Manta Air.

PARACHUTES
RECOVERY SYSTEMS

FOR UAS AND DRONES

manta-air.com

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UAV RECOVERY SYSTEMS

ABOUT MANTA AIR

Manta Air, headquartered in Israel, is a global leader in the design and manufacture of advanced recovery systems. With over 30 years of experience in both the military and private sectors, we are committed to delivering innovative solutions that meet the demanding needs of the aerospace and the unmanned aerial systems (UAS) industry.

Our engineering team at Manta Air leverages cutting-edge design and development methodologies to create recovery systems that are at the forefront of aviation technology. Our proven track record of solving the most complex challenges has made us a trusted supplier to leading UAV manufacturers worldwide. Collaboration with our clients and partners is central to our approach, ensuring that our products meet the highest standards of performance and reliability.

At Manta Air, we are dedicated to continuous improvement, a core value that drives our ongoing testing, experimentation, and enhancement of our technologies. Our design and manufacturing processes are governed by strict quality assurance protocols, ensuring that every product we deliver adheres to the highest quality and design standards.

We are proud to hold ISO 9001:2015 certification and all other necessary certifications for both military and private sector applications. With Manta Air, you can be confident in the quality, reliability, and on-time delivery of our cutting-edge UAV recovery systems.

Beyond the Standards

ISO 9001:2015 is just the starting point—we exceed expectations with rigorous quality in every step of our product development for both military and private sectors.

FLAT CIRCULAR (FLC) PARACHUTES FAMILY

Manta Air's FLC family of parachutes represents for both VTOL and fixed-wing UAS.

These parachutes are the result of rigorous engineering, extensive testing, and careful optimization, ensuring peak efficiency across all flight conditions. Our commitment to excellence is evident in meticulous material selection, precision design, and thorough simulation processes, which collectively deliver industry-leading performance in terms of low descent rates and minimal opening shock. The flat, circular design enhances performance while simplifying maintenance and repacking.

Manta Air's strict manufacturing protocols and quality control measures guarantee that each parachute meets the highest standards of quality and reliability, making them an ideal choice for UAS operators who demand the best in recovery system technology.

ADVANTAGES OF FLAT CIRCULAR PARACHUTES

Low Descent Rate

Ensures a safe and controlled landing by minimizing impact forces, reducing the risk of damage to both the UAV and its payload.

Multi-Platform Compatibility

Adaptable designs integrate seamlessly with various UAV platforms, including fixed-wing, multirotor, and hybrid configurations.

Low Altitude Opening

Suitable for UAVs operating at low altitudes, ensuring reliable deployment even when recovery time is limited.

Customizable Design

Tailored solutions optimized for specific UAV models and mission profiles, offering flexibility to meet diverse operational needs.

Lightweight Design

Minimizes added weight to the UAV, preserving flight efficiency and range while delivering effective recovery capabilities.

Repackable & Reusable

All parachutes are easily repacked, reused, and reinstalled, making them suitable for multiple deployments and cost-effective over time.

Compliance with Aviation Standards

Meets or exceeds international aviation safety standards and regulations, ensuring the system is approved for use in both civilian and military applications

FLC PARACHUTE FAMILY TECHNICAL DETAILS

MTOW (kg)	Decent Rate (m/s)	Volume (cc)	Parachute weight (g)	SKU
4-5	4.8 - 5.3	100	67	FLC - 1.5
6 - 7	4.9 - 5.3	160	92	FLC - 1.8
8 - 9	4.8 - 5.1	220	123	FLC - 2.1
10 - 12	4.8 - 5.2	290	172	FLC - 2.4
13 - 16	4.8 - 5.2	430	210	FLC - 2.7
17 - 20	4.9 - 5.3	550	297	FLC - 3.0
21 - 24	5 - 5.3	660	352	FLC - 3.3
25 - 29	5 - 5.3	750	435	FLC - 3.6
30 - 34	5 - 5.3	940	482	FLC - 3.9
35 - 39	5 - 5.3	960	550	FLC - 4.2

SQUARE PARACHUTE FAMILY - SQR

The Square parachute family is engineered to deliver exceptional stability, control, and reliability for UAV recovery across a wide range of applications.

