ELIOS 2

INTUITIVE INDOOR INSPECTION

Elios 2 is the most intuitive, reliable, and precise indoor inspection drone. Keep your workforce out of harm's way while performing flawless inspections right from the first flight using cutting edge drone data capture capabilities.

FLYABILITY

FEATURES

DESIGNED FOR INDOOR

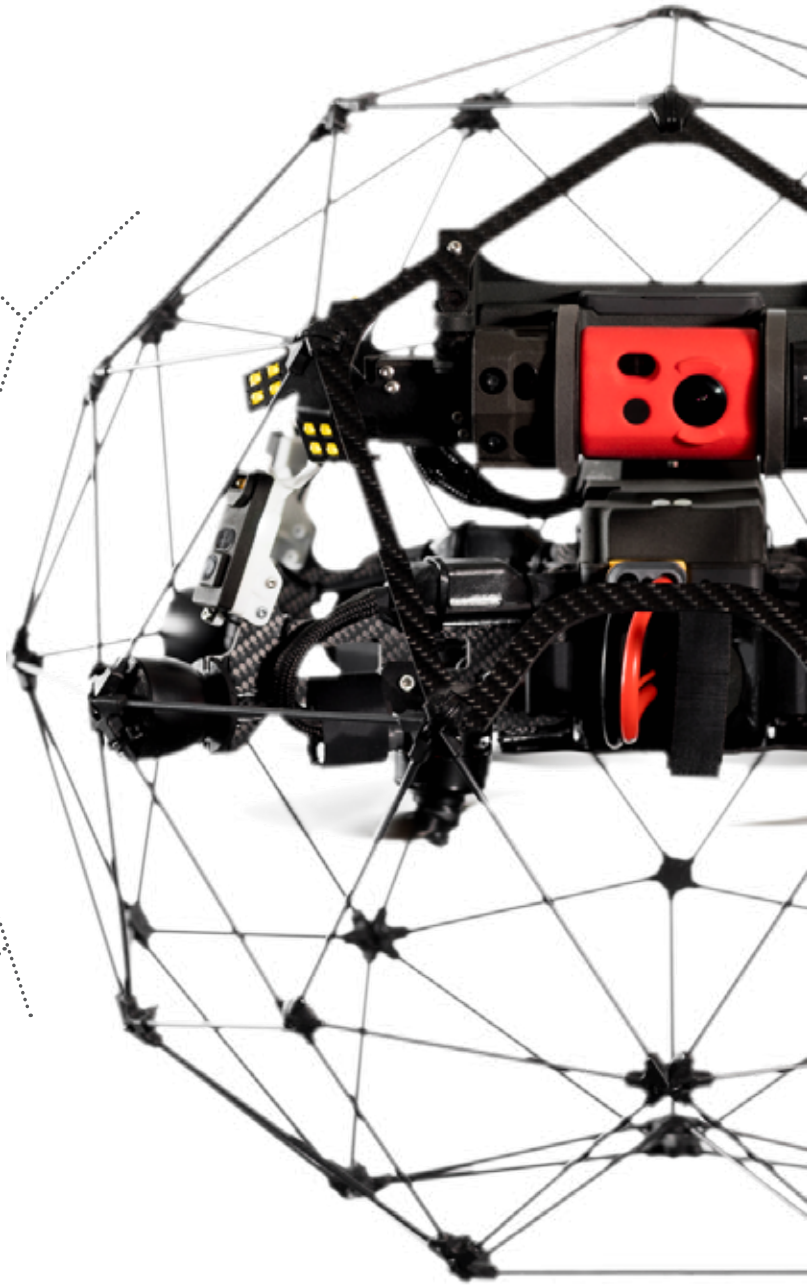
Collision-resilient
Shockproof payload
Confined space accessibility
Robust wireless transmission

INTUITIVE TO FLY

GPS-free stabilization
Distance lock
Full HD live streaming

BUILT FOR YOUR SUCCESS

Easy maintenance
Training included
Dedicated support team



DATA QUALITY

Close up inspection
4k Camera
Thermal camera
180° tiltable camera pod
10K lumen
Adjustable lighting
Dustproof lighting
Oblique lighting
Obstruction-free

DATA PROCESSING

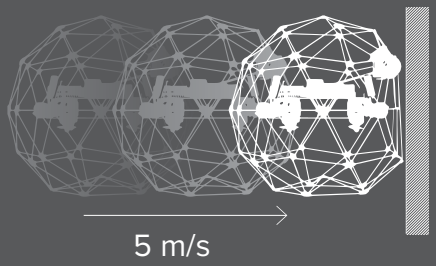
Streamlined data management
3D modeling
2D measurement

Patented
Technology

DESIGNED FOR CONFINED SPACES

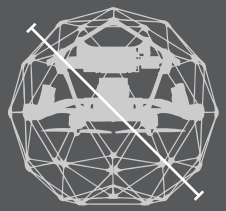
We believe that robots should be sent in hazardous places and dangerous situations instead of humans. Reinventing collision-resilience, Elios 2 allows you to capture every corner and inch of the most complex and confined assets, from a safe location.

