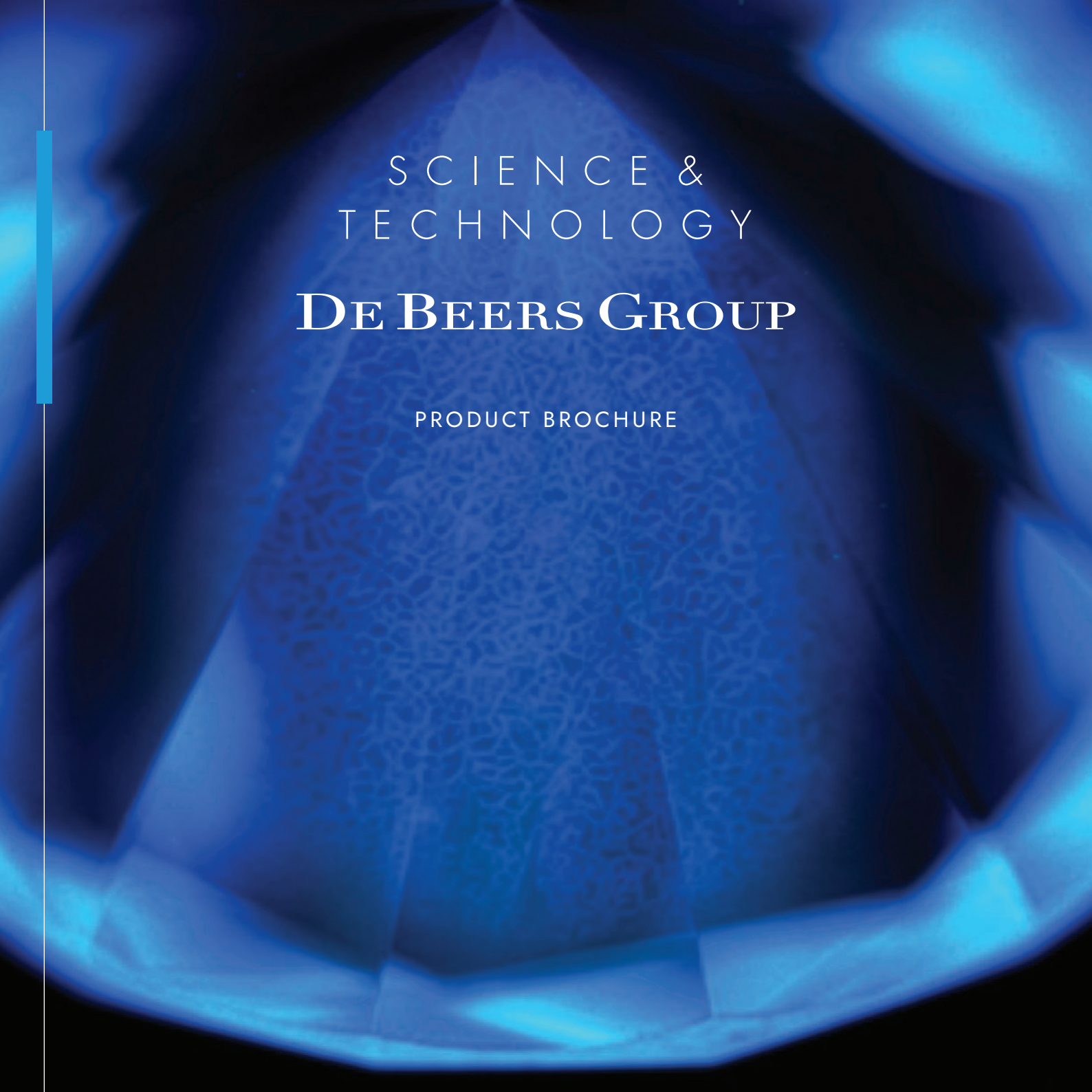

SCIENCE &
TECHNOLOGY
DE BEERS GROUP
PRODUCT BROCHURE

SCIENCE &
TECHNOLOGY

DE BEERS GROUP

TRUSTED DIAMOND SCREENING AND VERIFICATION

De Beers Group provides advanced screening and verification technologies that support trust, transparency and confidence across the global diamond industry.

