

OMICRON

USER MANUAL

Contents

About this Manual	1
General Information & Flight Characteristics.....	2
Choosing Your Canopy	3
Some Information About Wingsuit Parachute Openings.....	4
Adjust Your Toggle Setting	7
Packing Your OMICRON	8
Operating Limits	9
Care and Maintenance.....	9
Specifications	10
Contact Us.....	11

**YOU MUST READ THIS MANUAL BEFORE DOING
ANYTHING WITH YOUR SQUIRREL EQUIPMENT**

About this Manual

This manual does not provide instructional information, and is not a substitute for professional training, instruction, or experience. Before using this parachute, it is critical that you receive training and instruction for its use by a certified / rated instructor who is familiar with the characteristics of a 7-cell low-porosity parachute system. It is mandatory that you receive professional training and instruction on the deployment, flight, landing, packing, assembly, and maintenance of this parachute. This manual is only a general guide and does not contain any instructional information.

This manual may be updated, revised, or changed by Squirrel LLC without notice, at any time. Contact Squirrel LLC or check the OMICRON product page at www.squirrel.ws to be sure that you have the most up to date version of this manual. It is imperative that you read this manual in its entirety, and understand it fully. If you do not understand any part of this manual, or feel that any part is unclear in any way, please notify Squirrel LLC in writing and do not use any equipment that this manual refers to until you are certain that you fully understand the most up-to-date information pertaining to your equipment.

Your Squirrel OMICRON comes with NO WARRANTY.

Parachuting, skydiving, and wingsuit flying are extremely dangerous activities. This parachute is sold with all faults, as is, and with no guarantee or warranty of fitness for any purpose. Squirrel LLC, its members, owners, associates, and dealers, disclaim any and all liability in tort for damages of any kind, caused by negligence on the part of Squirrel LLC or otherwise. By using this parachute system or allowing it to be used by others, the user waives any liability of the manufacturer for personal injuries or other damages resulting from its use.

WARNING

ALL FORMS OF SKYDIVING, PARACHUTING, AND WINGSUIT FLYING ARE INHERENTLY HAZARDOUS ACTIVITIES AND REQUIRE THE DELIBERATE AND CONSCIOUS CONTROL OF YOUR PHYSICAL BODY THROUGH THE PROPER USE OF THIS PRODUCT IN RELATION TO EVER-CHANGING VARIABLES AND DANGERS. TRAINING, PROFICIENCY, SKILL, GOODJUDGMENT, AND BEING CONTINUALLY ALERT TO CHANGING CONDITIONS, INCLUDING WEATHER, VISIBILITY, SURFACE CONDITIONS, ATMOSPHERIC CONDITIONS INCLUDING DENSITY ALTITUDE, AND OBSTACLES, ARE REQUIRED TO LOWER THE RISK OF SERIOUS INJURY OR DEATH. DO NOT USE THIS PRODUCT WITHOUT INSPECTING IT AND ALL OF ITS COMPONENTS BEFORE EACH AND EVERY USE.



!!! Even when properly used, this product may malfunction or fail to operate as expected. You risk death or serious injury each time that you use this parachute system !!!

The OMICRON is a 7-cell parachute system designed for experienced wingsuit parachutists ONLY. Refer to the chart at the back of this manual for experience requirements. You must have at least 200 skydives and a thorough understanding of the performance differences between this canopy and other more common parachute systems before using this parachute. Do not use this parachute unless you meet the minimum experience requirements outlined in this user manual, and have received training and instruction on the proper use of a 7-cell canopy designed specifically for wingsuit skydiving. Packing, opening, flight, and landing characteristics may vary greatly from other parachutes you have previous experience with.

General Information & Flight Characteristics

About The OMICRON

The OMICRON is specifically **designed for wingsuit skydiving**. It is a low aspect ratio, rectangular planform design, conceived from the ground-up to provide a balance between reliable openings and overall flight performance. The top surface panels of the OMICRON are a blend of traditional ZP and ultralight sail material. These material choices, combined with a refined profile, provide a level of glide, flare, and handling that puts the OMICRON into the experienced wingsuit pilot category of parachutes. The OMICRON is designed for wingsuit skydiving. Although it may be jumped without a wingsuit, the best opening characteristics will be experienced with wingsuit use specifically.

Slick Jumps / Non-wingsuit use

The Omicron is suitable for occasional slick jumps. However, you must protect yourself and your parachute from hard openings by choosing the appropriate size and type of PC (we recommend 26" or smaller), and by packing it properly (rolling the tail securely and protecting the nose). Hard openings may damage your parachute, or your person. If you choose to jump the OMICRON without a wingsuit, always deploy at airspeeds within the operating limits of the canopy.