INDOOR CAPABILITIES



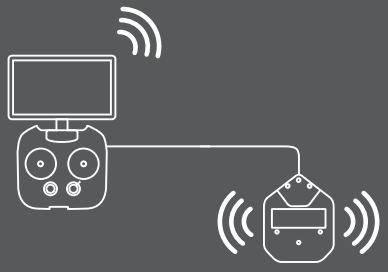
COLLISION RESILIENCE

With a spherical cage protecting propellers from impacts, Elios 2 remains always stable through lightning-fast corrections on the propellers' speed and direction of rotation. The entire payload is mounted on a retractable structure that protects it from damages in case of frontal shocks.



ACCESSIBILITY

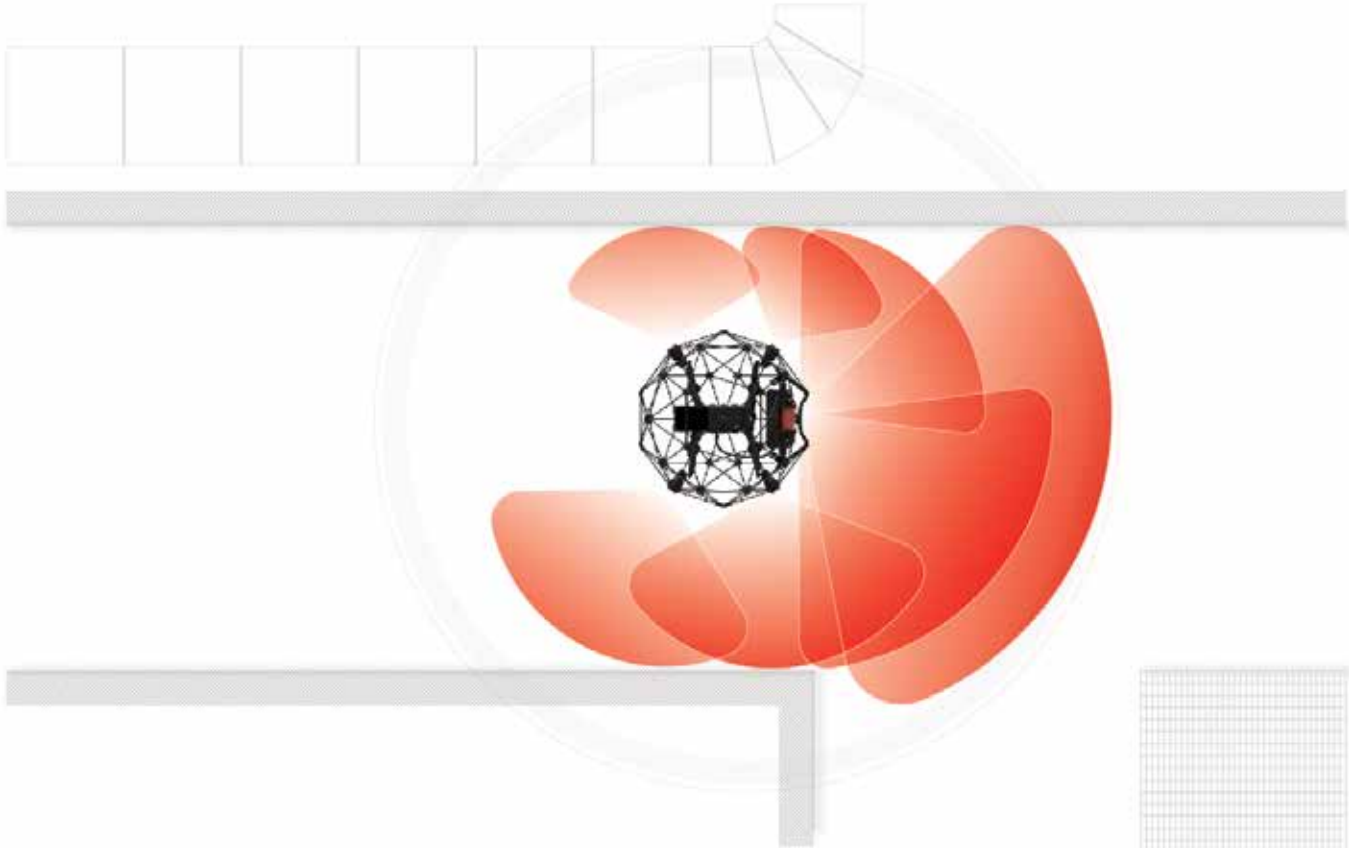
With an overall dimension just below 40 cm (15.7 in) Elios 2 fits into standard manholes and can enter any space where an inspection is needed. It can safely and easily be flown into assets without any human access needed; at no point do workers need to enter the space during the inspection.



ROBUST TRANSMISSION

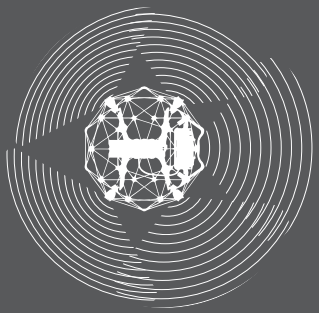
Perform remote inspections beyond line of sight, through walls and past obstacles with Elios 2. Its wireless transmission system overcomes the needs of indoor configurations and is compatible with the Range Extender for the most complex setups.

INTUITIVE TO FLY



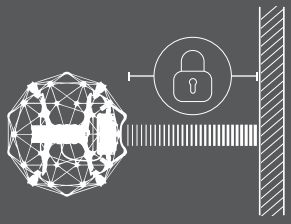
Get the job done! Elios 2 intuitive flight experience makes anyone feel like a seasoned pilot from the first flight. Perform flawless inspections with an effective and user-friendly tool, deployed within minutes.

