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IT CONCEPTS
IMAGING SOLUTIONS

iX3D

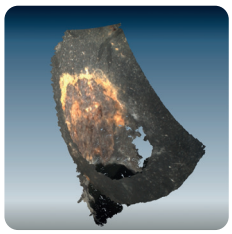
Flexible Scope Measurement System

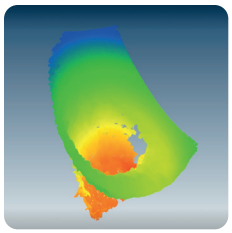
Professional 2D and 3D measurement

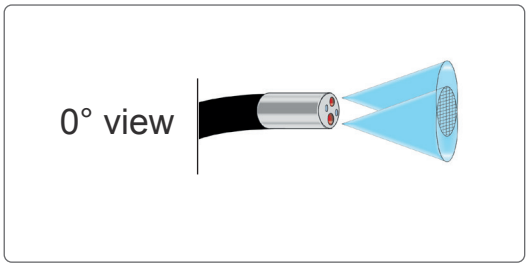
3D point cloud

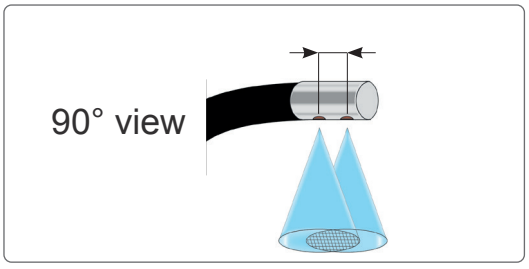
Extremly easy to use

Result in less than 1 minute









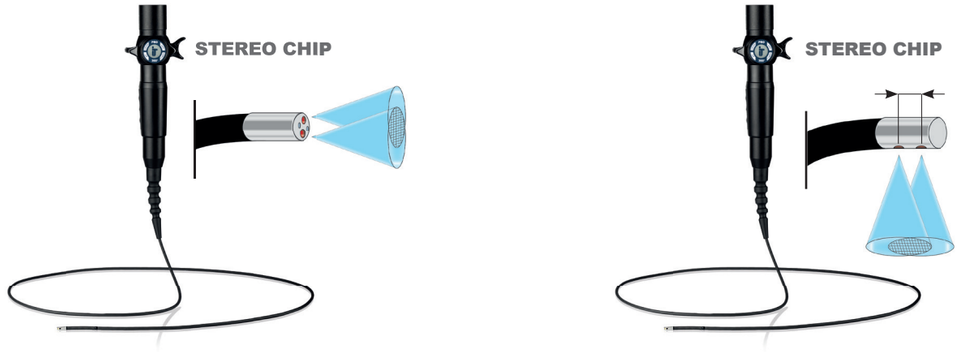
Efficient borescopy with stereo vision

iX3D is a precise and modular working videoendoscope system for the execution of 2D and 3D surface inspection and measurement functionality in hard-to-reach areas.

The system offers 2 light weighted probes (0° forward view + 90° side view), each equipped with a stereo vision camera system generating 3D data. The simple and user-friendly **interface and measurement software is intuitive**.

The monitor unit can be positioned independently of the probe. The probes have a very low weight. Both allow **almost unlimited use in any environment.**

The measuring scopes in conjunction with the measuring software can be operated with almost all Windows PCs.



Easy and fast usage with iX3D software

- Intuitive usage. **No complex training/instructions/manual necessary**
- Only several clicks/settings for **measurement result in less than 1 minute**
- Inspection mode without measurement functionality
- Measurement mode with neccesary measurement functions

High measuring accuracy

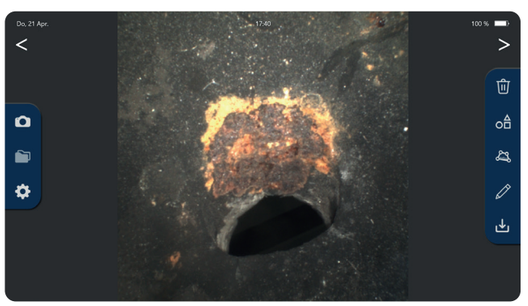
- Magnifier for setting measurement points
- 360° 3D model view (incl. zoom in/off of model)/colored 3D depth map
- Both **show in detail how measurement points are set**

Flexible monitor unit

- The monitor unit (10“ display with touch functionality) **can be placed and used independently of the handheld probe** and in any location.
- Robust rugged tablet PC for industrial use with a ultra bright durable display.
- 10.1 inch touch screen for optimal visual inspection, can be operated with gloves
- Good performance in direct sun light due to the bright display.

