
- ICAO readers for e-passports and ID cards
- Polarised light viewer
- Auxiliary Microscope Options
- Passport and Banknote Databases

## New features for the VSC<sup>®</sup> 400

### Multiple laser images

Multiple Laser Images (MLI) and Changeable Laser Images (CLI) can be viewed using the VSCs side lights. Alternatively, the VSCs range of hologram imaging LEDs can be used, giving great flexibility.

### Areas of Interest processing

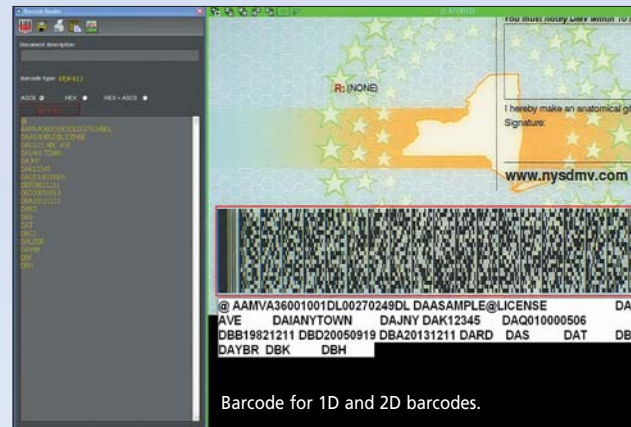
By selecting a restricted area of an image, the effects of image enhancement can be improved.

### Intelligent software functions

VSC<sup>®</sup>400 ensures compatible combinations of illumination and imaging filters automatically. When the operator selects a filter to generate fluorescence, the system automatically selects the first compatible imaging filter to prevent light leakage that would otherwise mask the fluorescence. The operator may override the automatic selection, if required.

### Latent images

A new software feature, a digital imaging filter that detects and enhances latent security images on documents.



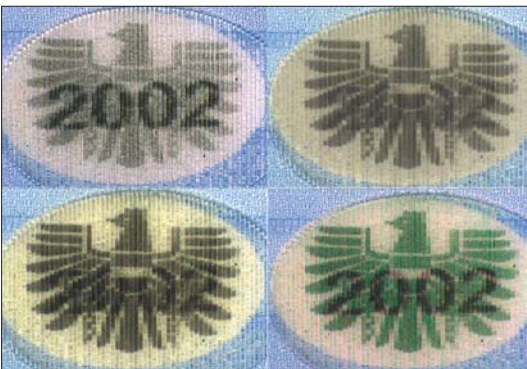
### Barcode reader

Deciphers 1D and 2D barcodes including PDF417 format.

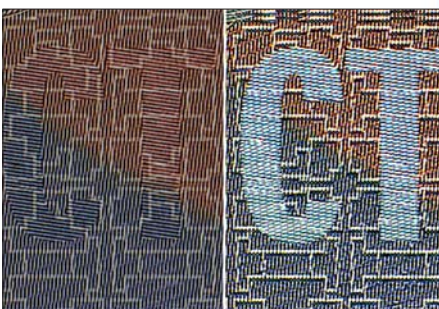
### Auto Examine functions

The system allows the operator to select up to 186 illumination and filter settings which the VSC<sup>®</sup>400 will then process to create thumbnail images. Preferred settings can also be saved and applied to any subsequent document examination.

The gallery of thumbnail results can be scrolled through and either saved as a general record of document examination or by double clicking any thumbnail the system will automatically recall the settings to allow a more detailed examination on the live image.



Multiple laser images



Latent security features



# VSC<sup>®</sup>400 SPECIFICATIONS

## Standard PC System

Product Code: VSC400/M1

The VSC<sup>®</sup>400 is supplied with a PC, a 24inch (61cm) monitor and VSC<sup>®</sup> operating software including the Document Database System.

