

technologia badań
wizualnych

Everest

Polska



**Waygate
Technologies**

a Baker Hughes business

Everest Mentor Visual iQ+ VideoProbe™

**The Mentor you know.
Plus a whole lot more.**





Everyone needs a Mentor.

The demand of inspections is daunting. Every second counts, every decision can put lives on the line, and so many people are relying on you to get it right. To meet the demand, you need the Everest Mentor Visual IQ+ VideoProbe™ from Waygate Technologies.



[See it in action](#)

Ask and you shall receive.

The Everest Mentor Visual iQ+ is the only video borescope that features voice-activated commands, making it possible to freeze-frame live video, increase dark boost, save an image, and more – without the need for an extra hand. So go ahead: your wish is our command.



Do more in less time

Boost efficiency, improve quality, and streamline the decision-making process at every level.

- Minimize time spent on data management with up to 160 GB onboard memory and **automatic backup to the cloud**.
- Remove blade counting from inspectors' to-do list with the **Automated Blade Counter**.
- Menu Directed Inspection (MDI) software guides you through the inspection, intelligently naming and tagging files, to create **effortless inspection reports**.
- **Reduce effort with integrated turning tool** with on-screen options for controlling Turning Tool rotation directly from borescope handset.
- Built-in speakers and microphone support far field audio technology to enable **hands-free operation**.
- **Identify and classify defects in real-time** with Gas Power-assist to improve consistency and reliability of inspections.
- **2X more processing power** enables multiple applications to run at the same time, including measurement, analytics, pushing data to the cloud, recording video, and more.
- Improved steering engine provides **more sensitive steering** to an extended range for longer.
- Optimized battery performance with **warm swap** capability to replace battery without system shut down.



Get it right the first time

Reduce the likelihood of error with powerful tools that deliver consistent results from every inspector.

- **TrueSight™ provides high-definition live and still images** while a 1.2 megapixel image sensor enables powerful digital zoom.
- Get best-in-class **live video feed at 60 frames per second**.
- Inspect and perform precise measurements from 2 to 120 mm target distances.
- High resolution image, precision optics and a powerful suite of proprietary image transformation functions such as HDR and DarkBoost **increases probability of detection**.
- A full selection of interchangeable probes with standard and measurement optical tips are designed to **meet diverse application requirements**.

We named it Mentor for a reason.

Educational insights, as well as measurement dynamic warning system and analytic setups, are embedded directly into the operating system for easy access.

Analytics that power your productivity

Utilize artificial intelligence and leverage analytical models from multiple sources.

- Our Proprietary Analytics - Gas Power-assist and Blade Counter **improve reliability and data integrity**.
- Third Party Partner Analytics - Get **direct access to Aiir Innovations' aviation commercial engine models** for defect detection.
- If you're developing your own analytics, the Mentor Visual iQ+ **enables deployment to a global team**. If you want to start, the Waygate Technologies data science team can help.

User Guides are available for each analytic outlining applicability, performance metrics, operating procedures, frequently asked questions, and more.