Software Features

- Modern and **intuitive user interface in the style of a smartphone app**.
- Enhance and filter camera images (e.g. brighten, sharpen, contrast adjustment, invert colors).
- Simple and extensive file management including quickly accessible display of the last recordings.



File management

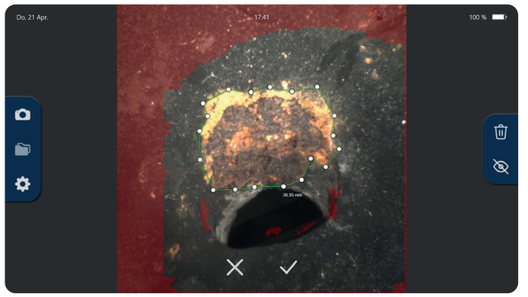
- Can be stored in the internal file manager of the endoscope system
- Can be directly stored in a network drive of your company (endoscope + file drive have to connected to same wireless LAN network)

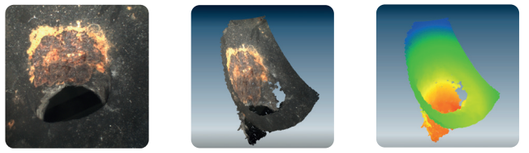
Remote acces and collaboration

- **Direct remote access to inspection and measurement** via additional/optional remote software (not included). Support team in your company can follow inspection/measurement on a live basis.

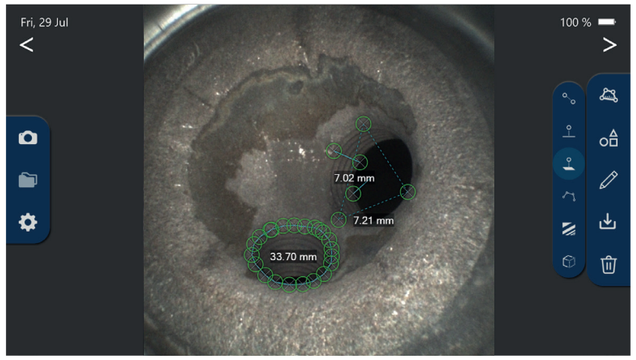
Measuring features and reporting

- Different measuring functions available:
  - Point to Point
  - Point to Line
  - Point to Plane
  - Multipoint
  - Max Point to Line
  - Plane
- Add comments, label and measurement results to stored images
- Precise setting of the measuring points through availability of magnifier for the points
- Highlighting of the measurable range facilitates image evaluation
- Colored 3D depth map and 360° 3D view

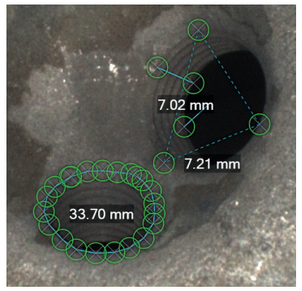




Easy and fast usage with iX3D software



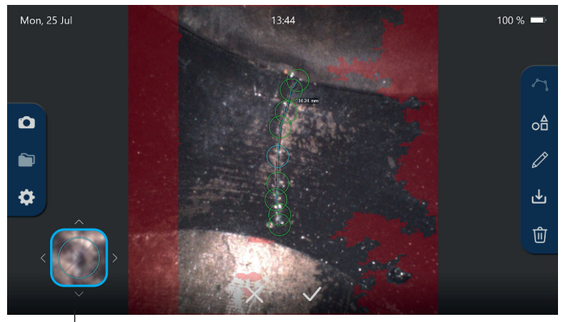
A good reliable result in less than 1 minute.