Flight Characteristics

The OMICRON is a specialist design that is meant specifically for **experienced** skydivers to use during wingsuit skydiving. When using the OMICRON for the first time, be aware of the fact that many factors will determine the quality of your parachute openings.

Glide Performance:

The OMICRON's glide performance is typical of a low aspect ratio 7-cell parachute. A ZP leading edge, combined with ultralight sail material across the remainder of the top surface, provides increased glide performance and flare power over canopies with more 0-3 cfm (Cubic Feet/Minute) fabric.

Toggle Inputs and Overall Handling:

Piloting the OMICRON is straightforward and fun. It has a sporty and highly compact feel in the air, with direct control inputs and progressive brake-travel. The OMICRON rolls into a turn quickly, but also returns to level flight quickly when control inputs are ceased.

Front Riser Input:

The OMICRON front riser pressure makes front riser turns comfortable for maneuvering and landing. If you are coming from a 9-cell ZP design, you may find that the OMICRON has a different recovery arc. Always start with gentle high-altitude front riser inputs. Do not attempt low turns with any canopy until you have extensive experience with it.

When manipulating front risers, remember that brake/control line length may need to be lengthened to allow certain front riser control inputs. If you are influencing the trailing edge of the canopy too much during front riser inputs, you may need to slightly lengthen your control lines. Keep in mind that adjusting control line length will affect your flare and control range. There is a limit to how much front riser input the OMICRON can take before the trailing edge is affected by the control line length.

Rear Riser Input:

The OMICRON responds to front and rear riser input similarly to other low aspect ratio 7-cell designs. Its glide can be flattened by applying a small amount of rear risers. OMICRON pilots should be aware that the rear riser range is shorter (stall is more easily achieved) compared to traditional 9-cell ZP canopies.

Landing:

When loaded appropriately according to the recommended weights, the OMICRON is not a difficult parachute to land, compared to traditional 9-cell canopies at higher wing loadings. The point of the OMICRON is to be able to easily reduce your main canopy wing loading without changing your container system – **so you should be jumping a size larger than you normally would**. If you are loading the OMICRON at the higher end of the recommended range, advanced to expert canopy skills are recommended.

Choosing Your Canopy

Jumper Experience

Do not use your OMICRON until or unless you have at least 200 skydives, and at least 50 skydives using a parachute that is at least 20% SMALLER than the size of OMICRON you intend to jump (for example, if you intend to jump a 170 OMICRON, you should have experience landing a 136 (or smaller) canopy, safely and comfortably, at least 50 times).

The OMICRON's 7-cell design and blend of materials were chosen to maximize opening performance for wingsuit skydiving use. Compared to some 9-cell ZP parachute designs, the OMICRON has less flare power and has a lower glide ratio. As with any low-porosity 7-cell canopy, it is critical that you have at least solid intermediate or advanced canopy skills in order to land it comfortably.

The OMICRON's flare characteristics at normal density altitudes and recommended wing loading are adequate for most parachutists/skydivers of intermediate skill, even without front riser acceleration or a diving turn.

Wing Loading

Wing loading is calculated by dividing the total in-flight weight of the jumper by the surface area of the canopy, measured in square feet. To measure your in-flight weight, stand on a scale wearing your normal jumping clothing, your wingsuit, and your parachute system including your main canopy, and any accessories. This will typically be in the range of 30 lbs greater than your naked weight. For a jumper with an in-flight weight of 185lbs who intends to jump a 170 square foot canopy, we can estimate:

$185 \text{ lbs} \div 170 \text{ sq ft} = 1.088 \text{ per square foot}$, or commonly written as 1.088:1

1.088 would be an acceptable wing loading for an experienced skydiver on this size of canopy.

Why the OMICRON is better for wingsuiting

1. Ultra low pack volume: The low pack volume of the OMICRON means that if you are currently jumping a skydiving container system which is sized for a main parachute that you are loading too highly to wingsuit comfortably, a much larger size of OMICRON will fit in your current container. For example, if you are jumping a typical cross-braced canopy in the 90 square foot range, an OMICRON 130 will fit comfortably in the same container system. *Reducing your wing loading is one of the first and most important factors for improving opening consistency.*
2. Low-porosity bottom surfaces, ZP leading edge, ultralight sail top surface: It is no secret that low-porosity fabric is more stable, and yields more predictable openings. ZP fabric, in contrast, is longer-lasting and higher-performing but yields less consistent openings. In order to increase durability and performance without compromising pack volume, ultralight sail cloth is used on the top surface panels which are not ZP. This blend of materials has provided the OMICRON with low pack volume and improved glide performance vs. a design with a low-porosity fabric top surface.