Designed with a focus on minimizing descent rates and reducing opening shock, FLS parachutes ensure safe and gentle landings, even in challenging environments.

The square canopy shape provides enhanced wind resistance, making these parachutes ideal for precise landings. Built with light materials and subject to strict quality control, the Square parachute family offers a versatile and high-performance solution for both multirotor and fixed-wing UAVs.

ADVANTAGES OF SQUARE PARACHUTE FAMILY

Better Self-Stabilization

The square design naturally provides better self-stabilization, reducing oscillations during descent, leading to more controlled and precise landings.

Higher Drag Coefficient

With a higher drag coefficient, square parachutes create more air resistance, effectively slowing the UAV's descent for a gentler touchdown.

Higher Projected Area

The larger projected surface area of square parachutes enhances drag and stability, contributing to a smoother and more reliable descent.

Faster Canopy Inflation

The design allows for quicker canopy inflation, ensuring rapid deployment and immediate stabilization, especially important at lower altitudes.

Lower Descent Rate

Thanks to the higher drag coefficient and larger projected area, square parachutes achieve a lower descent rate, minimizing the impact on landing.

Lower Minimum Altitude

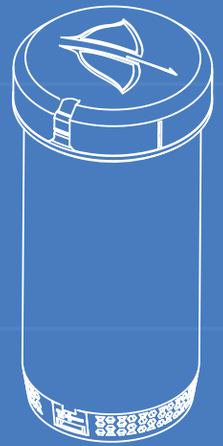
The efficiency of square parachutes enables safe deployment at lower altitudes, making them ideal for UAVs operating in confined or low-altitude environments.

SQR PARACHUTE FAMILY TECHNICAL DETAILS

MTOW (kg)	Decent Rate (m/s)	Volume (cc)	Parachute weight (g)	SKU
5	5	170	50	SQR-1.5
6-7	4.7 - 5.1	230	70	SQR-2
8-9	4.9 - 5.2	290	80	SQR-2.5
10-11	4.5 - 5.2	340	100	SQR-3
12-14	4.7 - 5.1	460	150	SQR-4
15-18	4.7 - 5.2	560	180	SQR-5
19-22	4.8 - 5.3	660	200	SQR-6
23-26	5 - 5.3	760	230	SQR-7
27-34	4.9 - 5.3	960	320	SQR-9
35-41	4.9 - 5.3	1160	370	SQR-11
42-48	4.9 - 5.3	1400	430	SQR-13
49-60	4.8 - 5.3	1800	530	SQR-16
61-71	4.9 - 5.3	2000	650	SQR-19
72-84	4.7 - 5.2	2500	800	SQR-23
85-100	4.8 - 5.3	3000	900	SQR-27
101-115	4.9 - 5.3	3500	1040	SQR-31
116-132	5 - 5.3	4000	1200	SQR-35

PARACHUTE LAUNCHING SYSTEM (PLS)

- Light and small
- Low altitude opening
- Easy to repack and reinstall
- Low sink rate, low impact energy.
- Reliable and trustworthy recovery
- Military and ASTM standart compatible
- Lightweigt system for longer flight time



PARACHUTE LAUNCHING SYSTEM (PLS)

The Parachute Launching System (PLS) by Manta Air is a cutting-edge solution designed for the rapid and reliable deployment of parachutes, ensuring the safe recovery of UAVs across diverse operating conditions.
This lightweight and compact system can be seamlessly integrated into various UAV platforms, from multirotor to fixed-wing models.

The PLS is engineered for swift activation, whether triggered manually, automatically, or in response to system malfunctions. Built with durability in mind, it utilizes strong materials that meet both military and ASTM standards, making it a dependable choice for mission-critical operations where reliable recovery is essential.