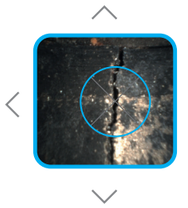


The usage of the software is so intuitive that you get fast results **without need for complex training/ instruction manuals** for the measurement. From the moment of starting the iX3D software you need **4 clicks for the camera settings** and **another 7 clicks to get your measurement result.**

Measurement in images

Images taken in measurement mode show areas (in red color) for which there are not enough 3D data for measurement available.





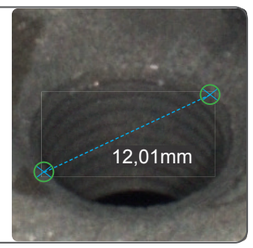
High reliability of measurement due to: Exact measurement point magnification

Image enhancement i.e., use “color inversion” for images with low contrast items

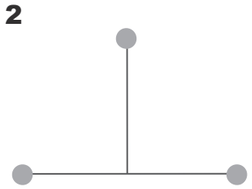
Different measurement types and control for honest results

1 point to point

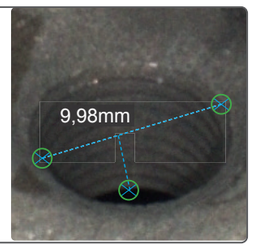
- Set 2 measurement points
- Result shows distance between both points in mm



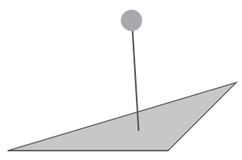
2 point to line



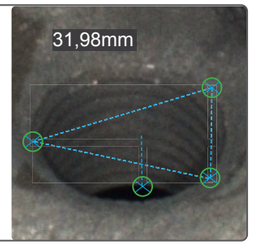
- Set 2 points to define reference line
- Set 3. point as measurement point
- Result shows shortest distance between measurement point and reference line in mm



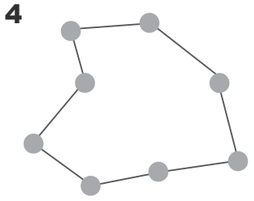
3 point to Plane



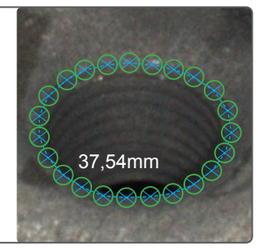
- Set 3 points to define the reference Plane area
- Set 4. Point as measurement point
- Result shows shortest distance between measurement point and the middle of reference area



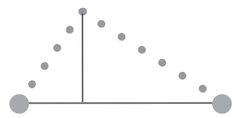
4 multipoint



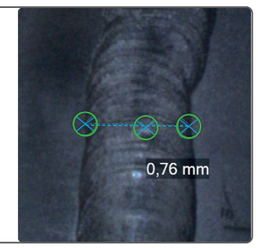
- Set points to define the multipoint line
- Result shows distance between all measurement points in mm



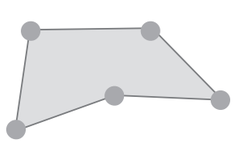
5 max point to line



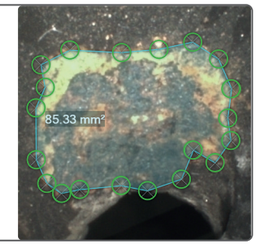
- Set 2 points to define reference line
- Automatic display of maximum distance to line/profile ((height/depth measurement))



