

# INNOVATECH

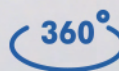


## COLIBRI360

DRONE-BASE EMAT THICKNESS GAUGE



Safe and Efficient



360-degree  
inspection enabled



[innovatech.company](http://innovatech.company)



[info@innovatech.company](mailto:info@innovatech.company)



+ 995 595 52 14 69

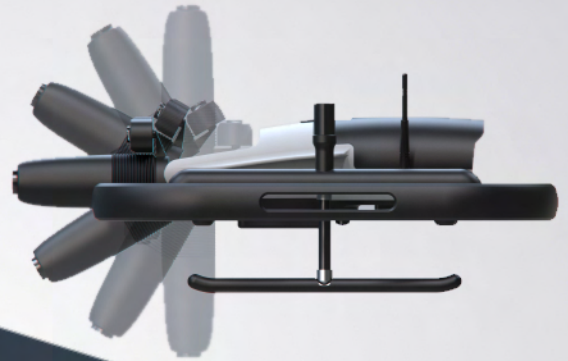


+ 33 6 27 37 05 67

**COLIBRI360** — inspection system that obtain UT measurements of metal structures using EMAT technology.



Unique design of the **COLIBRI360** allows perform inspection of surfaces under any angle - Mast with EMAT sensor rotates on 180 degrees and allows to position sensor parallel to surfaces.



## MAIN ADVANTAGES



Patented system with sensor located on rotary mast. That allows to measure any inclined, horizontal and vertical surfaces (Patent is pending)



Measurement system and copter control integrated in one device. This allows to fly copter and take measurement with only 1 pilot.



Intuitive data management software that allows store and share data. Possible integration with customer's software.



EMA UT gauge has significant advantages over Piezo UT gauge. See comparison in the table.



Drone has 360 degrees sensors coverage that allows protect him from collisions. Our drone is safe for others.



The compact size of the drone allows comfortably use it both outdoors and indoors.



The drone is transported assembled and does not require preparation for flight. Just plug and fly.



The optical stabilization system allows to fly indoor where GPS signal is not available. The drone does not use a compass for navigation and has immune to magnetic interferences.



The drone equipped with lighting system to fly in low visibility conditions.

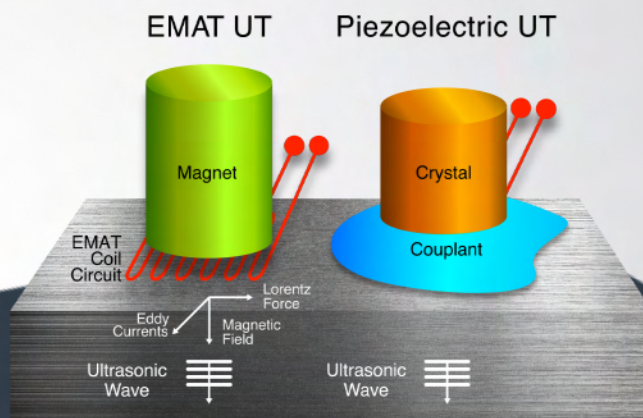
# ULTRASONIC THICKNESS MEASUREMENT



EMAT generates ultrasonic waves on the surface of inspected material and doesn't require strong contact between sensor and surface in comparison with Piezoelectric method

**Piezoelectric transducer** – ultrasonic waves generate in crystal and transmits to test material via media (couplant)

**Electromagnetic Acoustic Transducer (EMAT)** - ultrasonic waves generate in the test material through interaction of the two magnetic fields



## Drone based UT gauge

Comparison between Piezo and EMAT sensors

### Possible obstacles for UT gauge installed on drone

- Capability to measure in present of Corrosion and unbonded paint
- Capability to measure with sensor misalignment to surface (angle)
- Measurement immunity to drones noise
- No effort from UAV requires to take measurement (push to surface)

### Piezo

### EMAT

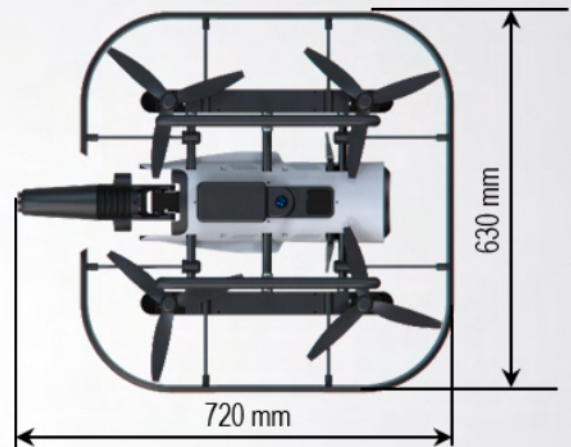
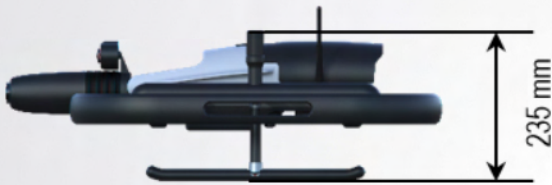
×	✓
×	✓
×	✓
×	✓

For UT spot inspection with EMAT has more advantages compare with Piezo sensor

## Drone technical parameters

## Comments

Wind speed	up to 12 m/s	
Total weight	4000 gr	Total system weight
Communication range	2000m	Between Drone and Ground control
Ground control frequency range	2.400 - 2.483GHz	
Data stream	10 Mb/sec	
Camera resolution	1080P	
Navigation & Stabilization	GPS & OpticFlow	
Working temperature	-10 to 50 Deg C	Temperature range could be extended based on customer's requirements
Ingression protection	IP45	
Drone dimensions (LxWxD)	720 x 630 x 235 mm	



## EMAT Technical Parameters

## Comments

Measurable thickness range	2 – 60 mm	Possible upgrade up to 200 mm
Measurement accuracy	0.08 mm	
Measurement resolution	0.04 mm	
Maximum operating gap	3 mm	Sensor's lift-off from surface
Minimum inspection diameter	25 mm	
Acoustic speed range	1000 – 9999 m/s	Regulated step 1 m/s
Operating frequency	3 – 5 MHz	
Maximum sensor angle	20 deg	Angle between sensor and surface
A-Scan availability	Yes	Three thickness computation algorithms available at the operator's discretion: 01 Default - auto-expert mode significantly reduces the influence of human factor and simplifies the inspection process 02 Single Peak 03 Peak-to-Peak