Artec Ray II

Lightning-fast long-range 3D scanner
for professional captures with high accuracy

Digital twins

Reverse engineering

Inspection

Civil infrastructure

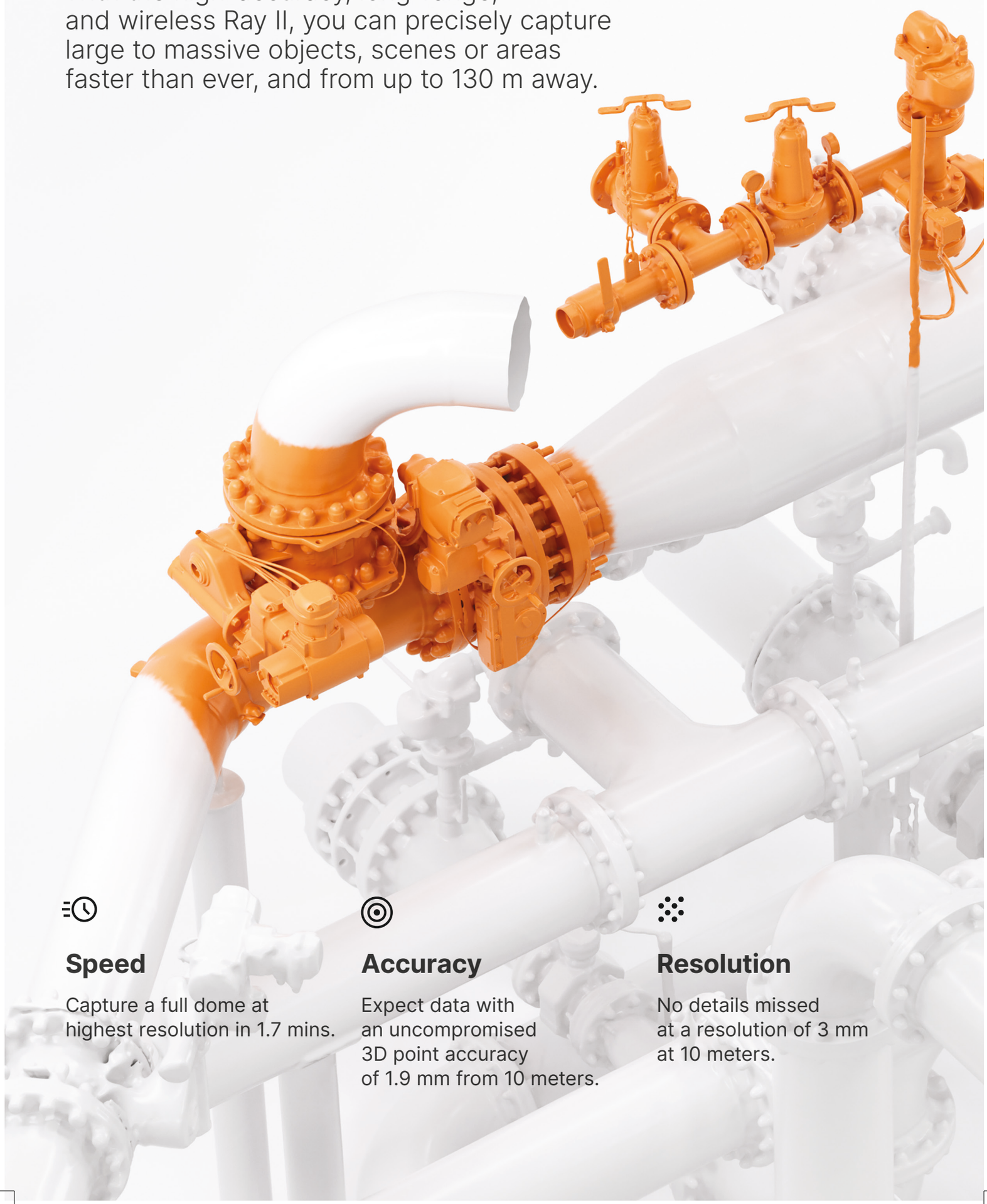
Forensics

Heritage preservation

Artec 3D

3D scanning solutions
Made in Luxembourg

With the high-accuracy, long-range, and wireless Ray II, you can precisely capture large to massive objects, scenes or areas faster than ever, and from up to 130 m away.