ADVANTAGES AND FEATURES OF THE PARACHUTE LAUNCHING SYSTEM (PLS)

Light and Small Design

The PLS is compact and lightweight, minimizing the impact on UAV flight performance while delivering robust recovery capabilities.

Low Altitude Opening

The system is optimized for low altitude deployment, ensuring effective recovery even when operating close to the ground.

Easy to Repack and Reinstall

Designed for quick and easy repacking, the PLS allows for rapid turnaround between missions, reducing operational downtime.

Durable and Strong Materials

Constructed from high-strength, durable materials, the PLS is built to withstand harsh environments and rigorous use.

Reliable and Trustworthy Recovery

The PLS offers consistent and dependable performance, providing peace of mind in critical recovery scenarios.

Spring, Not Pyrotechnics

Our Parachute Launcher (PLS) uses a spring mechanism that's easier to ship and handle—no restrictions, just seamless performance.

Low Sink Rate and Impact Energy

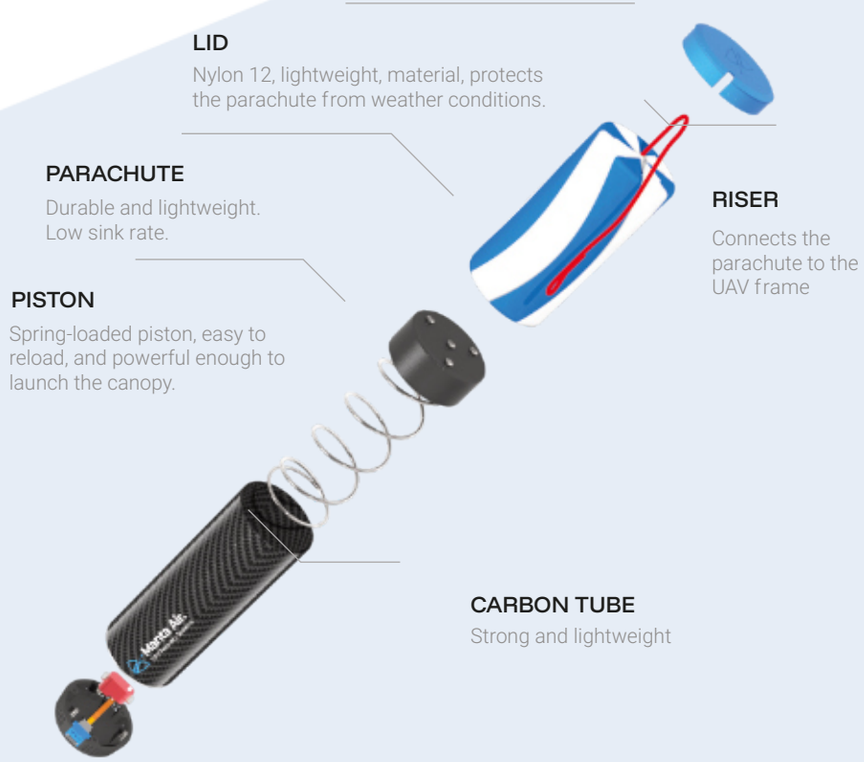
When combined with Manta Air's parachutes, the PLS ensures a low sink rate and minimal impact energy, protecting both the UAV and its payload.

Military and ASTM Standard Compatible

The system meets stringent military and ASTM standards, ensuring compliance for both civilian and defense applications.

Redundant Safety Features

Incorporates fail-safe mechanisms to guarantee parachute deployment even in the event of primary system failure, increasing mission success rates.



PARACHUTE LAUNCHER TECHNICAL DETAILS

MTOW (kg)	Launcher diameter (mm)	System height (mm)	System weight (g)	SKU
5	60	121	230	PLS SQR-1.5
6-7	60	141	240	PLS SQR-2
8-9	60	161	260	PLS SQR-2.5
10-11	60	181	300	PLS SQR-3
12-14	60	221	350	PLS SQR-4
15-18	60	261	450	PLS SQR-5
15-18	80	171	450	PLS SQR-5
19-22	80	191	480	PLS SQR-6
23-26	80	211	530	PLS SQR-7
27-34	100	251	620	PLS SQR-9
35-41	100	301	750	PLS SQR-11

FLOTATION DEVICES FOR UAS ABOVE WATER

FLOTATION DEVICES FOR UAS OPERATING OVER WATER

Flotation devices for UAVs are specialized systems designed to ensure the safe recovery of unmanned aerial vehicles when operating over water. These devices are critical for preventing UAVs from sinking if they need to make an emergency landing or encounter a failure over a body of water.

