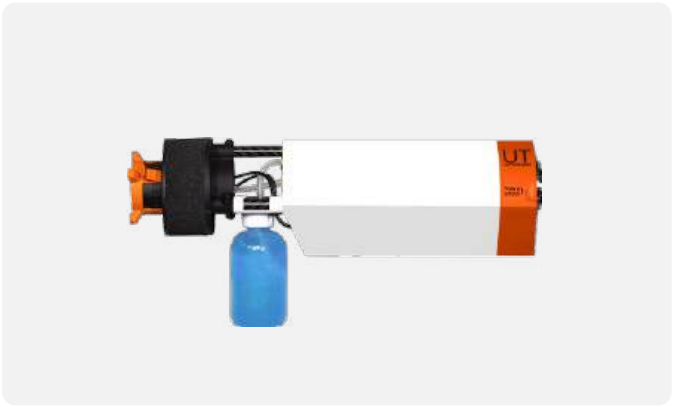
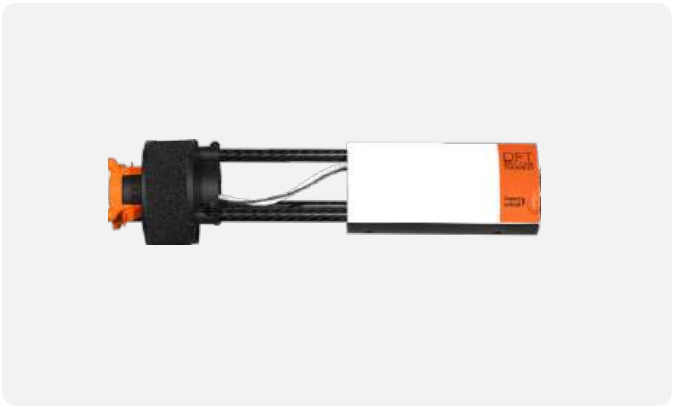
VOLIRO

Voliro T - Payloads
Technical specifications





Electromagnetic Acoustic Transducer (EMAT) Thickness Gauge

For wall thickness measurements

Specifications	
Manufacturer	Voliro AG
Payload length	33 cm / 13 in
Payload weight	0.67 kg / 1.48 lbs
Compliant with	ASTM E1816-18
Measurement mode	Echo-to-Echo, Single-Echo, Auto Thickness
Data visualization	Live A-Scan displayed in the Voliro App
Echo Selection mode	Peak

Default transducer	
Operating frequency	3.5 - 4 MHz
Operating temperature	-20 – 60 °C / -4 – 140 °F
Measurement mode	Radially polarized shear waves
Resolution	0.06 mm / 0.002 in
Thickness range	2 – 150 mm / 0.08 – 5.9 in
Probe diameter	30 mm / 1.18 in
Max. lift-off	4 mm / 0.16 in
Min. surface diameter	5 mm / 0.2 in
Couplant	None

Ultrasonic Transducer (UT) Thickness Gauge

For wall thickness measurements

Specifications	
Manufacturer	Voliro AG
Payload length	32 cm / 12.6 in
Payload weight	0.62 kg / 1.37 lbs
Compliant with	EN 12668-1 and ISO 16831:2012
Measurement mode	Echo-to-Echo, Single-Echo, Auto Thickness
Channels	Single
Data visualization	Live A-Scan displayed in the Voliro App
Echo selection mode	Flank, peak, max cohort

Default transducer	
Operating frequency	5 MHz
Operating temperature	0 – 60 °C / 32 – 140 °F
Measurement mode	Compression wave
Diameter	8 mm / 0.3 in
Elements	Dual-element
Thickness range	2 – 150 mm / 0.08 – 5.9 in
Echo to echo range (in steel)	2.5 – 50 mm / 0.1 – 2 in
Natural focus depth	10 mm / 0.394 in
Couplant	Water-based gel
Resolution	0.06 mm / 0.002 in

Transducer can be swapped to a transducer with a different frequency

Ultrasonic Transducer (UT) High Temperature Thickness Gauge

For wall thickness measurements

Specifications	
Manufacturer	Voliro AG
Payload length	32 cm / 12.6 in
Payload weight	0.62 kg / 1.37 lbs
Compliant with	EN 12668-1 and ISO 16831:2012
Measurement mode	Echo-to-Echo, Single-Echo, Auto Thickness
Channels	Single
Data visualization	Live A-Scan displayed in the Voliro App
Echo selection mode	Flank, peak, max cohort

Default transducer	
Operating frequency	5 MHz
Operating temperature	0 – 260 °C / 32 – 500 °F
Measurement mode	Compression wave
Diameter	8 mm / 0.3 in
Elements	Dual-element
Thickness range (in steel)	2 – 150 mm / 0.08 – 5.9 in
Echo to echo range (in steel)	2.5 – 50 mm / 0.1 – 2 in
Natural focus depth	10 mm / 0.394 in
Couplant	Extended temperature ultrasonic couplant
Resolution	0.06 mm / 0.002 in