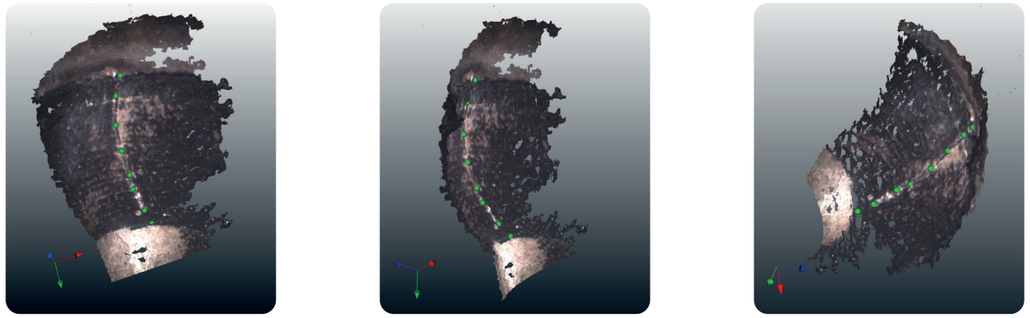
6 plane



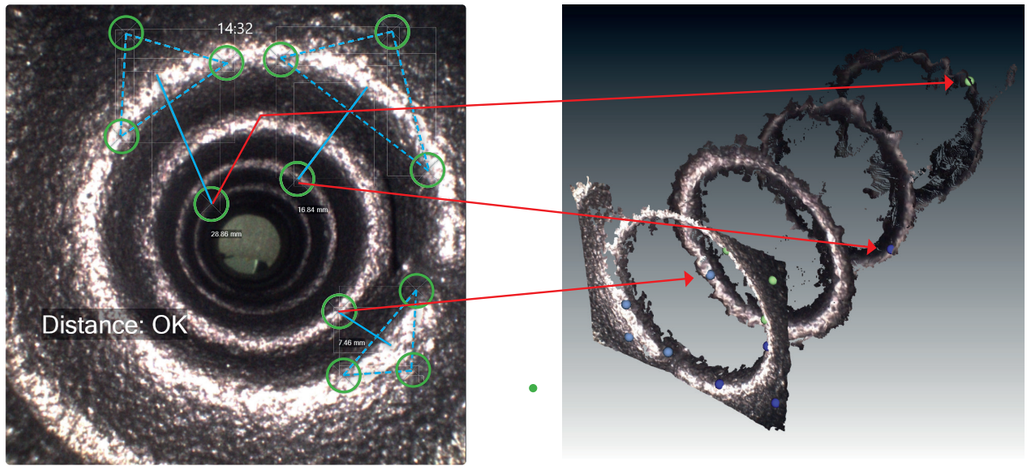
- Set points to define the multipoint line
- Result shows area calculation in the middle of the set marks



Measurement point control in 3D view

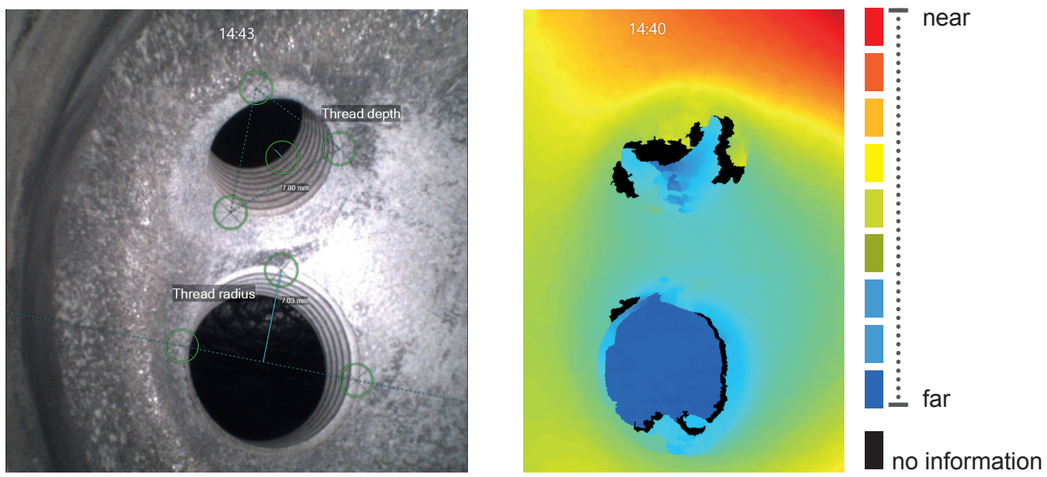


360° 3D view of image and measurement points / Depth map display / zoom in/out for details