Integrity throughout the diamond journey - from exploration to retail - is fundamental to protecting diamond value and sustaining consumer confidence. Our verification instruments are built on leading-edge science and proven technology, enabling accurate and consistent differentiation of natural and synthetic diamonds.

As assurance becomes increasingly important to customers, suppliers, jewellers, financiers and consumers, reliable diamond verification has never been more critical. The growth of the synthetic diamond sector has further reinforced the need for robust solutions that support authenticity and confidence at every stage of the value chain.

Backed by more than **50 years of De Beers Group Science and Technology expertise**, our technologies draw on deep knowledge of diamond science, research and real world industry application. Through continuous innovation and integrated capabilities in research, development, production and commercial delivery, we provide solutions designed for today's evolving market.

By embedding end to end expertise into our instruments, De Beers Group Verification delivers accurate, reliable and repeatable results. This technology leadership helps safeguard brand integrity, protect diamond value and support responsible supply chains, enabling our customers to do business with confidence.

Discover more

To learn more about De Beers Group Verification instruments, please contact:
dvisales@debeersgroup.com

or visit us at **https://verification.debeersgroup.com/diamond-verification-instruments**

Screening vs Detection

De Beers Group brings extensive experience in the research, design, development and sale of verification instruments that support the reliable screening and detection of non-natural diamonds.

Screening

The analysis of multiple samples to distinguish natural diamonds from those requiring further testing. Screening passes most natural diamonds while referring all simulants and synthetic diamonds, and a small proportion of natural diamonds, for additional analysis.

Detection

The analysis of an individual sample using a definitive analytical technique that enables conclusive identification.

The table below shows the instruments, the type of product that can be tested and the expected results

DiamondSure	Loose polished diamonds	Screens out all stones that could potentially be synthetic, simulants or HPHT treated natural diamonds
DiamondView Zoom	Loose polished diamonds	Identifies natural and synthetic diamonds (CVD and HPHT)
SynthDetect	Loose and Jewellery	Refers all simulants, synthetics and a small percentage of natural diamond
AMS2	Loose polished melee	Refers all simulants, synthetics and a small percentage of natural diamonds
AMSMicro	Loose polished melee	Refers all simulants, synthetics and a small percentage of natural diamonds
DiamondPlus	Loose polished diamonds	Only for type II polished diamonds, for screening out potential HPHT treated natural diamonds
DiamondProof	Loose and Jewellery	Refers all simulants, synthetics and a small percentage of natural diamonds

DiamondProof

Price: $5,500
Job: To verify natural diamonds - both loose and those set in jewellery.

The DiamondProof is a client-friendly device that allows you to offer consumer confidence and education around diamond verification reliably at the retail counter. It is designed to verify natural diamonds in both jewellery and loose stones.

It can test rings, earrings, pendants, tennis bracelets and loose stones within seconds, giving an automated result that is displayed on the high-resolution touchscreen.

By leveraging technology used in De Beers' SynthDetect instrument, the vast majority of natural diamonds will pass without requiring further testing, with only a few percent needing additional evaluation. This advanced technology also ensures 0% false positive rate for natural diamonds, guaranteeing that no synthetic diamonds will be mistakenly identified as natural.

Technical Specifications:

- Colour range: Colourless/near-colourless
- Size: 0.01 - 3 cts (mounted), 0.01 - 10 cts (loose)
- Scanning time
  - Static view: 6 second
  - Full rotational view: 2 minutes
- Integrated touchscreen with simple controls
- Automatic drawer opening
- Remote updates and support via Wifi
- Dimensions: 400mm (w) x 415mm (h) x 270mm (d)
- 1 year parts/service warranty

SynthDetect

Price: $18,500
Job: To screen jewellery and loose diamonds

SynthDetect is designed for testing both loose diamonds and those set in jewellery. It is suitable for testing colourless to near-colourless diamonds.

The various jewellery attachments allow rings, earrings, bracelets, brooches and necklaces etc. to be tested.

Larger jewellery pieces, along with loose diamonds can be viewed in the sampling tray.

Using the principle of time-resolved photo luminescence, an image is viewed on a high-resolution touch screen, where an automated result is displayed indicating the result as either: natural or refer.