### IMAGING SYSTEM

- High resolution 3.2 million pixel CCD firewire color camera with 360nm to 1100nm spectral response.
- HFi - high fidelity imaging system.
- On-chip image integration range from 8ms to 22s.
- Automatic and manual focus and exposure controls.
- Motorised zoom lens.
- On-screen magnification range of x1.6 to x58 ±5% (optional 2x digital magnification to x116 ±5%) on the standard 24inch (61cm) display monitor.
- Additional digital zoom.

### IMAGE DISPLAY

- Via 24inch (61cm) flat screen LCD.
- Screen resolution of 1920 x 1200 pixels.
- Maximum field of view from 160 x 118mm.

### IMAGING FILTERS

12 camera filters mounted in a motorised wheel, including 11 red and infrared high pass filters with thresholds at 590, 610, 630, 645, 665, 695, 715, 725, 780, 850 and 1000nm and a broadband visible pass filter, 450 to 660nm.

### LIGHT SOURCES (with applications)

- Incident intense visible 100W (for examination of weak IR fluorescent features) halogen lamp with dichroic reflector and integral range of filters with transmission wavebands: 400-480, 400-540, 400-580, 440-580, 480-640, 520-640, 560-680, 610-740, 650-740nm and wide band 400-680nm.
- Incident intense infrared (anti-Stokes imaging). Broadband 850nm to 1100nm.

### LIGHT SOURCES (with applications)

- Incident white and infrared (general visible examinations & infrared absorption/reflectance imaging). Variable intensity control, 4 x 12.8W incandescent lamps.
- Transmitted white and infrared (imaging watermarks and embedded features such as metallic strips). Wide field, 4 x 12.8W incandescent lamps.
- Transmitted high intensity white and infrared (imaging concealed or masked information). Focussed, 1 x 20W lamp.
- Ultraviolet Light Sources (for imaging UV security features).
  - UV light source (365nm), incident 2 x 9W.
  - UV light source (313nm), incident 2 x 6W (Safety interlocked).
  - UV light source (254nm), incident 2 x 6W (Safety interlocked).
  - UV light source (365nm), transmitted 2 x 9W.
- Low level oblique lighting, white and infrared (surface imaging, intaglio print, embossings, indentations). Selectable left and right 2 x 20W halogen lamps.
- Multi- angled lighting (for sequential imaging of multi-image OVDs) 13 LEDs in horizontal and vertical arrays.
- Co-axial lighting (imaging retro-reflective features) 1 LED array.

### IMAGE DISPLAY & COMPARISON, options include:

- Real time live image and stored images.
- Side by side comparison of live and stored images.
- 90° image rotation.
- Mirror reversal, top to bottom and side to side.
- Superimposition (overlay) of live and stored images.
- Variable speed strobed display of two images.
- Color balance and contrast optimisation.

### CASEWORK MANAGEMENT AND IMAGE DATABASE

Enables the creation of casework files and to store and recall images, including instrument settings. Features include a pull-out gallery of recent work, notepad and a keyword search engine.

### IMAGE MEASUREMENT

- Distance between two points.
- Area within a selected feature and radius of a circular feature.
- Angle between two lines.
- Image annotation.
- System calibration to provide absolute measurement.

### EXAMINATIONS WITH 'QUICK CHECK'

Enables the instrument to be pre-programmed for standard examination tasks. Instrument parameters of illumination mode, filters, magnification are preset to ensure consistency in the repetitive examination of similar or identical documents. Password protected. Several examination tasks can be sequenced.

### OPTICAL CHARACTER READER

Decodes and displays ICAO coded data on machine readable zones of passports and ID cards.

### POWER

Universal mains power input. USB Power on/Standby mode with LED indicator.

### SPARE LAMPS AND FUSES

The VSC<sup>®</sup>400 is supplied with standard accessories and spare lamps.

## Laptop System

Product Code: VSC400/M2

An alternative laptop computer system featuring the same specifications as the Standard PC System but with a 17inch screen and an on-screen magnification range of x1 to x53 ±5% (optional 2x digital magnification to x106 ±5%).