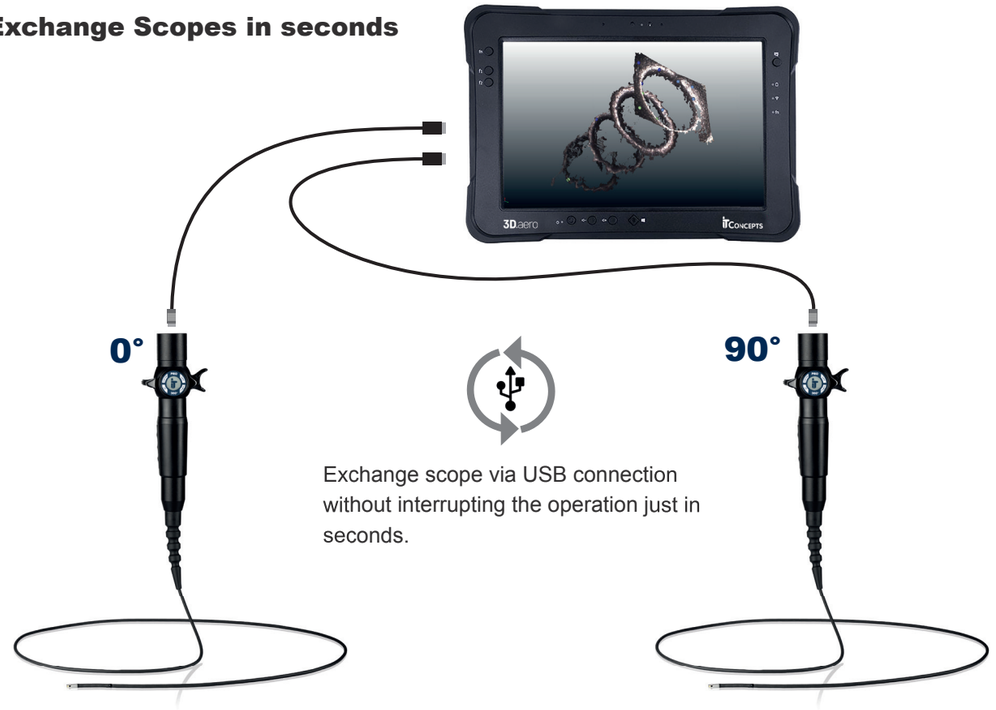
High resolution 3D- view of color image and measurements, making part inspection and measurement verification very easy.

Coloured representation of the depth distances in the inspection area



Color representation of depth - each layer shows a different color

Exchange Scopes in seconds



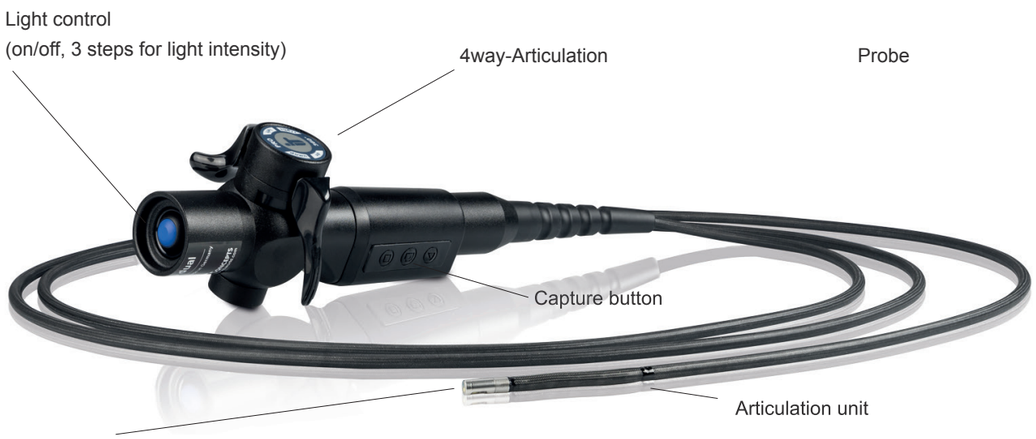
Exchange scope via USB connection without interrupting the operation just in seconds.