FLIGHT EXPERIENCE



GPS-FREE STABILIZATION

Take razor-sharp close-up images in GPS-denied environments, in dark and troubled air flows, beyond line of sight. Elios 2 features 7 stability sensors specifically designed for indoor allowing it to hover in place and easily navigate through unstructured spaces.

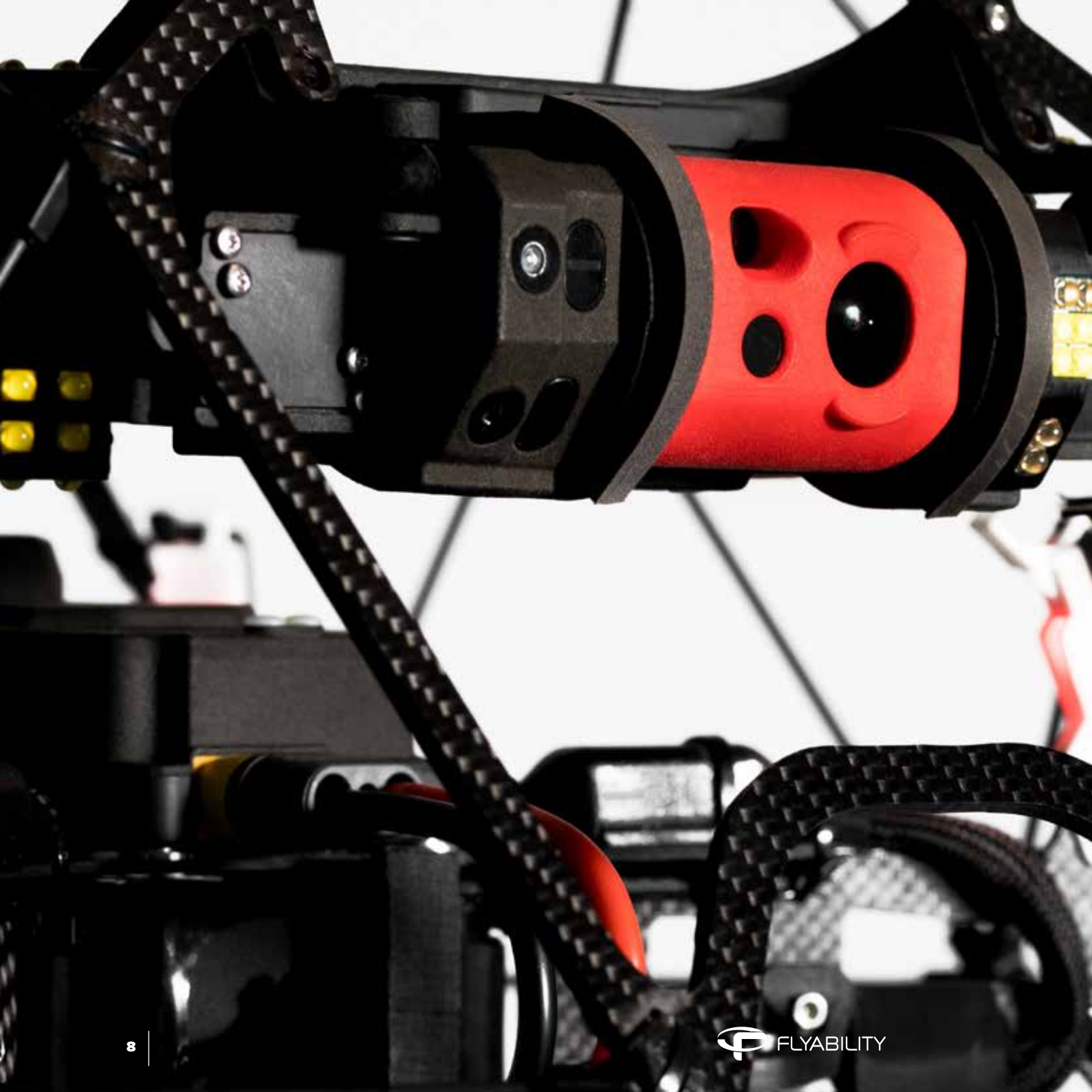


DISTANCE LOCK

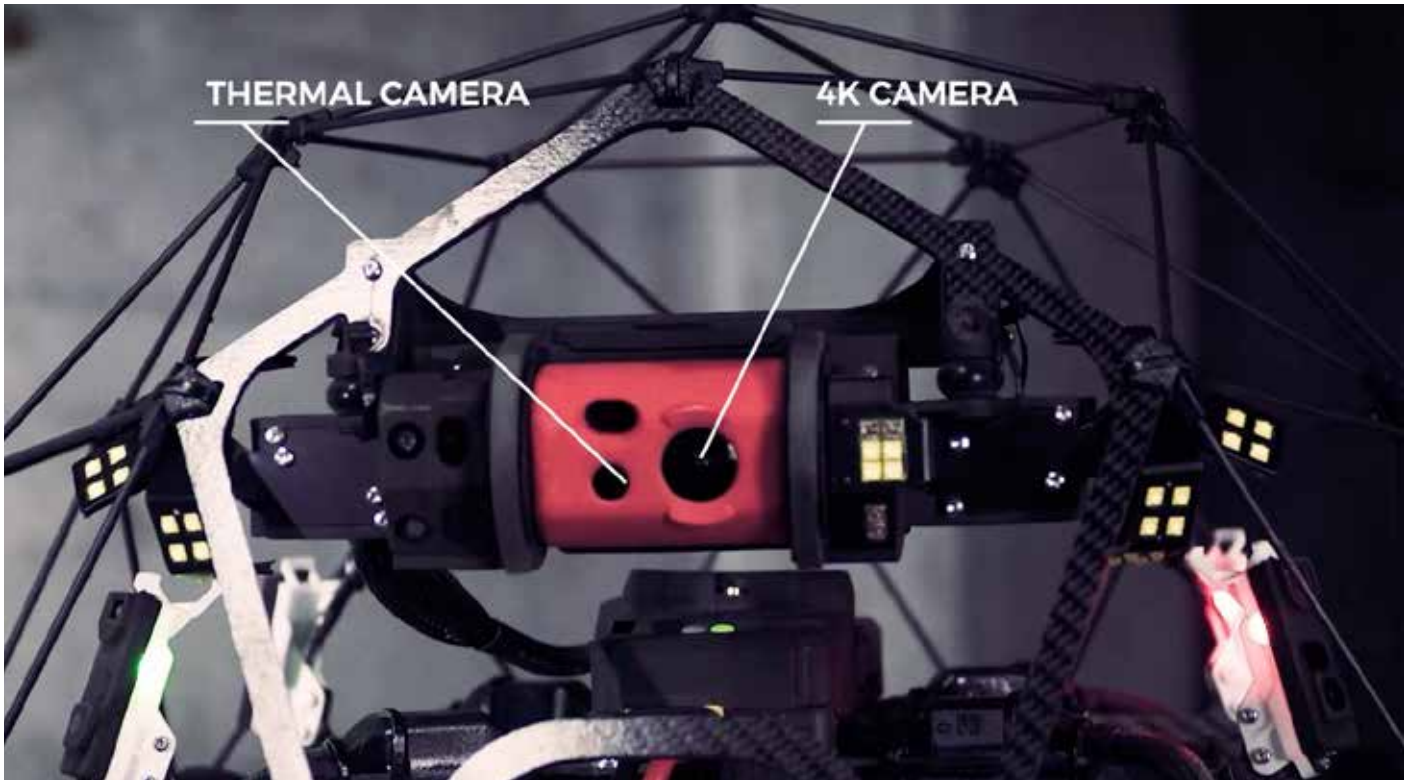
Perform smooth inspections of long and repetitive features like welding, or beams. With the distance lock, Elios 2 remains at a set distance, ranging from 30 cm to 200 cm (1 - 6 ft) autonomously.