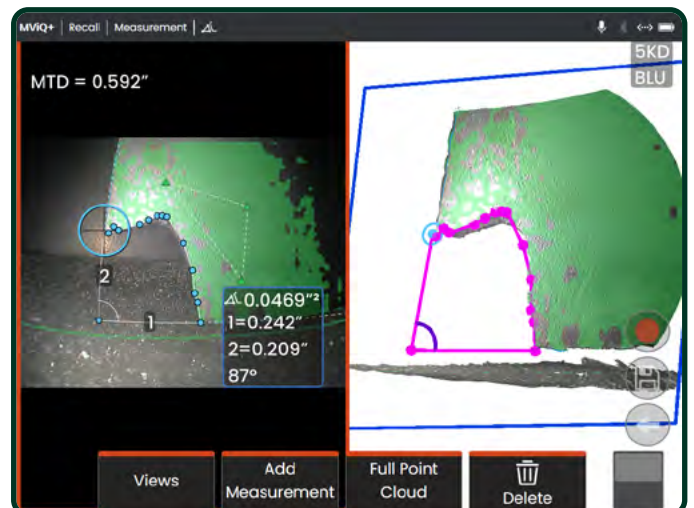
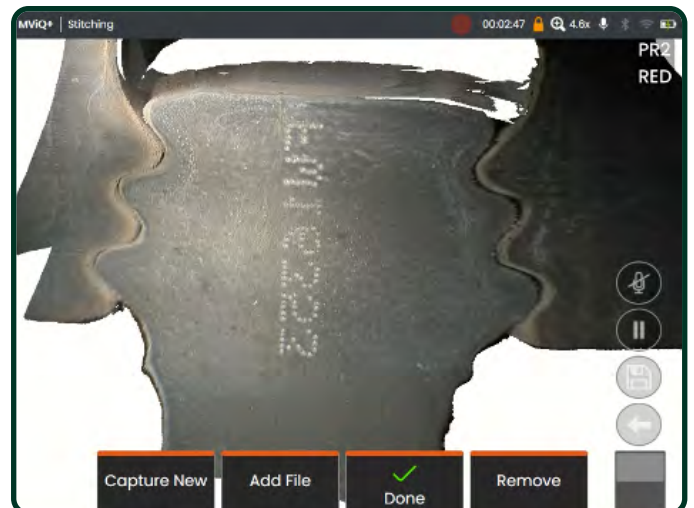
Get confidence from every angle with Real3D™

Real3D™ measurement technology delivers the most advanced 3D capabilities, providing more precise measurement from increased distances. Its wide variety of proven measurement types provide a fully surfaced point cloud for real-time cursor placement adjustments. Plus, stitch together multiple 3D representations to form a composite image of the scene.

Using the same optical tips as traditional Stereo Measurement, **3D Stereo Measurement** employs more advanced calibration and processing algorithms to generate a full 3D point cloud representation of the target surface that can be viewed, manipulated, and analyzed. This technology is less sensitive to probe movement, may perform better on shiny or concave surfaces, and is available on all probe diameters.

3D Phase Measurement uses patented structured-light technology, enabling inspectors to locate, measure, and analyze an indication using the same tip optic. It provides more advanced measurement types and tools, including automated measurements and projected planes to extend surfaces for increased accuracy.

Click [here](#) to read our Real3D™ Measurement Handbook.



Probes as unique as your needs

Every inspection application has its own distinct challenges. Not only does the Everest Mentor Visual iQ+ VideoProbe™ allow for interchangeable probes, we also provide a variety of specialty and custom ones, so you can meet the demand of any job at hand.



UV Probe

Using a UV light source and integral quartz light fibers with UV optics and filters, this probe is optimized for fluorescent penetrant inspections with the ability to switch between visible white and UV lights.



LongSteer™ Probe

Useful for visual inspections of piping, heat exchangers, and boiler tubes, this probe provides great image quality, light output, and articulation.



Working Channel Probe

Expedite return-to-service with this 6.2mm diameter probe, the most complete foreign object retrieval tool system in the industry, featuring a full suite of working tools.



USB Probes

For a cost effective solution to small-diameter applications, 2.2mm and 3.0mm probes provide easy USB connectivity with high-end features you'd expect from Waygate Technologies.

Subscribe to peace of mind.