Customer support by OEM/Sales Partners

- OEM/Sales Partners can offer customer support/training and direct remote access to the tablet PC via a remote software (not included).

Delivery

PROBE AND PROBE CONTROL



Probes	**6.0mm**	**4.0mm**
Working length:	1.5 - 7.5m	1.5 - 7.5m
Direction of view:	0° / 90°	0° / 90°
Working distance:	10-50mm	4-20mm
Articulation (4-way):	4-way	4-way
Resolution:	800x800px	400x400px

Illumination		
Typ:	High-power LED on the TIP	
Illumination control:	3 steps	
Weight:	1.65Kg (+/- depence on probe diameter and working length)	
Tip operating temperature:	-25°C to +80°C	
System operating temperature:	-25°C to +46°C	
Storage temperature:	-25°C to +60°C	
Relative humidity:	95% less than - non condensing	
Waterproof:	Probe and distal End up to 1 bar- 10.2m H2O	
Resistance:	Probe and distal End to oils and saline (5%)	
Sensor 0°	**HD** AIT Advanced Image Sensor	AIT Advanced Image Sensor
Sensor 90°	**HD** AIT Advanced Image Sensor	AIT Advanced Image Sensor

iX3D PAD (Tablet PC as monitor)

Processor:	Intel® Core™ i5-7300U (2x 2.60 GHz up to 3.50 GHz with Intel® Turbo Boost Technology, HD 620, 3M cache)
Operating system:	Windows® 10 Pro 64-bit
Optional operating system:	Windows® 10 IoT
Display size:	10.1“ (25.65 cm)
Display Technology:	Sunlight Readable Outdoor display with digitizer support
Resolution:	1,920 x 1,200 pixels (WUXGA)
Brightness:	1,000 cd/m²
Screen protector:	Corning® Gorilla® Glass
Touchscreen:	Capacitive
Touch operation:	Multi-touch
RAM (permanently soldered):	8 GB DDR3 SDRAM
Hard disk:	512 GB SSD M.2
WLAN:	IEEE 802.11 a/b/g/n/ac
Interfaces:	1x USB 3.1 Type-A™, 1x USB 3.1 Type-C™ (1,5A), 1x microHDMI, 1x LAN (1Gbs), 1x serial (RS232), 2x RF Pass-through port (for WLAN, GNSS, WWAN), Docking port
Camera front	2.0 megapixels
Rear camera	8.0 megapixels
Military standard	MIL-STD 461G, MIL-STD 810G
Degree of protection	IP 65
Battery	6-cell Li-ion battery, approx. 4,500 mAh (12-month guarantee)
Battery life up to	11 hours
Power supply	65 watts, external
Input:	100-240V AC /Output: 19V DC / 3.42A
Weight:	1,360g
Dimensions (WxHxD):	280 x 195 x 23mm

iX3D Measurement software with PXL+™ technology

Basic Data

Version:	1.3.0.1
Category:	Endoscope 3D measurement software exclusively for endoscope iX3D of IT Concepts GmbH, Lahnau, Germany
Languages:	English, German, Italian, Russian, Spanish
Requirements:	Operating System Windows 10 | Measurement functionalities included in IX3D-Software has to be calibrated by manufacturer after/with installation of iX3D-Software
Intellectual Properties:	3D.aero GmbH, Billhorner Deich 96, D-20539 Hamburg, Germany (info@3d-aero.com)