## Accessories

### UNINTERRUPTABLE POWER SUPPLY

Product Code: V4P/BAT

- 110 -230 V AC input with status monitoring, inline RCD (IEC).

### EMBEDDED PERSONAL INFORMATION DECODERS

Product Code: V6/IPI

Decodes embedded information imprinted using Scrambled Indicia<sup>®</sup> Technology supplied under licence from Graphic Security System Corp (GSSC) of the USA.

### POLARISED LIGHT VIEWER

Product Code: VSC/POLARISAFE

UV polarised light viewer for examining Swiss passports.

### ICAO READERS FOR E-PASSPORTS AND ID CARDS

A choice of two stand-alone readers that can operate independently of the VSC.

### READER OPTION 1

Product Code: VSC/EREADER1

- SSD 5000 series OCR MRZ, RFID and CARD reader.
- USB cable, connection to PC and power supply.

### READER OPTION 2

Product Code: VSC/EREADER2

- Multiple document reading and imaging capability, imaging in 24-bit color.
- 400 DPI high resolution imaging.
- Multiple wavelength illumination for viewing visible, IR, UV and 3M Confirm<sup>™</sup> laminates.
- Enables images to be accessed as BMP or JPEG format.
- OCR data capture and complete access to OCR data and images captured via Software.
- Auto-triggering of document capture – presence of document is automatically detected.
- USB 2.0 high speed compatible.
- Integrated USB 2.0 Hub - 2 ports for external peripherals (3 track magnetic strip reader, 2D barcode gun).
- No moving parts.

# VSC<sup>®</sup> 400 AUXILIARY MICROSCOPE OPTIONS

A range of high magnification imaging systems suitable for the examination of questioned documents that provides input into the VSC<sup>®</sup>400. Comprising a high resolution video camera and a choice of microscopes.

## HIGH RESOLUTION VIDEO CAMERA

**Product Code: VSC400/CAMFW**

A 3.2 Mpixel CCD color digital camera that provides an alternative image input to the VSC<sup>®</sup>400 system. It can be mounted on to any suitable microscope and connected to the FireWire camera port on the VSC<sup>®</sup>400 PC. Image integration ranges from 8ms to 22 seconds. Images input to the VSC<sup>®</sup>400 may be processed under the VSC<sup>®</sup> software including archiving, feature measurement, comparative display and image enhancement.

## NIKON SMZ745T MICROSCOPE

**Product Code: VSC400/MIC/NIKON/1**

Nikon stereo microscope with phototube, 2x objective, 15x eye pieces and multi-angle LED illumination.

## NIKON SMZ745T MICROSCOPE WITH HIGH RESOLUTION VIDEO CAMERA

**Product Code: V6/MIC/NIKON/1/CM**

Nikon stereo microscope with phototube, 2x objective, 15x eye pieces, multi-angle LED illumination and 3.2 Mpixel CCD color digital camera (VSC400/CAMFW).

### Nikon SMZ745T microscope features:

- 0.67:5 zoom range (1.34 to 10x), working distance 43.5mm.
- Eyepiece magnification 20.1 to 150x, field of view 10.5mm to 1.4mm.
- On-screen magnification (24" monitor) 58x to 434x, horizontal field of view 9.8mm to 1.3mm.

### Microscope comprises:

- Main body with zoom and built-in x0.55 C-mount adapter.
- Eye/camera splitting ratios 100/0 or 0/100.
- 2x 15x eyepieces with eye shields.
- 2x objective, including 66-60mm objective adapter.
- Plain, single speed focusing stand, supplied with opal and black acrylic plate.
- LED ringlight for intense brightfield illumination, 66mm int diameter, 25-50mm working distance.
- MC1000 LED controller with smooth dimming, LED segment selection and rotation controls.
- Power supply input 100-240 VAC, 50/60Hz.
- Power cable.



Nikon SMZ745T

## NIKON SMZ1000 MICROSCOPE

**Product Code: VSC400/MIC/NIKON/2**

Nikon stereo microscope with phototube, 1x objective, 10x eye pieces and multi-angle LED illumination.