Technical Specifications:

- Colour range: Colorless/near colourless
- Cuts: All cuts can be tested
- Size: Smallest size 0.5mm diameter
- All synthetic diamonds and a very small number of natural diamonds referred for further testing
- Various viewing modes include: white light illumination, fluorescence, phosphorescence
- Controls to focus and rotate the test piece so all stones are viewed
- Field iris for isolating and viewing single stones in a jewellery piece
- Dimensions: 310mm (w) x 340mm (d) x 458mm (h)
- 1 year parts/service warranty

SynthDetect XL

Price: $22,500
Job: To screen multiple jewellery pieces and loose diamonds

The SynthDetect XL base can replace the standard base and has the advantage of holding larger jewellery items as well as multiple pieces of jewellery. The platform can also hold up to 85 rings on its 3 axes (x,y,z) plate.

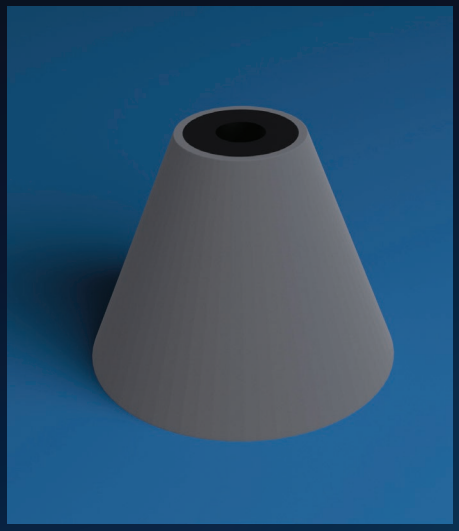
The platform is 210 x 297mm (A4).

To Note: at present, pieces requiring rotation must still use the standard SynthDetect™ lower module.

Technical Specifications:

- Maximum jewellery piece height (tray to focal point) = 30mm
- Maximum variation in scanning height = 20mm
- Dimensions: 558mm (w) x 685mm (d) x 169mm (h) or 492mm (h) with Illumination module fitted
- 1 year parts/service warranty

SynthDetect Accessories



Bangle holder

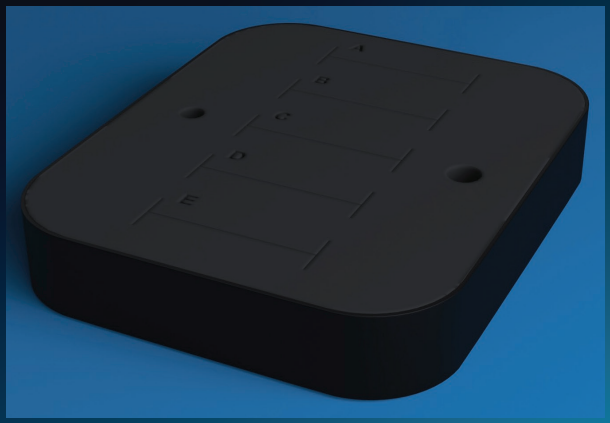
Foam Ring holder

Ring holder

Earring holder

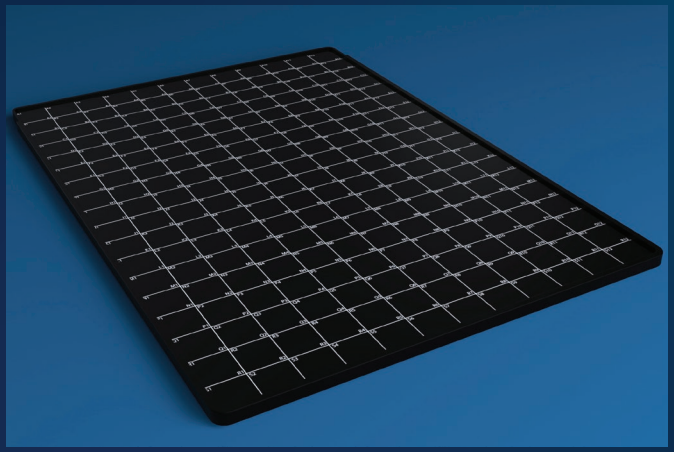
Necklace holder

Melee tray



Ring tray

Mounting tray for melee and ring tray



A4 tray for jewellery

A4 ring tray


PASS
PRESS HERE TO REMOVE
REFER
PRESS HERE TO REMOVE
SYNTHETIC
PRESS HERE TO REMOVE
NON DIAMOND
PRESS HERE TO REMOVE

AMS2

Price: $45,000
Job: To screen melee stones between 0.0033 and 0.20 carats

The AMS2 (Automated Melee Screening) instrument represents a technological advance in the field of diamond melee screening. A product of De Beers Group's expertise in diamond research, and an advanced measurement technique delivering low referral rates.