By providing buoyancy and facilitating easy retrieval, flotation devices not only protect the UAV and its payload but also comply with regulatory requirements for root cause investigation. Recovering the UAV from water is essential for thorough analysis and adherence to safety and operational regulations.

- o Lightweight floating system
- o Easy to install
- o Easy maintenance
- o Self-detection when submerged in water
- o Works without electronics
- o Rain proof

FEATURES AND FUNCTIONALITY OF FLOTATION DEVICES

Automatic Inflation

Equipped with a mechanism that triggers inflation upon contact with water, ensuring immediate buoyancy to allow UAV recovery from the water.

Compact and Lightweight Design

Designed to be integrated into the UAV with minimal impact on its flight performance, allowing for efficient operation without compromising buoyancy.

Durable Materials

Constructed from robust, weather-resistant materials that withstand harsh maritime environments, ensuring long-term reliability and performance.

Rapid Deployment

Provides quick and effective inflation, allowing the UAV to stay afloat even in emergency situations where time is critical.

Ease of Integration

Compatible with various UAV models, with straightforward installation that does not interfere with normal UAV operations.

Enhanced Visibility

Often features high-visibility colors or markings to aid in the easy location and recovery of the UAV from the water.

Compliance with Regulations

Ensures compliance with regulatory requirements for root cause investigation, enabling detailed analysis and investigation of any issues encountered during missions.

Long-Term Durability

Built to endure exposure to saltwater and other harsh environmental conditions, maintaining functionality over extended periods of use.

Low Maintenance Requirements

Designed for minimal maintenance, allowing for hassle-free operation and long-term reliability without frequent upkeep.

By incorporating these features, flotation devices enhance the operational capabilities of UAVs in maritime environments and ensure compliance with necessary regulatory requirements.

FLOTATION DEVICE TECHNICAL DETAILS

Buoyancy force [kg]	Size CO2 [g]	System Weight [g]	Cat#
9	18	450	FLD-4
15	33	500	FLD-11
20	45	550	FLD-17
30	60	600	FLD-20

AIRBAGS

Airbags for Unmanned Aerial Systems (UAS) are crucial cushioning components designed to protect UAVs during landings, particularly when descending with a parachute.

These airbags deploy just before touchdown, absorbing impact forces and minimizing the risk of structural damage to the UAV and its payload. Acting as shock absorbers, they are especially valuable when the UAV carries sensitive equipment or data that must be preserved, ensuring a controlled and safe landing.

ADVANTAGES OF MANTA AIRBAGS

Enhanced Protection

Airbags provide a protective barrier that absorbs the energy of the impact, reducing the likelihood of damage to the UAV's structure and onboard systems.

Increased Longevity

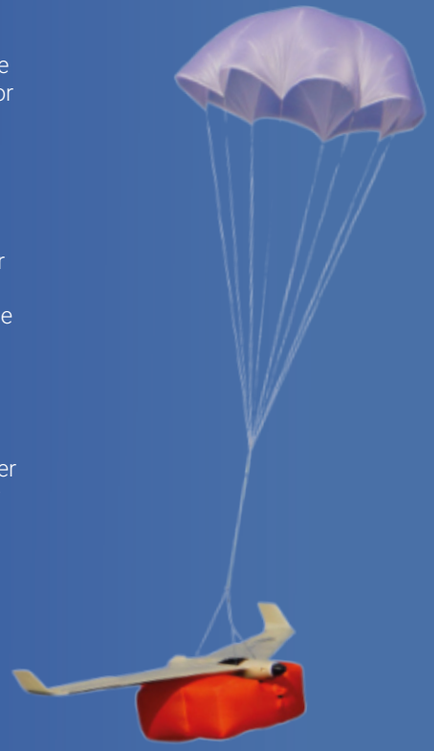
By minimizing damage during landings, airbags help extend the operational life of the UAV, reducing the need for frequent repairs or replacements.