FULL HD LIVE STREAMING

Experience a greater situational awareness and perform live inspections in First-Person View (FPV) thanks to the increased details of the Full HD live streaming built into Elios 2.



ACCURATE DATA CAPTURE



THERMAL & 4K CLOSE-UP INSPECTION

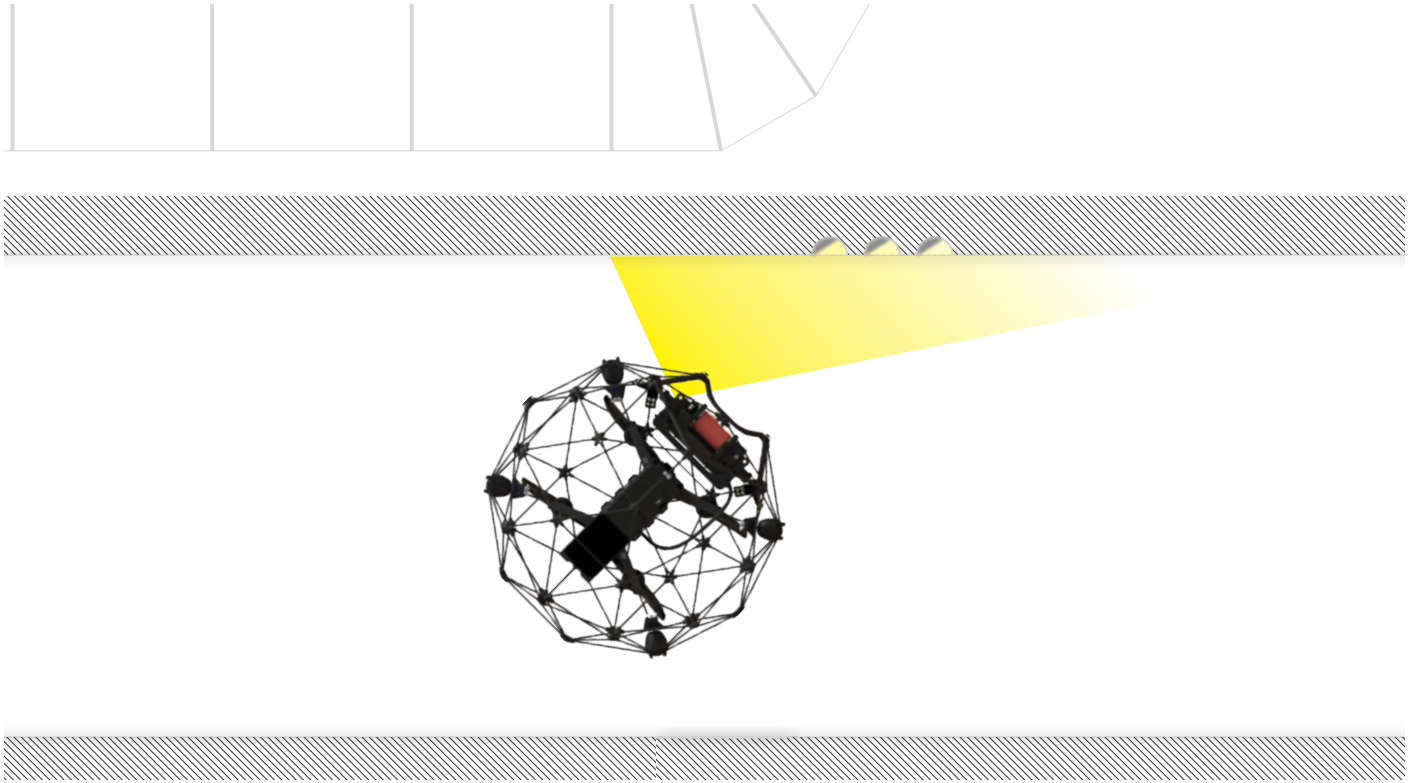
When it comes to visual inspections, data is what matters.
So, we've placed Elios 2 payload in the front cage-opening, fitted with a thermal and a 4K camera side by side. 12MP still and video recording gives you stunning detailed images with 0.18 mm/px resolution to spot the tiniest cracks from floor to ceiling.