Speed

Capture a full dome at highest resolution in 1.7 mins.

Accuracy

Expect data with an uncompromised 3D point accuracy of 1.9 mm from 10 meters.

Resolution

No details missed at a resolution of 3 mm at 10 meters.

Scan huge objects or areas:

- Bridges
- Factory floors
- Ship propellers
- Wind turbines
- Airplanes
- Forensic scenes
- Archeology sites

Capture vehicles in minutes

Capture aircraft and full-sized buildings in just a few hours

Metrology-grade precision

Artec Ray II scans with high 3D point accuracy and best-in-class angular accuracy.

3D point accuracy	@10m	1.9 mm
	@20m	2.9 mm
	@40m	5.3 mm
Angular accuracy	0.87 mm @10m (or 18”)	
Range accuracy	1.0 mm + 10 ppm	
Range noise	0.4 mm @ 10m - 0.5mm @ 20m	

Check & Adjust

If your device isn’t perfectly calibrated, your scanner will either automatically calibrate itself by scanning the surroundings, or let you know if further action is required.

Accuracy certificates

Scan with full confidence knowing that your scanner has been verified to fall within specifications.

Declaration of conformity

Your scanner has been rigorously tested and is guaranteed to conform to the required list of 11 European safety standards.

Brilliant texture

Detect even the smallest surface irregularities with Ray II's 36 MP 3-camera system, with brilliant HDR texture.

Lifelike replicas

In heritage preservation, Ray II enables the recreation of every detail in true-to-life color.

For critical evidence

In forensic applications, enhanced color accuracy facilitates identifying crucial evidence such as bloodstains.

Fast & easy

Artec Ray II captures data at a remarkable 2 million pts/s.

resolution	3 mm	6 mm	12 mm
without texture	1.7 min	0.85 min	0.4 min
with texture	2.7 min	1.9 min	1.4 min

Onboard control

Fuss-free scanning is ensured with the intuitive Ray II — with basic features accessible on board, it's as simple as pressing a button, with no computer or other device needed.

Portable and quick to set up

At just 5 kg including the tripod, Ray II needs no targets and is ready for full setup in mere seconds.

Remote scanning

When scanning something large, in an inaccessible location, or at a height you can’t safely be on, control your scanner easily and from a distance with the Artec Remote App.

Real-time registration on board

Track the scanner’s movement in real time with feature tracking and advanced algorithms for intuitive 3D-space navigation including Ray II’s Visual Inertial System (VIS), Altimeter, compass, and Global Navigation Satellite System.

Comprehensive long-range capture

With Ray II, the expansive 360°-300° field of view gives you flexibility to capture objects from 0.5 to 130 meters away, and with high accuracy and superior quality.

Automatic removal of moving objects

Ray II’s smart auto-removal of moving objects that may enter or exit the scene keeps all captured data focused on exactly what you need.

Continuous supply battery system

Powered by two hot-swappable batteries and another two on standby, Ray II comes ready to scan for a full 8 hours. Need more time? Charge while you scan, and swap without any downtime.

Water and dust protection: IP54 (IEC 60529)

Your scanner is protected and your work kept safe with the Ray II’s water and dust protection, designed to keep particles or humidity from getting into your device.

