

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.

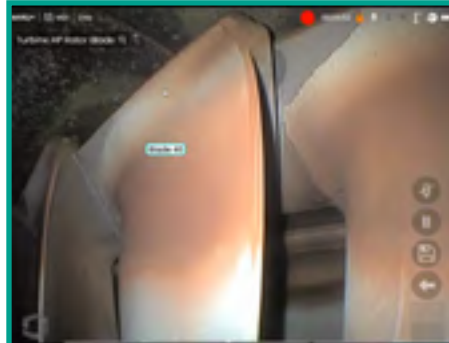
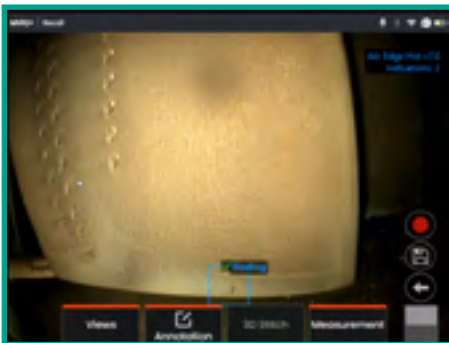
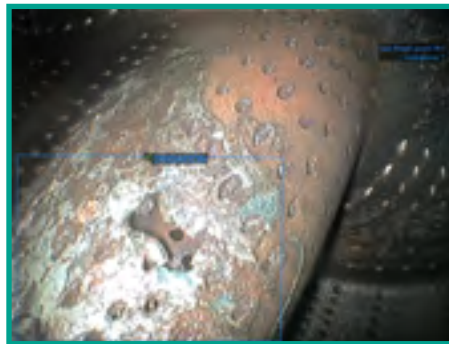
Educational insights, as well as measurement dynamic warning system and analytic setups, are embedded directly into the operating system for easy access.

# 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™

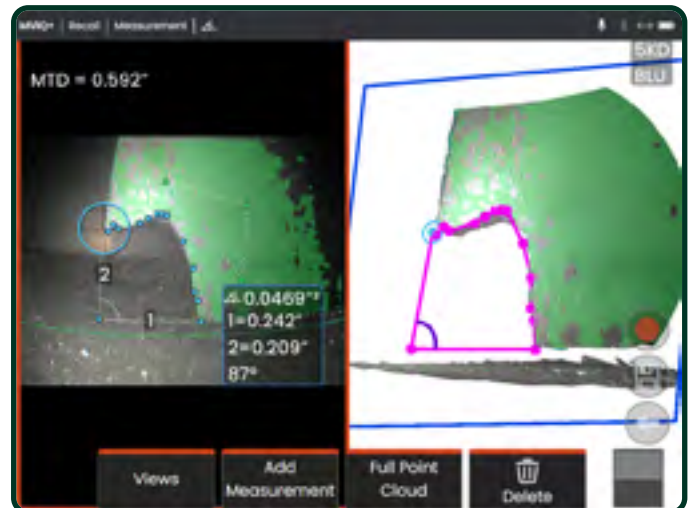
**Real3D™** measurement technology delivers the most advanced 3D capabilities, providing more precise measurement from increased distances. Its wide variety of proven measurement types provide a fully surfaced point cloud for real-time cursor placement adjustments. Plus, stitch together multiple 3D representations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

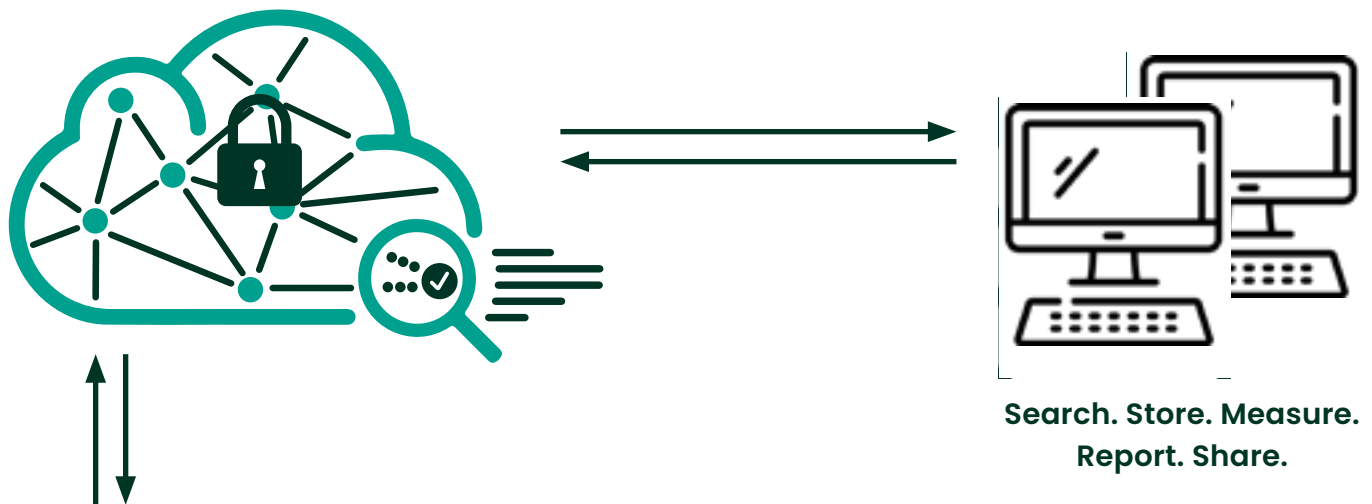
Downtime is costly, but with flexible services offerings, you'll keep your device up and running, at a predictable price.