The AMS2 operates at a speed of up to 3600 stones per hour.

The instrument accepts a wide range of melee stone sizes and shapes including round brilliants and fancy shapes.

Technical Specifications:

- Automated feed, measure and dispense.
- Low referral rate. Testing for both CVD & HPHT
- Speed: up to 3,600 stones per hour.
- Cuts: round brilliant and many fancy shapes.
- Stone size: round brilliants - 0.0033ct up to 0.20ct fancy shapes - 0.01ct up to 0.20ct.
- Colour range: Colourless/Near colourless.
- Failsafe in all colour ranges.
- Fully embedded system; No external pc required.
- Dimensions: 315mm (w) x 400mm (d) x 550mm (h)

AMSMicro

Price: $180,000
Job: To automatically screen melee with the size range of: 0.001ct to 0.0033ct (0.60mm to 0.90mm)

The AMSMicro is an automated melee screening instrument for diamonds from 0.001ct to 0.0033ct (0.60mm to 0.90mm). It is designed to screen large quantities of loose, colourless and near colourless, round-brilliant melee, with speeds of up to 3000 per hour.

The instrument screens and separates diamonds, synthetic diamonds and diamond simulants, with a natural diamond referral rate of less than 3%. As a fully integrated unit with digital touch screen display, results are displayed within seconds.

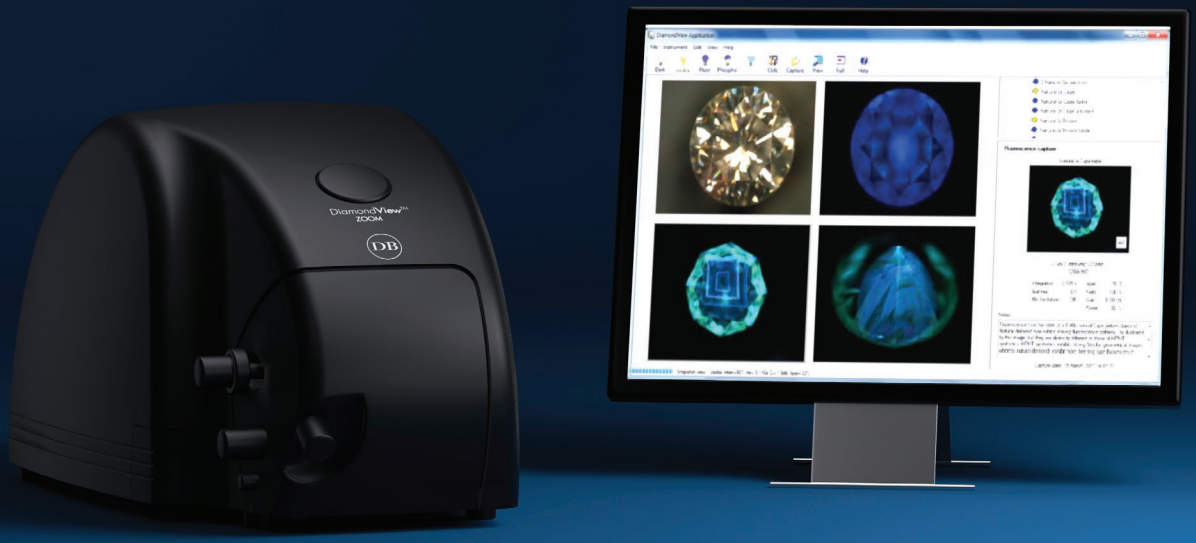
With an automated pick-and-place, measurement and dispensing process, the AMSMicro operates unattended and requires no additional expertise, delivering accurate and reliable results.