Perfect match for Leo

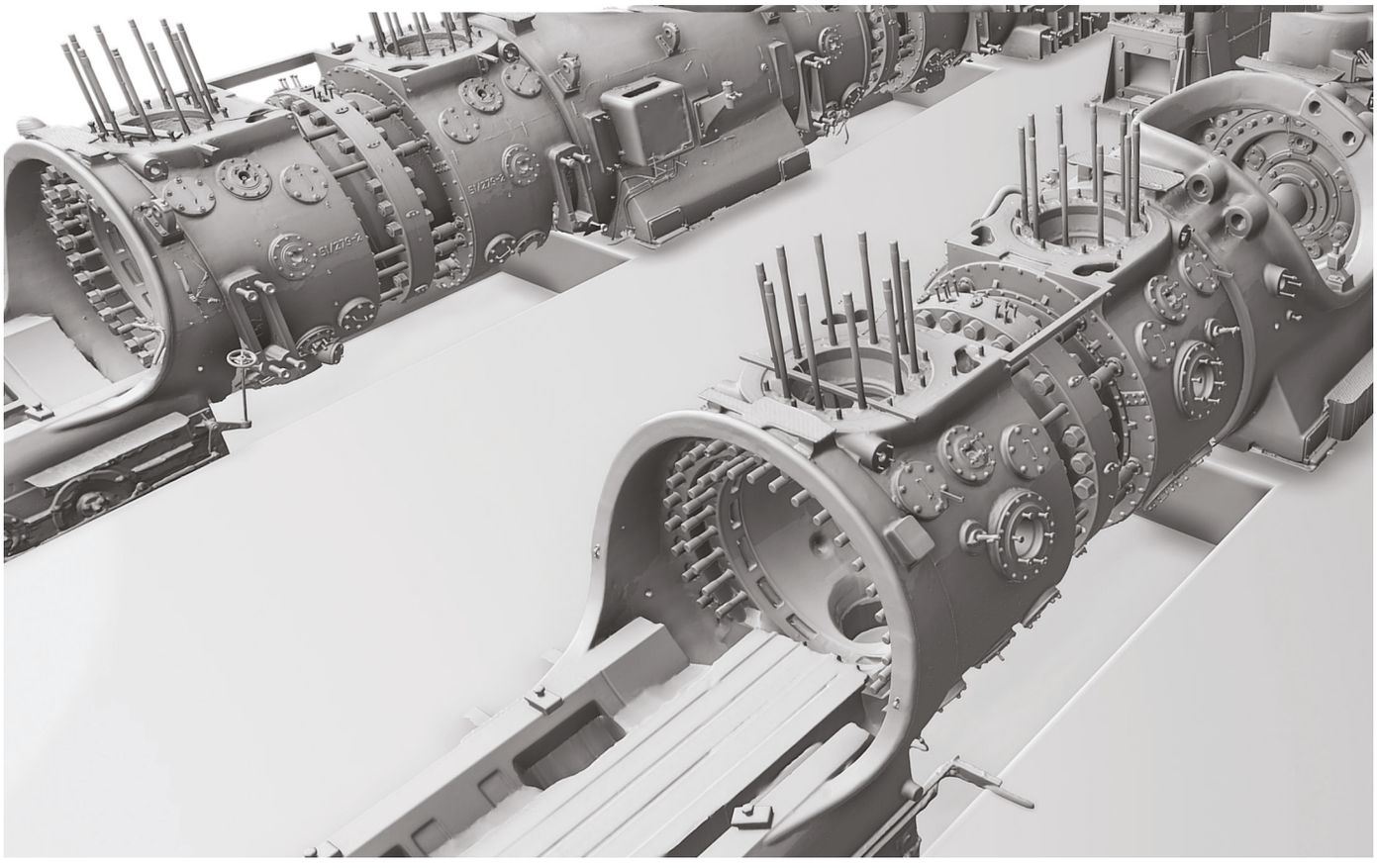
Exceptionally well-suited for use with the wireless powerhouse Artec Leo, the duo can quickly capture large or even massive objects with high accuracy and full coverage.

Power couple

An unbeatable combination of two smart, wireless scanners: Artec Ray II's range and speed for full scenes and large objects, the handheld Artec Leo for specific areas and angles.

All Artec 3D scanners

The long-range Ray II also integrates with all other Artec 3D scanners in seconds.