10K LUMENS

The Elios 2 features the most powerful and intelligent lighting system ever built on a commercial drone. Carrying 10’000 lumens of light, adjustable to your needs, Elios 2 provides the right amount of lighting whether you need to see the big picture or the tiniest crack.

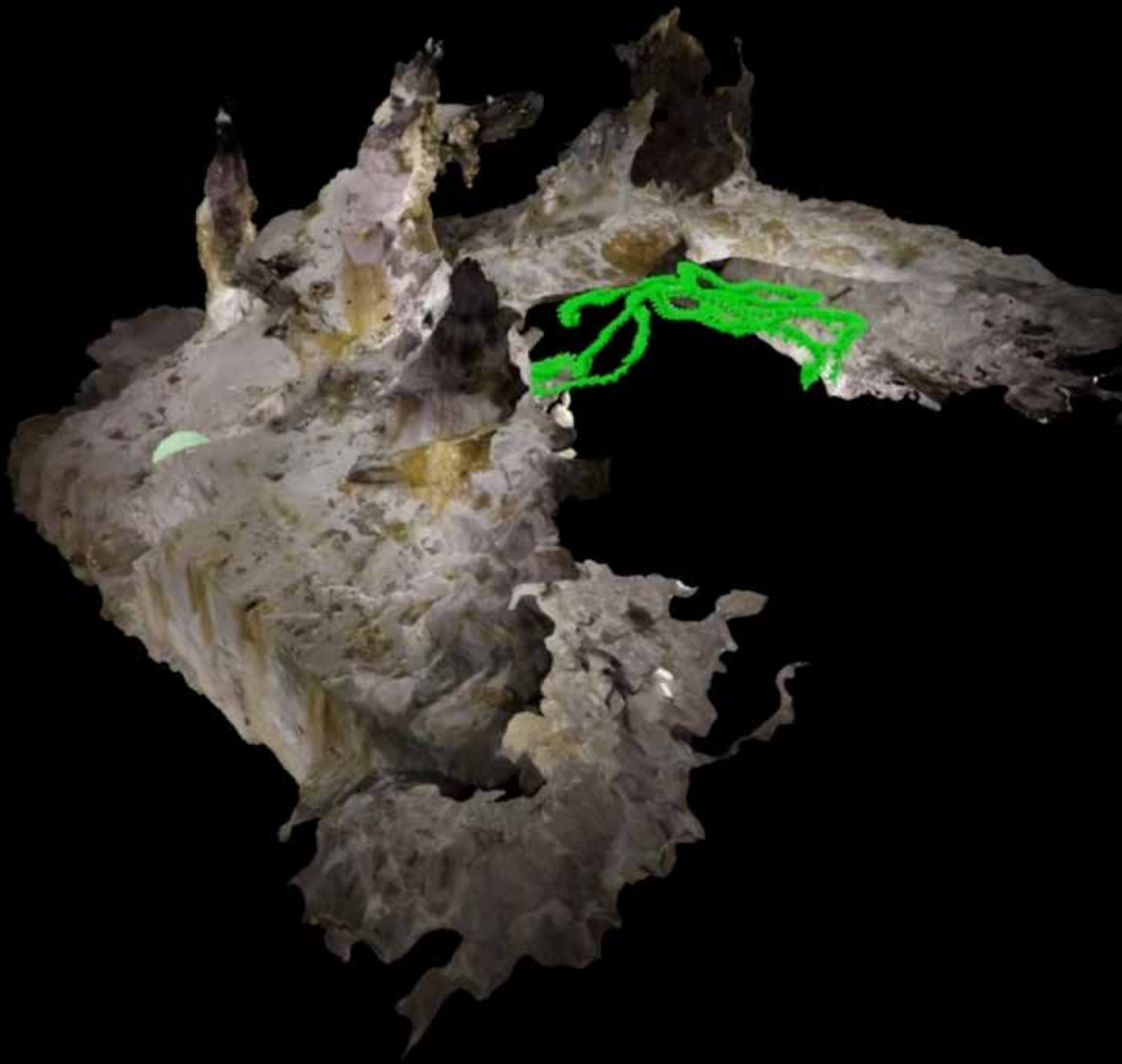
DUSTPROOF LIGHTING

Industrial indoor spaces are often full of dust, which makes First-Person View aircraft navigation difficult. Dustproof lighting allows you to traverse dirty places without losing sight of your objective.