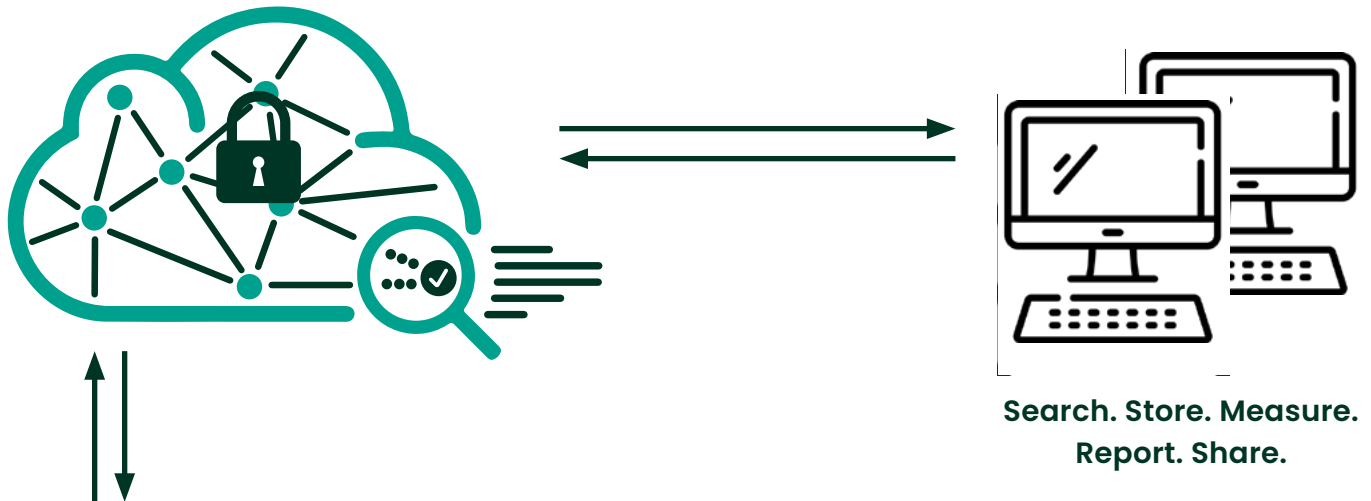
Downtime is costly, but with flexible services offerings, you'll keep your device up and running, at a predictable price.

Visual Care Plan – a comprehensive service plan to help you decrease video borescope downtime, save on repairs and conserve assets.

Flex Subscription – give you access to the latest video borescope technology and manages all your equipment needs, such as ownership, asset replacement, repair, user training, and more.

InspectionWorks: Digitizing your NDT process to drive more efficient inspections.

The Everest Mentor Visual iQ+ comes with InspectionWorks, a secure and scalable cloud-based inspection platform that integrates every component of nondestructive testing (NDT), turning data into useful intelligence for faster and better decisions.



- **Make your devices ready**
Access centralized cloud repository to enable download of MDI/ADR/media to the device.
 - **Launch your Inspection Plan**
Conduct your inspection using standardized templates powered by MDI (Menu Directed Inspections).
 - **Centralize your data**
Effortlessly transfer data for unified access using Push2IW.
 - **Leverage your AI**
Access your or our ADR algorithms to analyze and increase processing efficiency.
 - **Software updates**
Connect to the network to keep updated with the latest features.
- ...Directly From Your Device**



Search

Powerful search function to enable efficient access to all your data.



Store

Securely store inspection data.



Measure

Add or edit Real3D measurements.



Report

Compile inspection output in a report format that suits your business needs.



Share

Let those who need to know get to simply view or even access the raw data. You decide.

MViQ+ Choices

Start by selecting your MViQ+ package:

START

- Touch screen
- 40 GB user storage
- Menu Directed Inspection
- Comparison measurement
- InspectionWorks Basic
- Far Field Audio
- 90-day analytics trial
- Over-the-air free software updates

Best for just the basics

ENHANCE

Includes everything in START package, plus:

- Interchangeable probes
- 80 GB user storage
- HD imaging
- Turning Tool 2.0
- 1-year analytics package (Blade Counter/Gas Power-assist)

Best for trying out analytics

PRO

Includes everything in ENHANCE bundle, plus:

- 160 GB user storage
- 2-year analytics package (Blade Counter/Gas Power-assist)
- All POD measurement bundle options
- Future features such as measurement types and imaging options

Fully equipped for complex inspections

Then add probability of detection (POD) and measurement bundles

Available in Real3D Stereo, including traditional Stereo Measurement, or 3D Phase Measurement technology.

POD BASIC MEASUREMENT

- Measurement types: length, point-to-line, depth, depth profile, area, angle and multi-segment
- Probability of Detection suite of image transformations
- 3D Stitching
- Overlay

POD ADVANCED MEASUREMENT

Includes everything in the BASIC bundle, plus:

- Area Depth Profile
- Radius Gauge
- Blade Tip Clearance
- Surface Angle
- Measurement Plane
- Missing Corner
- New measurement types (future releases)

POD is a combination of technologies allowing the transformation of a white light image into one that will provide additional information about the surface's condition. Included are: Variable High Dynamic Range, Adaptive Noise Reduction, Distortion Correction, DarkBoost, Inverse+, Color Saturation, Long Exposure, White Balance and the ability to create Image Transform Presets.