Some Information About Wingsuit Parachute Openings

PLEASE NOTE: The PC selection, bridle size, packing techniques, etc, which are discussed in this manual are not only specific to the OMICRON.

Openings, and the factors that determine opening characteristics

It is important to tailor your openings to your desired speed, consistency, and force, by controlling packing technique, airspeed, and body position at deployment. It is up to the jumper to ensure that all factors are properly considered and controlled in order to maximize the chances of a desirable result.

Pilot Chute (PC)

When flying a wingsuit, a larger pilot chute than what is typically used for normal skydiving is recommended. We recommend a 26" to 30" ZP toroidal arc design such as the SkySnatch series. Choose the size based on your typical airspeed at deployment, which will vary with wingsuit type and experience. Contact Squirrel LLC for guidance on PC size selection, if needed.

The correct size of PC for you will depend on the size of main canopy, the amount of friction between your d-bag and main container, your airspeed at deployment, and the amount of wake turbulence you generate which is determined by your wingsuit surface area and angle of attack. We generally recommend a 26" SkySnatch for small surface area beginner wingsuits, and a 30" SkySnatch for larger suits.

Bridle

It is recommended to use a bridle that is long enough to extend the pilot chute beyond the worst area of wake turbulence behind you during deployment. Today, most wingsuit pilots use bridles that are in the range of 8 feet (2.4m) in length, from pin to PC.

Deployment bag

Testing has shown that stowless and semi-stowless d-bags yield better openings than traditional rubber-band-stow d-bags. Heavy magnet-closed stowless bags are NOT recommended.

Slider Positioning

During packing, position your slider symmetrically and seat it properly against the slider-bumpers on your canopy. The size and aspect ratio of the OMICRON's slider is designed for this canopy. Do not change your slider without consulting Squirrel LLC.

The "Hole Slider"

After extensive use, usually in the range of 200-500 jumps, you may notice that your OMICRON takes longer to open than it did when new. This is a normal result of the lightweight fabric becoming more porous over time. When and if the openings begin to take longer than you like, or "snivel" too much for your taste, you may consider changing to the Hole Slider, which is available on our website. The Hole Slider increases the rate of slider descent and reduces altitude consumption during opening.

Collapsing and resetting your slider

The OMICRON's collapsible slider must be reset to the fully extended position each time you pack your parachute. Failure to do so may result in equipment damage, serious bodily injury, or death.

Opening Inconsistencies

Line Twists

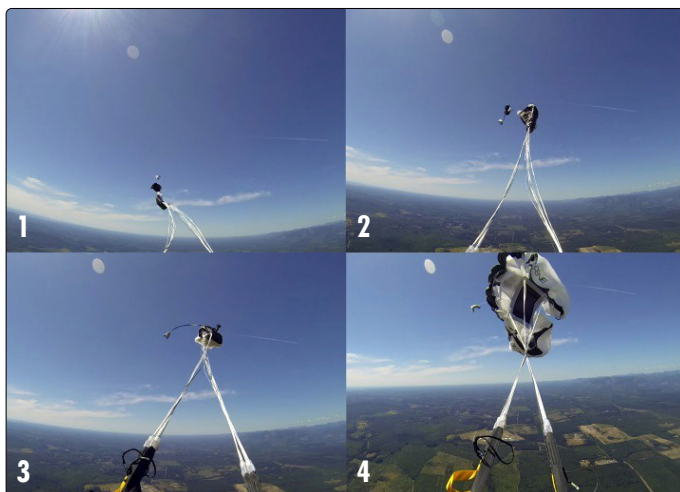
Wingsuits add complexity to skydiving, particularly during the deployment and canopy piloting phases. When wingsuiting, one of the most common issues during deployment is "line twists," which sometimes occur between d-bag deployment and canopy inflation. There are many factors involved, including symmetrical body position and flight heading through the entire deployment sequence and proper packing. Deploying in a turn, reaching for risers asymmetrically, twisting your body during deployment, flying your leg wing asymmetrically, or allowing the relative wind to influence the top surface (back side) of your leg wing, will all contribute to less desirable openings.

One of the most common moments that line twists occur is at or immediately after line stretch, prior to pack job expansion and inflation. The common packing method of "rolling the tail" around the pack job and lines may encourage line twists during a wingsuit deployment.

During wingsuit parachute deployment, the chain of equipment is spread more horizontally than it is during a non-wingsuit skydive deployment. In addition to that, the wingsuit creates a large "burble" or area of wake turbulence.