OBLIQUE LIGHTING

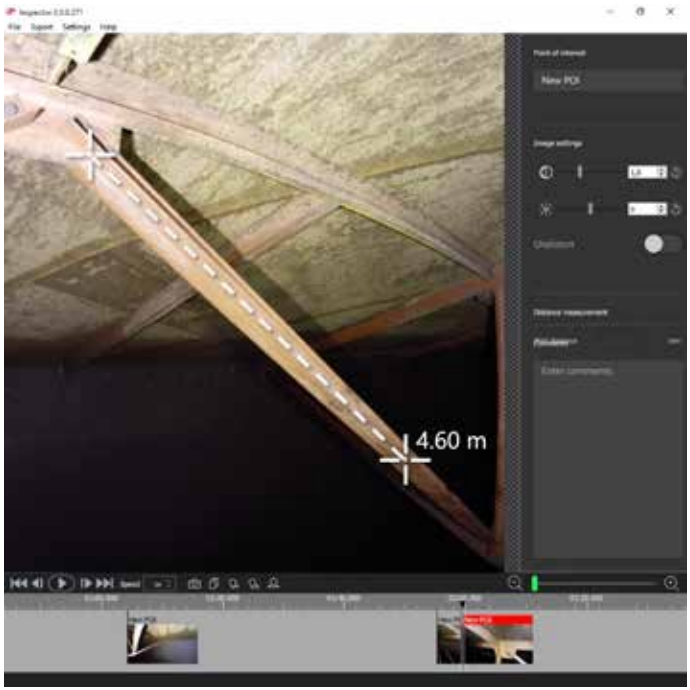
To reveal textures and identify defects, inspectors use a lighting technique that creates shadows in asperities. Reproducing this technique with our new oblique lighting systems, looking for pitting, cracks, or build-ups becomes as natural as doing it with a flashlight.



BUILD UPON ACTIONABLE DATA

FROM PLANNING TO REPORTING, WE'VE GOT YOU COVERED

Cockpit 2.0 has been designed to let you prepare your inspection reports on the fly. Once your mission is completed, simply connect Elios 2 to your computer using the USB port fitted on the drone to import all of your work into Inspector 2.0. From there, you will be able to further investigate captured data, document findings, and create reports.



3D MODELING

Change the way you deliver, visualize, and interpret data by building 3D models. Using third-party photogrammetry software such as Pix4D Mapper or Agisoft Photoscan, Elios 2 enables the creation of digital twins which reveals details of your assets.

SIZABLE INSIGHTS

Turn visual information into insights by adding figures to features. During data processing in Inspector, simply draw a line on the image and you will get a 2D measurement.

BUILT FOR YOUR SUCCESS

TRAINING INCLUDED

Because we want you to make the most out of your drone, one full day of training is offered with each purchase of a unit