Technical Specifications

Operating Temperature

Tip	-25°C to 100°C (-13°F to 212°F). Reduced articulation below 0°C (32°F)
System	-25° to 46°C (-13°F to 115°F). LCD may require warm-up period below 0°C (32°F)
Storage Temperature	-25° to 60°C (-13°F to 140°F)
Relative Humidity	95% max, non-cond
Waterproof	Insertion tube and tip to 14.7 psi (1 bar, 10.2 m of H ₂ O, 33.5 ft of H ₂ O)
Hazardous Environments	Not rated for use in hazardous environments

Camera

Diameter Probe	4.0 mm (0.16"), 6.1 mm (0.24"), 8.4 mm (0.33")
Image Sensor	1/6" Color SUPER HAD™ CCD camera (6.1 mm, 8.4 mm) 1/10" (4.0 mm)
Pixel Count	Standard - approx. 440,000 pixels High Definition - approx. 1,228,800 pixels
Housing	Titanium

System

System Dimensions	17.1 cm x 19.7 cm x 38.1 cm (6.75" x 7.75" x 15")
Case Dimensions (Small, standard)	35.0 cm x 54.5 cm x 23.0 cm (13.78" x 21.46" x 9.05")
Case Dimensions (Large, optional)	57.2 cm x 56.3 cm x 41.2 cm (22.52" x 22.16" x 16.22")
System Weight	In small case with contents: 10.2 kg (22.4 lbs). In large case with contents: 19.6 kg (43.2 lbs). Out of Case: 6120 system - 3.0 kg (6.7 lbs). 6110 system - 4.0 kg (8.7 lbs).
Construction	Magnesium and Polycarbonate housing with integrated elastomeric bumpers
LCD Monitor	Integrated (6.5") active matrix XGA color LCD, daylight readable display, with optically-bonded, multipoint capacitive Gorilla Glass™ touchscreen
Joystick Control	360° All-Way® tip articulation, menu access, and navigation
Button Set	Access user functions, measurement, and digital functions
Audio	Integrated noise-cancelling microphone and speaker, external USB/Bluetooth devices supported
Internal Memory	40/80/160 GB SSD for user storage (size depends upon model)
Data I/O Ports	Two USB 3.0 host 'A' ports, one USB 3.0 client micro 'B' port,
Video Out	HDMI
Brightness Control	Auto and Variable
Illumination Type	White LED
Long Exposure	Auto - up to 16 seconds
White Balance	Factory default or user defined
Wi-Fi Adapter	802.11a/b/g/n, 2x2
Bluetooth Adapter	Bluetooth 4.0
Operating Frequency Bands and Output Power	See manual, Appendix O, page 131
Modulations	DSSS, OFDM

Power

Lithium Ion Battery	10.8V (nominal), 74.52Wh, 6.9Ah
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Power Supply

AC	100-240VAC, 50-60Hz, <1.5A RMS
DC	18V, 3.34A

Standards Compliance and Classifications

MIL-STD-810H	United States Department of Defense Environment Tests Sections 501.7, 502.7, 506.6, 507.6, 509.7, 510.7, 511.7, 514.8, 516.8, 521.4
MIL-STD-461G	U.S. Department of Defense -- Electromagnetic Interference RS103 - ABOVE DECK; RE102 - BELOW DECK
Standards Compliance	EMC: Group 1, Class B: EN61326-1, KSC9832, KSC9835; Safety: UL/IEC/EN/CSA-C22.2:61010-1, UN/DOT 38.3 T1-T8, IEC62133
IP Rating	IP65 (Disassembled or Assembled)