Technical Specifications:

- Screen up to 200 Carats per screening session
- Automated pick, place, measure and dispense.
- Low referral rate. Testing for both CVD & HPHT
- Speed: up to 3000 stones per hour
- Cuts: round brilliant
- Stone size: from 0.001ct to 0.0033ct (0.60mm to 0.90mm)
- Colour range: Colourless/Near colourless.
- Verification of: Diamonds, synthetic diamonds, and non-diamond material
- Fully integrated system; No external pc required.
- Dimensions: 890mm (w) x 660mm (d) x 1700mm (h)
- De Beers Group–developed bespoke measurement algorithm (also used in AMS2).

DiamondView Zoom

Price: $25,000
Job: Definitively identifies natural and synthetic diamonds



DiamondView ZOOM features an UltraXGA USB 3.0 high resolution camera to enable the operator to analyse images on a wide range of diamond sizes, from 0.01 ct to 10 cts.

With training the user can differentiate synthetic from natural diamonds and CVD from HPHT stones. The instrument analyses a diamond's surface fluorescence by illuminating it with short-wave ultra-violet light. An image of this is then viewable on a screen and a decision can be made as to whether the stone is natural, or synthetic.

Loose polished diamonds (0.01 – 10ct) are held in place by either a vacuum holder, or one of the additional holders available for large and small stones. It is also possible to view some jewellery pieces, such as stud earrings and simple rings, by changing the holder assembly and using the adapters provided. To aid user interpretation, easy-to-change filters are provided. These enhance specific growth features and enable a decision to be made.

The colour of the fluorescence, the fluorescence pattern and the absence or presence of phosphorescence will differ depending on the stones natural or synthetic origin.

Technical Specifications:

- Ability to identify HPHT and CVD synthetics
- UltraXGA USB 3.0 camera to view surface fluorescence features
- 0.01–10ct size range (polished loose diamonds)
- All colours can be tested including fancy colours
- Can test some simple ring and earring designs
- Easy to change emission filters to enhance specific growth features enabling easy identification
- 1 year parts/service warranty

DiamondSure

Price: $9,500
Job: To screen loose diamonds (some simple jewellery designs)

The DiamondSure compact screening device is designed to distinguish natural from synthetic diamonds and simulants.

This is ideal for wholesale dealers of loose diamonds and a perfect screening device to initiate a detection process when used alongside a DiamondView Zoom.

Simple jewellery designs can also be screened using this device by removing the sample dish and using the fibre optic below.

Technical Specifications:

- Colour range: Colorless/near colourless although will distinguish natural cape yellow from yellow synthetics
- Cuts: All cuts can be tested
- Size: 0.05-10ct size range
- Fast results within 4 seconds
- 0% natural diamond false positives
- Will screen out type II and type IaB diamonds to check for HPHT treatment
- Dimensions: 170mm (w) x 260mm (d) x 100mm (h)
- 1 year parts/service warranty

Diamond**Plus**

Price: $7,000
Job: To screen type II diamonds for HPHT colour treatment

The DiamondPlus is a compact screening device intended for use in all locations where polished diamonds are handled.

It is primarily designed to screen for Type II high pressure high temperature (HPHT) treated natural diamonds, although it does also have the capability to separate out some synthetic categories and will refer some irradiated diamonds.

The instrument makes a laser-excited photoluminescence measurement and will return an automated pass or refer result. Diamonds referred by the instrument should not be classified as HPHT treated or synthetic without additional testing.

In addition to referring all HPHT treated Type II diamonds, the instrument will also refer a percentage of untreated natural Type II diamonds. Testing on all referred diamonds should be carried out using more sensitive, laboratory-based, low temperature photoluminescence equipment. From these measurements, a definitive decision can be made on the origin of the colour.

Technical Specifications:

- Colour range: All colours can be tested
- Cuts: All cuts and be tested
- Size: 0.05-10ct size range
- Will pass untreated natural type II diamonds within 20 seconds
- Suitable for a laboratory environment that has access to liquid nitrogen
- Dimensions: 150mm (w) x 260mm (d) x 100mm (h)
- 1 year parts/service warranty


DiamondView™
ZOOM
DB


SynthDetect™
SDXL
AMS2
PASS
REFER
SYNTHETIC
NON DIAMOND
PURGE

Have a question?

You may find an answer in our website FAQs

https://verification.debeersgroup.com/help-support/

For general enquires fill in the CONTACT US form

https://verification.debeersgroup.com/contact-us/

dvisales@debeersgroup.com
techsupport@debeersgroup.com

https://verification.debeersgroup.com

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