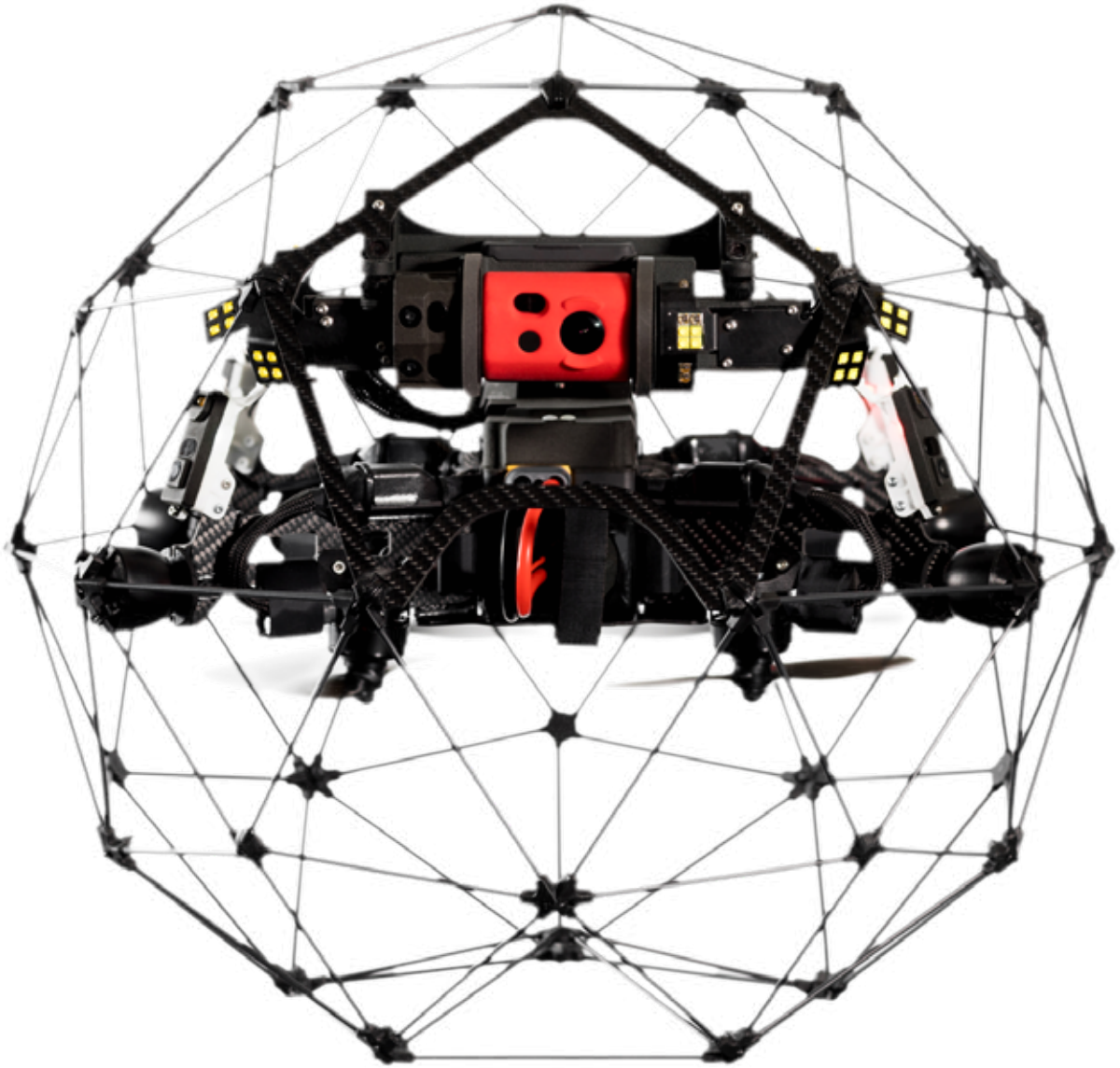
EASY MAINTENANCE

Elios 2 is engineered to be easily serviceable, minimizing the reasons to ever send your drone back to Flyability.

DEDICATED SUPPORT TEAM

For any assistance, in the field or at your office, our dedicated support team will travel the world for you.

TECHNICAL SPECIFICATION
AIRCRAFT



AIRCRAFT

CONFIGURATION	Quadcopter
DIMENSIONS	Fits in a < 400 mm sphere; 15.75 in
MOTORS	4 fast reversing electric brushless motors
PROPELLERS	4 propellers, 5 inches
TAKE-OFF WEIGHT	< 1450 g ; < 3,2 lbs Includes battery, payload & protection
MAX FLIGHT TIME	Up to 10 min
MAX ASCENT SPEED	1.5 m/s ; 5 ft/s
MAX DESCENT SPEED	1 m/s; 3,3 ft/s
MAX SPEED	1.3 m/s (Optical mode) ; 4,25 ft/s 4 m/s (Attitude mode) ; 13.12 ft/s 6.5 m/s (Sport mode) ; 19.69 ft/s
MAX PITCH ANGLE	0.15 rad (Attitude mode) 0.2 rad (Optical mode) 0.3 rad (Sport mode)
MAX WIND RESISTANCE	3 m/s (Optical mode) ; 9,85 ft/s 5 m/s (Sport mode) ; 16,4 ft/s
FLIGHT CONTROL SENSORS	IMU, magnetometer, barometer, 7 vision and distance sensors
MATERIALS	Carbon fiber composites, magnesium alloy, aeronautical grade aluminum, high-quality thermoplastics
OPERATING TEMP.	0 °C to 50 °C* ; 32 °F to 122 °F
FLIGHT MODES	OPTI - Optical mode ATTI - Attitude mode SPORT - Sport mode
FAIL SAFE	Auto-landing on signal lost
OPERATING FREQUENCY	2404 – 2483 MHz (UAV to RC)
EIRP	2.4 GHz: ≤ 32 dBm (FCC); ≤20 dBm (CE); ≤10 dBm/MHz (MIC)
INGRESS PROTECTION	Splash and dust resistant
NOISE LEVEL	99 dB(A) hover 120 dB(A) max @ 1m

*additional precaution have to be taken between 0-10°C and 40-50°C. Stability, flight performance and flight time might be reduced

SMART BATTERY

RATED CAPACITY	5200 mAh
NOMINAL VOLTAGE	19 V
BATTERY TYPE	LiPo 5S HV Smart Battery: - Improved safety (protection for: overcharge, overcurrent, over/ under-temperature) - Plug-and-play charging - Self-balancing - Storage self-discharge - State-of-Charge estimation - Cycle counter - Battery ID
ENERGY	98.8 Wh
CHARGING TIME	1.5 h
BATTERY CHANGE TIME	< 1 min
COMPLIANCE	Approved for carry-on luggage. Complies with IATA Dangerous Good Regulation.
NET WEIGHT	550 g ; 1,2 lbs
OPERATING TEMPERATURE	0-50°C *
CHARGING TEMPERATURE	10 - 45°C ; 50°F - 113°F
MAX CHARGING POWER	150 VA AC power
CHARGER	Elios 2's Smart Battery Charger

*additional precaution have to be taken between 0-10°C and 40-50°C. Stability, flight performance and flight time might be reduced.