Software

Operating System	Embedded, multi-tasking operating system
User Interface	Menu-driven and soft button operation; menu navigation using touchscreen, joystick, or voice commands
File Manager	Embedded file manager supports the following operation on files and folders: copy, cut, create, rename, delete, filter and sort. USB and internal flash storage. Sharing (transfer) to connected local mobile devices is supported by the free InspectionWorks Connect Local iOS and Android app. Sharing (transfer) to the cloud over Wi-Fi is supported via InspectionWorks Insight.
Audio Data	PC compatible AAC (.m4a) file format
Image Control	Invert, Inverse+, Adaptive Noise Reduction, Distortion Correction, Illumination, Brightness, Long Exposure, Single View, Zoom (5x digital), Image Capture and Recall
Digital Zoom	Continuous (5x)
Image Formats	Bitmap (.BMP), JPEG (.JPG)
Video Format	MPEG4 AVC /H.264 (.MP4)
Text Annotation	Built-in full-screen text overlay generator
Graphic Annotation	User placement of arrows
Articulation Control	User-selectable steer vs. steer & stay articulation; tip "Home" return to neutral forward-tip orientation
Software Updates	Field upgradable via USB ThumbDrive® or Wi-Fi
Languages	English, Chinese (traditional, simplified), Czech, Dutch, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portugese (BR), Russian, Spanish, Swedish, and Turkish
Application Software	Menu Directed Inspection (MDI) software digitally guides inspectors through the inspection process, intelligently names files and creates MS Word® and PDF compatible inspection reports. Inspection Manager (IM) is a PC- and cloud-based software tool that can be used to remeasure and fully manipulate images acquired by the Mentor Visual IQ.
Voice Control	Voice control uses any available audio input (internal microphone, USB audio, or Bluetooth). All audio processing is completed locally on the borescope and audio recordings are never stored or transmitted (unless unmuted video recording or audio annotation is happening at the time of the voice command session).

Probe Measurements

Diameter	Length
4.0 mm (0.15")	2.0, 3.0 m (6.6, 9.8 ft.)
6.1 mm (0.24")	2.0, 3.0, 3.5, 4.5, 6.0, 10.0 m (6.6, 9.8, 11.5, 14.8, 19.7, 32.8 ft.)
6.2 mm (0.244")	3.5 (11.5 ft.)
8.4 mm (0.33")	2.0, 3.0, 4.5, 6.0, 10.0 m (6.6, 9.8, 14.8, 19.7, 32.8 ft.)

Longer lengths up to 30 m are available. Contact your sales representative for details.

Tip Articulation

Insertion Tube Length	Articulation
2 m - 4.5 m	Up/Down 160° min, Left/Right 160° min
6 m - 10 m	Up/Down 140° min, Left/Right 140° min

Note: Typical articulation exceeds minimum specifications.

Optical Tip Table

Mentor Visual IQ 4.0 mm tips

Part No.	Color	FOV (deg)	DOF mm	(in)
Forward View				
T4080FF [†]	None	80	35-inf	(1.38-inf)
T40115FN	Black	115	4-inf	(.16-inf)
Side View				
T40115SN	Red	115	1-30	(.04-1.18)
T40120SF	Blue	120	6-inf	(.24-inf)

StereoProbe™ Measurement^{††}

TM405555FG	Black	55/55-FWD	5-inf	(.20-inf)
TM405555SG	Blue	55/55-SIDE	4-inf	(.16-inf)

[†] Indicates tip with maximum brightness

Mentor Visual IQ 6.1 mm tips

Part No.	Color	FOV (deg)	DOF mm	(in)
Forward View				
T6150FF	None	50	50-inf	(2.36-inf)
XLG3T6150FG	White	50	12-200	(.47-7.87)
XLG3T61120FG	Black	120	5-120	(.20-4.72)
XLG3T6180FN	Orange	80	3-20	(.12-.79)
XLG3T6190FF	Yellow	90	20-inf	(.79-inf)
XLG3T6150FB	Purple	50 (45 DOV)	12-80	(.47-3.15)
T6165FF [†]	Orange and Blue	65	65-inf	(2.56-inf)