Transducer can be swapped to a transducer with a different frequency

Dry Film Thickness (DFT) Gauge

For coating thickness measurements

Specifications	
Manufacturer	Voliro AG
Payload length	32 cm / 12.6 in
Payload weight	0.27 kg / 0.6 lbs
Compliant with	EN ISO 1461, 2064, 2178, 2360, 2808, 3882, ASTM B 244, B 499, D 7091, E 376
Measurement method	F: Magnetic induction for coating thickness on ferrous metals N: Eddy current for coating thickness on non-ferrous metal
Measurement range	F: 0 – 1.5 mm / 0 – 60 mils N: 0 – 0.7 mm / 0 – 30 mils

Pulse Eddy Current (PEC) Gauge

For measuring relative volumetric material loss beneath insulation

PEC is a screening tool

Readings are representative of the average wall thickness within the PEC probe measuring area and do not represent the absolute lowest wall thickness within that area. It will undersize the depth of small defects and is not suitable to detect pitting types of defects. It cannot discriminate between near-side and far-side defects. Noise can affect measurements, and measurements are influenced by nearby metallic structures and edge effects. The permeability and conductivity of the measured material is assumed to be constant.

Specifications

Manufacturer	Sixpec
Payload length	33 cm / 13 in
Payload weight	0.49 kg / 1.08 lbs
Method	Pulsed Eddy Current, based on magnetic diffusing fields
Measurement capabilities	Ferromagnetic steel through non-ferrous materials such as, not limited to: Coatings, corrosion product (scabs), insulation (rock-wool, blankets, fireproofing), aluminum sheeting up 1 mm, water / seawater, marine growth, fiber reinforced overlay
Measurement mode	Relative volumetric measurement
Data visualization	Live A-scan, Percentage/Traffic light

Default probe	
Wall thickness	3 – 20 mm / 0.12 – 0.79 in depending on steel grade
Liftoff	0 – 100 mm / 0 – 3.95 in
Jacket surface temperature	-40 °C to +100 °C / -40°F to +212°F
Footprint diameter (area with 50% probe response)	~50 mm + 0.7 x Liftoff / ~ 2 in + 0.7 × Liftoff
Minimum measurable remaining wall thickness	15% from nominal
Minimal clearance to ferromagnetic structures / edges	15 cm / 5.91 in any direction
Smallest detectable defect volume	~15% of footprint volume (for liftoffs < 50mm / 2 in)

(numbers preliminary and subject to change)

Smallest detectable defect diameter depending on liftoff and defect depth:

	Percentage value = Defect depth					
Liftoff	**15%**	**20%**	**30%**	**40%**	**50%**	**60%**
0 mm / 0.0 in	50 mm / 2.0 in	43 mm / 1.7 in	35 mm / 1.4 in	31 mm / 1.2 in	27 mm / 1.1 in	25 mm / 1.0 in
13 mm / 0.5 in	59 mm / 2.3 in	51 mm / 2.0 in	42 mm / 1.6 in	36 mm / 1.4 in	32 mm / 1.3 in	29 mm / 1.2 in
25 mm / 1.0 in	68 mm / 2.7 in	59 mm / 2.3 in	48 mm / 1.9 in	42 mm / 1.6 in	37 mm / 1.5 in	34 mm / 1.3 in
38 mm / 1.5 in	76 mm / 3.0 in	66 mm / 2.6 in	54 mm / 2.1 in	47 mm / 1.8 in	42 mm / 1.7 in	38 mm / 1.5 in
51 mm / 2.0 in	85 mm / 3.3 in	74 mm / 2.9 in	61 mm / 2.4 in	52 mm / 2.1 in	47 mm / 1.8 in	43 mm / 1.7 in

Performance at higher liftoffs
While the sensor performs reliably across a wide range of liftoffs, measurement precision gradually decreases and noise increases as liftoff exceeds 2 inches (5 cm). Defect detectability may be impacted, with the smallest detectable defect size increasing. In such conditions, results should be interpreted with care. We recommend operation by trained and experienced personnel to ensure accurate assessment.ant.

Effect of chicken wire
The presence of chicken wire or similar mesh structures may interfere with measurement quality by introducing signal artifacts. However, the sensor can still provide useful indicative readings in most cases. Interpretation by experienced operators is recommended to ensure reliable evaluation in these scenarios.

Needle probe payload

LPS ground station

Wind Turbine LPS Tester

For full circuit resistance measurements

Specifications	
Manufacturer	Voliro AG
Payload length	32 cm / 12.6 in
Payload weight	0.10 kg / 0.22 lbs
Tether cable weight	0.66 kg / 1.46 lbs
Tether cable length	250 m / 820 ft
Grounding cable length	50 m / 164 ft

Ohmmeter specifications	
Device type	Micro-Ohmmeter VG-BAT-150 special
Manufacturer	Mostec
Compliant with	IEC/EN 61400-24 standards
Measurement method	4-wire measurement
Measurement current	0.30 A (for resistances <20 Ω)
Measurement range	0.001-1000 Ω
Resolution	0.01 mΩ
Max. voltage	26 V
Max. inspection height	250 m / 820 ft AGL
Turbine rotor orientation	Any, single stop inspection possible

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Version 3.2
November 2025