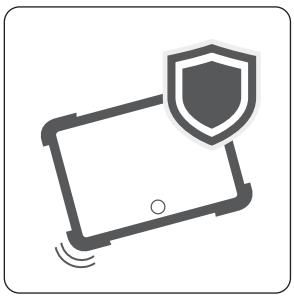
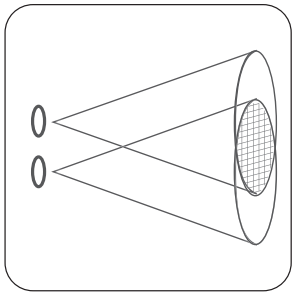
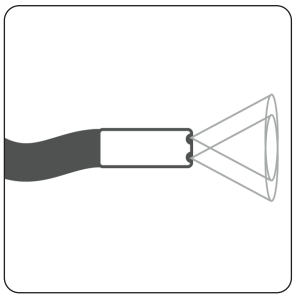
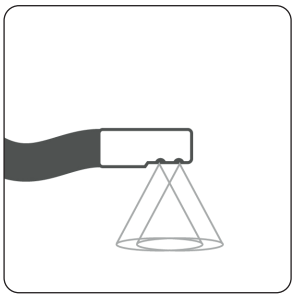
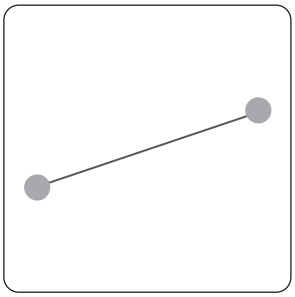
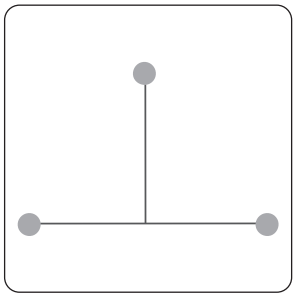
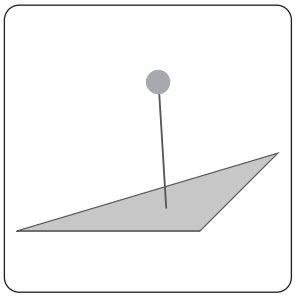
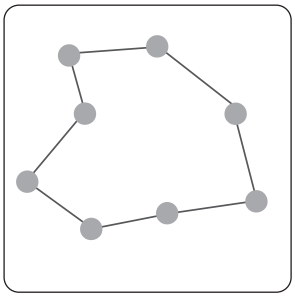
Software features

Live camera:	Current live view for visual inspection (not in measurement mode; for visual inspection purposes only)
File management	• Set up of / naming of / moving up/down in file folder hierarchy (main and sub folders) • Selection of files to be deleted • Selection of folder in which new images should be stored automatically after image taking • Images/videos stored in file manager are visible as thumbnails Viewing single images in larger frame, start/stop video in larger frame
Settings: (permanently = until setting is changed manually)	• Language preference (= English, German, Italian, Russian, Spanish) • Freeze live view after image taking • Set up of working folder/export folder location, file name (incl. date/time), Image/Video file name prefix/suffix • Image enhancement of sharpness, brightness, contrast • Invert colors • Mirror image horizontal/vertical
Exposure mode:	Exposure of camera (automatic/manual setting)
Inspection mode:	Measurement mode (off)
Inspection camera:	Capture/save/delete images taken in inspection mode (2D)
Inspection video:	Start/stop video captured in measurement mode (2D)
Measurement mode:	Measurement mode (on), Stereo view of cameras (on = 2 images visible/off = 1 image visible)
Measurement camera:	• Capture/save/delete images taken in measurement mode (3D) • Result of measurement visible right after image taking (red color for areas without measurement result)
Measurement video:	Start/stop video captured in measurement mode (3D)
Measurement methods:	• Point-to-point, • point-to-line, • point-to-Plaine (3D), • multipoint line • Colored 3D point cloud as Depth map of measurement, 360° 3D view of model in image (3D; incl. different colors for each layer)
Measurement result:	All values in Millimeter (mm), save/delete images with/after measurement results
Marker settings: (available for images only)	Support for reporting purposes (available in inspection & measurement mode): • include/save/delete circles, squares, lines, multipoint lines, arrows in saved images • Include/save/delete text information in saved images
File manager features:	• Storage of images/videos taken in inspection as well as in measurement mode (possible before/after measurement result and annotations are added) in 1.) File manager in the iX3D tablet PC (included in the 3D measurement software) 2.) Folder located in any remote company drive (requirement: both devices have to be included in the same wireless network (WLAN) at the same time)