## NIKON SMZ1000 MICROSCOPE WITH HIGH RESOLUTION VIDEO CAMERA

**Product Code: VSC400/MIC/NIKON/2/CM**

Nikon stereo microscope with phototube, 1x objective, 10x eye pieces, multi-angle LED illumination and 3.2 Mpixel CCD color digital camera (VSC400/CAMFW).

### Nikon SMZ1000 microscope features:

- 10:1 zoom range (1.6 to 16x), working distance 32.5mm.
- Eyepiece magnification 16 to 160x, field of view 13.8mm to 1.40mm.
- On-screen magnification (30" monitor) 115x to 1148x, horizontal field of view 5.5mm to 0.55mm.

### Microscope comprises:

- Main body with zoom.
- 1.0x C-mount adapter.
- Eye/camera beam splitter with the following ratios: left eye/right eye/camera = 100/100/0 or 100/50/50.
- 2x 10x eyepieces with dioptre adjustment, rubber eyeshields, reticle holder.
- 2x Plan objective.
- Focusing C-mount with coaxial coarse and fine focusing knobs to be used with stands for SMZ1500/1000.
- Focusing stand supplied with 180mm opal and black acrylic plate.
- LED ringlight for intense brightfield illumination, 66mm int diameter, 25-50mm working distance.
- MC1000 LED controller with smooth dimming, LED segment selection and rotation controls.
- Power supply input 100-240 VAC, 50/60Hz.
- Power cable.



Nikon SMZ1000

## LEICA M205C MICROSCOPE

**Product Code: VSC400/MIC/LEICA**

Leica microscope with phototube, 1x objective, 10x eye pieces and multi-angle LED illumination.

## LEICA M205C MICROSCOPE WITH HIGH RESOLUTION VIDEO CAMERA

**Product Code: VSC400/MIC/LEICA/CM**

Leica microscope with phototube, 1x objective, 10x eye pieces, multi-angle LED illumination and 3.2 Mpixel CCD color digital camera (VSC400/CAMFW).

### Leica M205C microscope features:

- 20.5:1 zoom range (0.78 to 16x), working distance 61.5mm.
- Eyepiece magnification 7.8 to 160x, field of view 31mm to 1.5mm.
- On-screen magnification (24" monitor) 61x to 1252x, horizontal field of view 9.4mm to 0.45mm.

### Microscope comprises:

- Main body with zoom.
- 1.0x video/photo objective plus 1.0x C-mount camera adapter.
- Eye/camera splitting ratios of 100/0 or 0/100.
- 2x 10x eyepieces with dioptre adjustment.
- 1x Plan apochromat objective.
- Coarse/fine focusing stand with translight base.
- LED5000 MCI LED intense brightfield/darkfield illumination, featuring adjustable horizontal angles of illumination.
- LED controls of intensity, horizontal and vertical angles of illumination.
- Power supply input 100-240 VAC, 47/63Hz.
- Power cable.



Leica M205C

# VSC<sup>®</sup> 400 DATABASE OPTIONS



## INTEGRATED VSC DOCUMENT DATABASE SYSTEM

The VSC's updated software now includes the **Document Database System** which enables the operator to generate their own databases and to access and display data from the optional **Keesing reference database collections** shown below.

### Features include:

- Displays document images with saved data.
- Displays pages as thumbnails and hovering the cursor over the thumbnail displays a larger image.
- Enables images to be rotated.
- Enables double page images to be split to show each page separately.
- Enables a live VSC<sup>®</sup> image to be displayed alongside an image from the Keesing database for comparison.
- Archives VSC<sup>®</sup> generated images, data and VSC<sup>®</sup> settings to a user generated database.
- Automatically resets VSC<sup>®</sup> to the examination parameters saved with any image retrieved from a user generated database
- Enables images, data and VSC<sup>®</sup> settings in one user's document database to be shared with other users.