Export

Scan-to-CAD export

Upload to Artec Studio to precisely position and fit your scans with CAD primitives, then export to SOLIDWORKS or other CAD software – or for inspection, directly to Control X for in-depth reports.

Specifications

Accuracy & resolution	
3D point accuracy	1.9 mm @ 10 m 2.9 mm @ 20 m 5.3 mm @ 40 m
Angular accuracy	18" (0.87 mm @ 10 m)
Range accuracy	1.0 mm + 10 ppm
Resolution	3 user selectable settings: 3 / 6 / 12 mm @ 10 m
Range noise* **	0.4 mm @ 10 m 0.5 mm @ 20 m
Field of view & range	
Field of view	360° (horizontal) / 300° (vertical)
Range	0.5 — 130 m
Speed	
3D capture rate	Up to 2,000,000 pts/sec
Scanning time without texture @ 10 m	1.7 min @ 3mm resolution 0.85 min @ 6mm resolution 0.4 min @ 12mm resolution
Scanning time with texture @ 10 m	2.7 min @ 3mm resolution 1.9 min @ 6mm resolution 1.4 min @ 12 mm resolution
Color capture	
Camera	36 MP 3-camera system captures 432 MPx raw data for calibrated 360° × 300° spherical image
HDR	Automatic, 5 brackets
Operation	
On scanner	Touchscreen control with finger touch, full color WVGA graphic display 480 × 800 pixels
Mobile devices	Artec Remote app for iOS and Android tablets and smartphones including: • Remote control of scan functions • Settings selection • Launch scanning
Algorithms	
Real time registration	Automatic point cloud alignment based on real time tracking of scanner movement between setups based on Visual Inertial System (VIS) by video enhanced inertial measurement unit
Automatic removal of moving objects	Delete captured data of moving objects using Double Scan
Check & Adjust	Field procedure for targetless checking of angular parameters

Navigation sensors	
Visual Inertial Systems	Video enhanced inertial measuring system to track movement of the scanner position relative to the previous setup in real time
Tilt	IMU based, Accuracy: 18" (for upright and upside down setups with +/- 10° inclination)
Geolocation sensors	Altimeter, Compass, Global Navigation Satellite System
Interfaces	
Wireless	Integrated wireless LAN (802.11 b/g/n)
Data storage	Leica MS256, 256 GB exchangeable USB 3.0 flash drive
Hardware specifications	
Scanning technology	Time of flight enhanced by Waveform Digitising (WFD) technology
Laser class	1 (in accordance with IEC 60825-1:2014), 1550 nm (invisible)
Dimensions	120 mm × 240 mm × 230 mm / 4.7" × 9.4" × 9.1"
Weight	5.35 kg / 11.7 lbs, nominal (without batteries)
Mounting mechanism	Quick mounting on 5/8" stub on lightweight carbon tripod or tripod adapter
Power	
Internal battery	2 × Leica GEB364 internal, rechargeable Li-Ion batteries Duration: Typically up to 4 hours Weight: 340 gr. per battery
External	Leica GEV282 AC adapter
Environmental	
Operating temperature	-5° to +40°C
Storage temperature	-40° to +70°C
Operating low temperatures***	-10° to +40°C
Dust/Humidity****	Solid particle/liquid ingress protection IP54 (IEC 60529)
Certification	
Accredited calibration certificates	Calibration certificates provided by Leica Geosystems' Accredited Calibration Laboratories for distances and angles. The accreditation (SCS 079) is in accordance with the standard ISO/IEC 17025 and is granted by the Swiss Accreditation Service (SAS), member of ILAC (International Laboratory Accreditation Cooperation).
	All accuracy specifications are on a level of confidence of 68% according to the Guide of the Expression of Uncertainty in Measurement (JCGM100:2008) unless otherwise noted.
*	At 89% albedo
**	For single-shot measurements
***	Extended low temperature operation is possible to -10°C if internal temperature is at or above -5°C when powered on. For extended low temperature measurement, it is recommended that QA procedures are followed.
****	For upright and upside down setups with a +/- 15° inclination

Artec 3D

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