PAYLOAD CHASSIS

PAYLOAD HEAD	Damped for vibrations
CAMERA POD UPWARD TILT	+90 degrees
CAMERA POD DOWNWARD TILT	-90 degrees
PAYLOAD PROTECTION	Load limiting mechanism to protect the payload in the case of a frontal shock.

MAIN CAMERA

SENSOR	1/2.3" CMOS Effective Pixels: 12.3 M Sensitivity: Optimized for low light performance
PHOTO FORMATS	JPG
VIDEO FORMATS	MOV
VIDEO RECORDING RESOLUTIONS	4k Ultra HD: 3840 x 2160 at 30 fps FHD: 1920 x 1080 at 30 fps
VIDEO STREAMING RESOLUTION	FHD: 1920 x 1080 at 30 fps
MOVIE FOV	114° horizontal, 130.8° diagonal
PHOTO FOV	118.8° horizontal, 148.6° diagonal
TOTAL VERTICAL FOV	approximately 260° including camera tilt

LENS	2.71 mm focal length Fixed focal
CONTROL MODES	Auto mode with manual EV compensation
FILE STORAGE	MicroSD card (onboard the aircraft) Max capacity: 128 GB Recommended model: Sandisk Extreme micro SDXC UHS-I V30
SUPPORTED FILE SYSTEM	FAT32 for cards up to 32 GB, exFAT for cards bigger than 32 GB

THERMAL CAMERA

SENSOR	Lepton 3.5 FLIR
VIDEO RECORDING RESOLUTION	160 x 120 at 9 fps
LENS	FOV 56° x 42°, Depth of field 15cm to infinity
SENSITIVITY (NEDT)	<50 mK
WAVELENGTH (LWIR)	8-14 µm

LIGHTING SYSTEM

TYPE	High-efficiency LEDs for even lighting in front, top and bottom, optimized for low impact of dust on picture quality. IR light used for stabilization system.
CONTROL	From remote controller, adaptive light beam controlled by camera pitch
MODES	Indirect/dustproof lighting Close up lighting Selective/oblique lighting
LIGHT OUTPUT	10k lumens

OPERATIONAL SAFETY & CRASHWORTHINESS

NAVIGATION LIGHTS	Green (starboard) and red (port) lights.
PROTECTION CAGE	Carbon fiber cage with soft coating, modular subcomponents for maintenance ease, thermoplastic elastomer suspensions, front opening dimensioned for easy battery access.
COLLISION TOLERANCE	Uniform all around the drone, up to 3 m/s on flat objects, up to 1.5 m/s on sharp objects

TECHNICAL SPECIFICATION
GROUND CONTROL STATION

REMOTE CONTROLLER

OPERATING FREQUENCIES	2404 - 2483 MHz (RC to UAV) 5738 - 5808 MHz (RC to RC) 920.6 - 928 MHz (RC to RC, Japan only)
MAX TRANSMISSION DISTANCE	Up to 500 m in direct line of sight
EIRP	2.4 Ghz ≤20 dBm, 5.8 GHz ≤13 dBm, 920 MHz ≤10 dBm
WEIGHT	810 g (924 g with tablet holder)
OPERATING TEMP.	0 °C to 40 °C
OUTPUT PORT	HDMI, SDI, USB
BATTERY	6000 mAh 2S
CONTROLS	Aircraft control and payload settings
OPTIONS	Optional remote controller (camera operator) with video stream reception on a secondary screen, and dual control of camera settings.
BATTERY CHARGER	17.4 V / 57 W

TABLET

MODEL	Samsung Galaxy Tab Active 2
BATTERY CHARGER	USB Charger 5V
OPERATING TEMP.	-15 °C to 40 °C
CHARGING TEMP.	-15 °C to 40 °C
CHARGING TIME	5 hours
WORKING TIME	5 hours (when receiving video stream) to 76 hours (idle)
WEIGHT	415 g

TECHNICAL SPECIFICATION
ACCESSORIES & SOFTWARE

FLYABILITY

TRANSPORT CASE

DIMENSIONS	61 x 44 x 53 cm
WEIGHT	11.5 kg
COMPLIANCE	IATA compliant for checked-in luggage.

COCKPIT SOFTWARE

FEATURES	Real time video and UAV telemetry, status visualization (remaining battery, payload settings, warnings, etc.), control payload settings and various configurations.
OPERATING SYSTEM	Android. Optimized for tablet provided with UAV system

INSPECTOR SOFTWARE

FEATURES	Video and thermal video viewer (frame by frame), flight log analysis including point of interests recorded during flight, screenshots and flight data export.
OPERATING SYSTEM	Windows 7, 8 and 10 (32 and 64 bits)

FLYABILITY

Flyability is a Swiss company building solutions for the inspection and exploration of indoor, inaccessible, and confined spaces. By allowing drones to be used safely inside buildings, it enables industrial companies and inspection professionals to reduce downtime, inspection costs, and risks to workers. With hundreds of customers in over 50 countries in Power Generation, Oil & Gas, Chemicals, Maritime, Infrastructures & Utilities, and Public Safety, Flyability has pioneered and continues to lead the innovation in the commercial indoor drone space.

Flyability SA

EPFL Innovation Park — Building C

1015 Lausanne, Switzerland

+41 21 311 55 00

sales@flyability.com

WWW.FLYABILITY.COM/**ELIOS-2**