**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 <sub>2</sub> O, 33.5 ft of H <sub>2</sub> 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<br>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 |
|---------------------|---------------------------------|

## 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 (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)       |
|----------------------|-------|-----------|--------|------------|
| <b>Forward View</b>  |       |           |        |            |
| T4080FF <sup>†</sup> | None  | 80        | 35-inf | (1.38-inf) |
| T40115FN             | Black | 115       | 4-inf  | (.16-inf)  |
| <b>Side View</b>     |       |           |        |            |
| T40115SN             | Red   | 115       | 1-30   | (.04-1.18) |
| T40120SF             | Blue  | 120       | 6-inf  | (.24-inf)  |

## StereoProbe™ Measurement<sup>††</sup>

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

<sup>†</sup> Indicates tip with maximum brightness

## Mentor Visual iQ 6.1 mm tips

| Part No.             | Color           | FOV (deg)   | DOF mm | (in)       |
|----------------------|-----------------|-------------|--------|------------|
| <b>Forward View</b>  |                 |             |        |            |
| 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 <sup>†</sup> | 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) |

### 6.1 mm 3D Phase Measurement Tips

| Part No.            | Color  | FOV (deg) | DOF mm | (in)       |
|---------------------|--------|-----------|--------|------------|
| <b>Forward View</b> |        |           |        |            |
| XL4TM61105FG        | Black  | 105       | 8-250  | (.31-9.84) |
| XL4TM61105FF        | Yellow | 105       | 15-inf | (.59-inf)  |
| XL4TM61105FN        | Orange | 105       | 3-120  | (.12-4.72) |
| <b>Side View</b>    |        |           |        |            |
| 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 6.2 mm tips

| Part No.                       | Color  | FOV (deg) | DOF mm | (in)       |
|--------------------------------|--------|-----------|--------|------------|
| <b>Forward View</b>            |        |           |        |            |
| T62120FN                       | Black  | 120       | 2-200  | (.08-7.87) |
| T62120FF                       | Yellow | 120       | 15-inf | (.59-inf)  |
| <b>Side View</b>               |        |           |        |            |
| T6280SF                        | Green  | 80        | 15-inf | (.59-inf)  |
| T62120SN                       | Blue   | 120       | 6-inf  | (.24-inf)  |
| <b>StereoProbe Measurement</b> |        |           |        |            |
| <b>Forward View</b>            |        |           |        |            |
| TM626060FN                     | Black  | 60/60     | 2-200  | (.08-7.87) |
| <b>Side View</b>               |        |           |        |            |
| TM626060SN                     | Blue   | 60/60     | 2-200  | (.08-7.87) |

### Mentor Visual IQ 8.4 mm tips

| Part No.                       | Color       | FOV (deg) | DOF mm  | (in)        |
|--------------------------------|-------------|-----------|---------|-------------|
| <b>Forward View</b>            |             |           |         |             |
| 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)  |
| <b>Side View</b>               |             |           |         |             |
| XLG3T8440SF                    | Brown       | 40        | 250-inf | (9.84-inf)  |
| XLG3T8480SG                    | Green       | 80        | 25-500  | (.98-19.68) |
| XLG3T84120SN                   | Blue        | 120       | 4-200   | (.16-7.87)  |
| <b>StereoProbe Measurement</b> |             |           |         |             |
| 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<br>(1 year license)*<br>UG-MVIQ-AIIRADRIAN<br>(add to existing device,<br>1 year license)*                                                                                                   | Still and live ADR Analytic (x2): automatically detect defects within aerospace gas turbines | Gas turbine blades (compressor and turbine)<br>Combustion and TBC coated HPT components<br>CF6, CFM56 5A/B/C, CFM56 7B, V2500, PW 1100, GENx, CF34, GE90, LEPA, PW 2000, Trent 700, Trent 900, Trent 1000 |
| MVIQGASPWADR<br>(perpetual)*<br>MVIQ GASPWRADRIAN<br>(1 year license)*<br>UG-MVIQ-GASPWADR<br>(add to existing device,<br>perpetual)*<br>UG-MVIQ-GASPWADR1AN<br>(add to existing device,<br>1 year license)* | ADR analytic capable of detecting and categorizing defects during live inspections           | Gas turbine blades (compressor and turbine)<br>Combustion and TBC coated HPT components<br>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](https://waygate-tech.com/mviq)