The Partnership

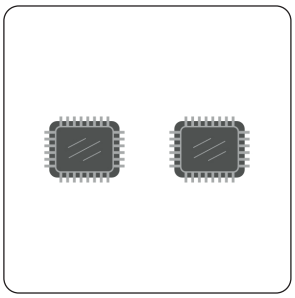
IT Concepts is a developer, manufacturer and OEM-partner in industrial endoscopy and imaging technologies from prototype to serial production.
In cooperation with our customers we develop the optimal solution for the specific application.

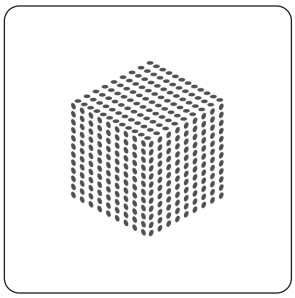
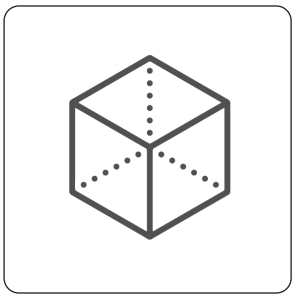
3D.aero develops advanced automation solutions for production and MRO in the aviation industry.
They support from the feasibility study to the development of a turnkey technological solution.

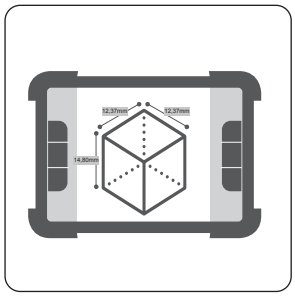
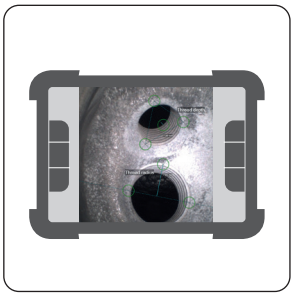
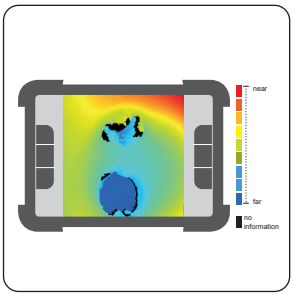









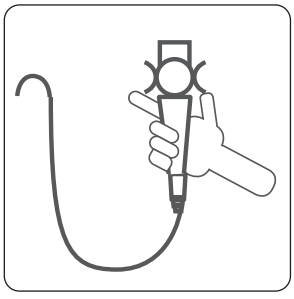
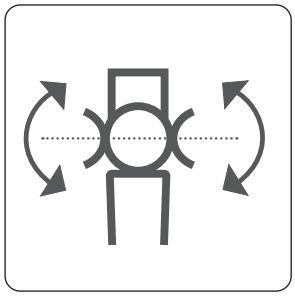
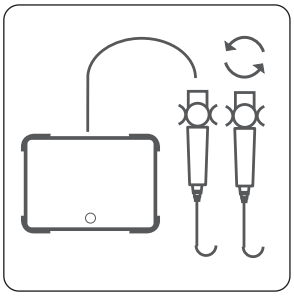
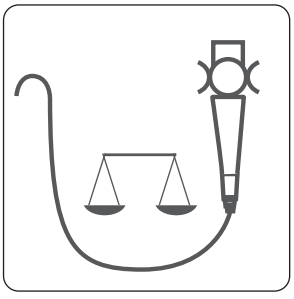
Our iX3D-System has proven to be successful in a variety of industries and application areas, including:

aircraft engines, aircraft turbines, pipeline construction, engines and engines, production facilities, turbine testing, helicopter gearboxes, plant maintenance, bridge construction, heat exchanger, customs and maritime security, gun barrel, hydroelectric power plants, wind turbines, gas turbines, ...



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