Side View

XLG3T6150SF	Brown	50	45-inf	(1.77-inf)
XLG3T6150SG	Green	50	9-160	(.35-6.30)
XLG3T61120SG	Blue	120	4-100	(.16-3.94)
XLG3T6180SN	Red	80	1-20	(.04-.79)

StereoProbe Measurement

XLG3TM616060FG	Black	60/60-FWD	4-80	(.16-3.15)
XLG3TM615050SG	Blue	50/50-SIDE	2-50	(0.8-1.97)

Mentor Visual IQ 6.2 mm tips

Part No.	Color	FOV (deg)	DOF mm	(in)
Forward View				
T62120FN	Black	120	2-200	(.08-7.87)
T62120FF	Yellow	120	15-inf	(.59-inf)
Side View				
T6280SF	Green	80	15-inf	(.59-inf)
T62120SN	Blue	120	6-inf	(.24-inf)

StereoProbe Measurement

Forward View

TM626060FN	Black	60/60	2-200	(.08-7.87)
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Side View

TM626060SN	Blue	60/60	2-200	(.08-7.87)
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6.1 mm 3D Phase Measurement Tips

Part No.	Color	FOV (deg)	DOF mm	(in)
Forward View				
XL4TM61105FG	Black	105	8-250	(.31-9.84)
XL4TM61105FF	Yellow	105	15-inf	(.59-inf)
XL4TM61105FN	Orange	105	3-120	(.12-4.72)

Side View

XL4TM61105SG	Blue	105	7-250	(.27-9.84)
XL4TM61105SF	Green	105	15-inf	(.59-inf)
XL4TM61105SN	Red	105	2-20	(.08-.79)

Mentor Visual IQ 8.4 mm tips

Part No.	Color	FOV (deg)	DOF mm	(in)
Forward View				
XLG3T8440FF	None	40	8-250	(.31-9.84)
XLG3T8440FG	White	40	15-inf	(.59-inf)
XLG3T8480FG	Yellow	80		
T84120FF	Orange/Blue	120		
XLG3T84120FN	Black	120	3-120	(.12-4.72)

Side View

XLG3T8440SF	Brown	40	250-inf	(9.84-inf)
XLG3T8480SG	Green	80	25-500	(.98-19.68)
XLG3T84120SN	Blue	120	4-200	(.16-7.87)

StereoProbe Measurement

XLG3TM846060FG	Black	60/60	4-50	(.16-1.97)
XLG3TM846060SG	Blue	60/60	4-50	(.16-1.97)

Technical Specification – Analytics

Analytic Part No.	Description	Applicability
MVIQ-BLADECOUNT*	Live Analytic: detects, tracks and trigger blade edges moving in real time	Gas turbine blades (compressor and turbine)
MVIQ-AIIRADRIAN (1 year license)* UG-MVIQ-AIIRADRIAN (add to existing device, 1 year license)*	Still and live ADR Analytic (x2): automatically detect defects within aerospace gas turbines	Gas turbine blades (compressor and turbine) Combustion and TBC coated HPT components CF6, CFM56 5A/B/C, CFM56 7B, V2500, PW 1100, GENx, CF34, GE90, LEPA, PW 2000, Trent 700, Trent 900, Trent 1000
MVIQGASPWADR (perpetual)* MVIQ GASPWRADRIAN (1 year license)* UG-MVIQ-GASPWADR (add to existing device, perpetual)* UG-MVIQ-GASPWRADRIAN (add to existing device, 1 year license)*	ADR analytic capable of detecting and categorizing defects during live inspections	Gas turbine blades (compressor and turbine) Combustion and TBC coated HPT components Gas Power assist

*Refer to analytic datasheet for more information

Note: UG part numbers will provide a thumb drive to the customer for installation locally, or they can update over-the-air (InspectionWorks).

Let the Mentor be your guide.

When time is critical and inspections need to be precise, your choice in borescope matters. But when the confidence you've come to expect from Waygate Technologies is only a voice command away, the answer has never been clearer. Get the mentor you always wished you had with the Everest Mentor Visual IQ+ VideoProbe™.

See how Waygate Technologies is revolutionizing the digital inspection landscape. Contact your sales representative for a demonstration.

waygate-tech.com/mviq

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