### KEESING REFERENCE DATABASE OF SECURITY DOCUMENTS THE ARCHIVE COLLECTION - OPTIONAL Product Code: VSC/DB/ARCHIVE

A reference database showing the security features in Passports, ID cards and Driving Licences from 180 countries, comprising images and data. Compatible with the VSC Document Database System VSC/DB/SOFTWARE.

- Contains information on the security features of over 1,100 (approximate) security documents.
- Information is provided in the form of descriptions and full color images of over 10,000 pages of security documents.
- Supplied as the latest up-to-date collection at time of despatch.
- Accessible only via the VSC Document Database System VSC/DB/SOFTWARE.

### KEESING REFERENCE DATABASE OF SECURITY DOCUMENTS ANNUAL SUBSCRIPTION - OPTIONAL Product Code: VSC/DB/KDATA

Provides updates and revisions to the Passports, ID cards and Driving Licences covered by the Keesing Reference Database of Security Documents issued during the year of the subscription. Compatible with the VSC Document Database System VSC/DB/SOFTWARE.

- Covers the 180 countries covered by the database.
- Information is provided every two months over the year of the subscription.
- Information is sent electronically or on DVD from Foster & Freeman.
- After each update the data will be added to the archive collection.
- Accessible only via the VSC Document Database System VSC/DB/SOFTWARE.

### KEESING REFERENCE DATABASE OF BANKNOTES THE ARCHIVE COLLECTION - OPTIONAL Product Code: KD/BANKNOTE

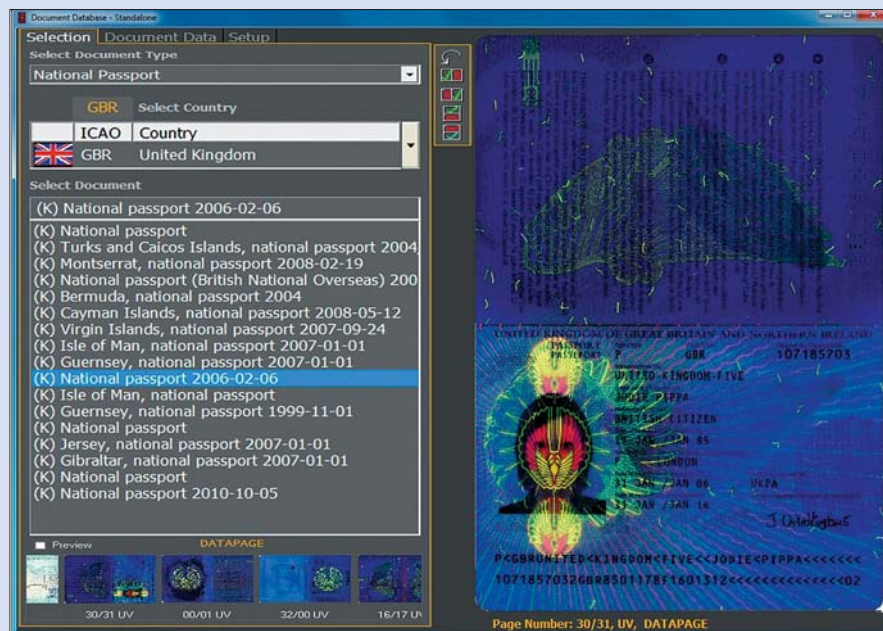
A reference database showing security features found on banknotes from 180 countries, comprising images and data.

- Contains information on the security features of over 4,500 banknotes including watermarks, holograms and UV features.
- Information will take the form of descriptions and full color images of over 70,000 banknotes.
- Updated monthly.

### KEESING REFERENCE DATABASE OF BANKNOTES USER LICENCE - OPTIONAL Product Code: KD/BANKNOTE/LICENCE

Provides updates and revisions to the banknotes covered by the Keesing Reference Database of Banknotes issued during the year of the subscription.

- Gives the user access to the Keesing database for 12 months.
- Renewable annually.



Foster & Freeman Ltd reserve the right to alter the specification of the VSC<sup>®</sup>400 or any accessories without prior notice.

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