Improved Safety

For missions in challenging environments or carrying valuable payloads, airbags add an extra layer of safety, ensuring the UAV can be recovered in good condition.

Operational Flexibility

With airbags, UAVs can safely land on a wider range of surfaces, including rough terrain or hard surfaces, without compromising the integrity of the vehicle.



OUR AIRBAGS ARE OFFERING SEVERAL KEY ADVANTAGES

Precision Deployment

Our airbags deploy at the optimal moment, ensuring maximum impact absorption.

Lightweight Construction

Constructed from advanced materials, our airbags are lightweight yet durable, minimizing the impact on the UAV's overall payload capacity.

Compact Design

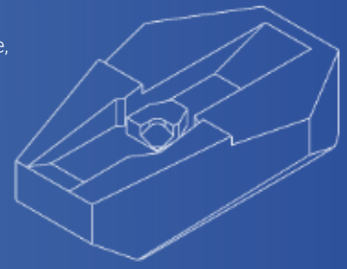
Despite their effectiveness, our airbags are compact and easy to integrate into various UAV designs without compromising performance.

Robust Materials

Constructed from high-strength, tear-resistant materials, our airbags are built to withstand multiple deployments without degradation

Ease of Maintenance

Our airbags are designed for easy inspection and maintenance, ensuring they are always ready for the next mission.

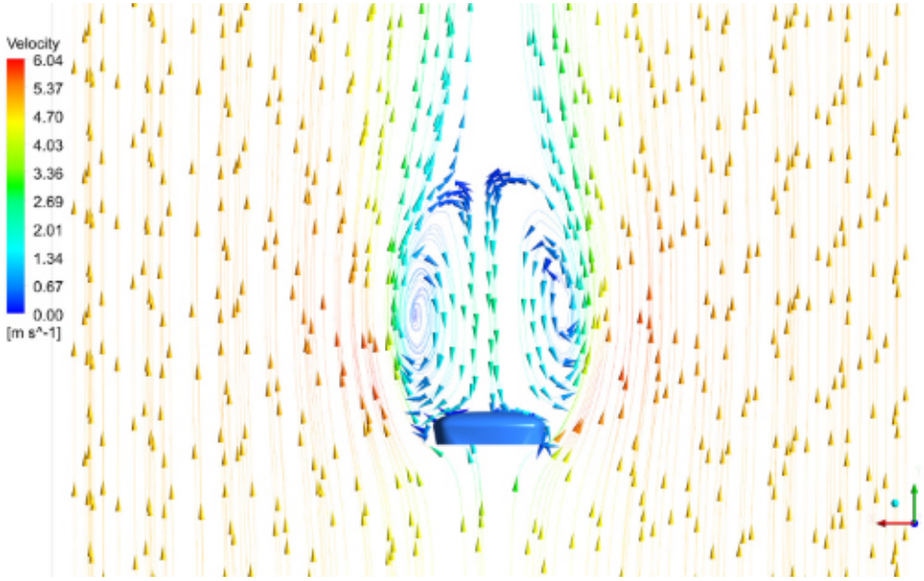


TESTING AND VALIDATION

Our parachute design and manufacturing process includes rigorous testing and validation to ensure top performance and safety. We use advanced equipment to test the strength, durability, and functionality of our products.

This includes high-point drop tests using cranes to simulate real-world deployment scenarios, and pulling devices and vehicles to replicate flight and landing stresses.

Our custom-built equipment allows us to accurately assess parachute performance under various conditions. Every test is carefully documented and analyzed to guide our design improvements and ensuring that our parachutes meet the highest standards of reliability and safety.

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