The more horizontal nature of a parachute deployment from wingsuit flight means that the pilot chute, bridle, pack job, and canopy lines can all be stretched out to an almost 180 degree plane during deployment, and at a lower airspeed than a typical skydive opening. At this stage, the pack job is more susceptible to rotation and off-heading openings. If the tail is rolled tightly around the lines and the pack job, then the time during which the pack job is allowed to rotate at the end of the line-stretch phase is increased.

By rolling the tail together less (SEE PACKING PHOTOS) the pack job will begin expansion sooner and have less time to rotate or turn at the end of the line-stretch phase. We recommend only lightly rolling the tail around the lines at the trailing edge of the pack job. Lightly fold the tail together, starting 5-10" below the lines, so that airflow can enter the pack job to allow expansion and inflation. The trailing edge (tail) of the canopy should be loosely wrapped around the lines.



Stages of pack job-rotation-induced-line-twists:

1. Parachute extends to line-stretch in a more horizontal plane than a typical skydive due to the wingsuit's glide path. Pack job expansion and parachute inflation is delayed by packing technique, burble (wake turbulence), or other factors.
2. Pack job rotates, caused by burble (wake turbulence), and delayed pack job expansion. Line twists are now set.
3. Pack job expands, with the line twists set. Canopy inflation occurs, with line twists set between the slider and the risers.
4. Jumper is suspended beneath the canopy with line twists set, and must now rotate his/her body under the canopy to resolve the line twists.

What happens next depends on many factors. If the jumper/pilot has induced an asymmetry in the system by giving unequal harness input, there may be a weight-shift input locked into the twists, which can cause the parachute to begin a turn. If the turn is fast enough, the parachute may begin a spiral (oftentimes incorrectly referred to as a "spin") descent.

ALL canopies are susceptible to line twists when they are subjected to wingsuit wake turbulence at line stretch. The OMICRON is no exception.

Body-twists

The most common cause of "twists" after a wingsuit opening results from a rotation of the pilot underneath an inflated or partially-inflated canopy during and immediately after opening. Instead of the packjob turning during deployment, the pilot turns under the inflated or opening parachute.

The prevention of, and cure for, "body twists", is a question of wingsuit piloting technique and must be trained for. Please refer to the LEARN pages at www.squirrel.ws and the KNOWLEDGE BASE pages at www.nextlevel.ws for more information on riser control and line twist recovery.

Hard Openings

Most factors surrounding parachute openings can be controlled or influenced by the jumper. If you are experiencing hard openings, then you need to make adjustments to one or more of the following factors:

1. **Equipment:** check pilot chute size, d-bag type, slider size.
2. **Packing technique:** check slider positioning, nose packing method, line stowage. Seek assistance and guidance from professional packers and riggers with wingsuiting experience.
3. **Airspeed:** If the OMICRON slider is correctly placed and configured, and the parachute is packed properly, openings are generally comfortable at terminal slick airspeed, or typical wingsuit airspeeds.

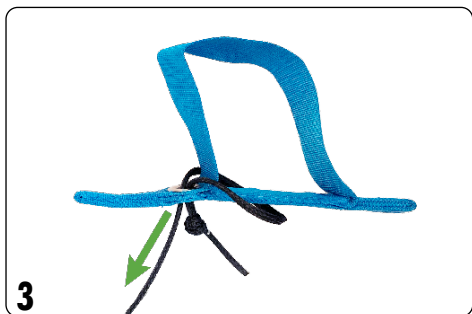
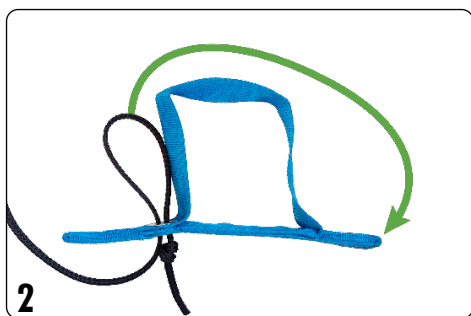
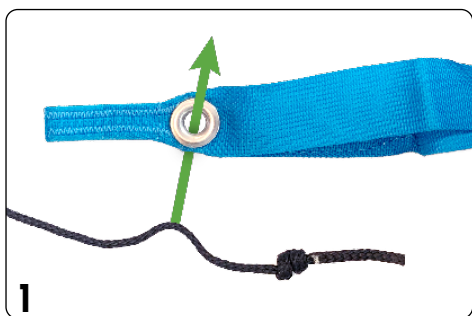
Adjust Your Toggle Setting

Customizing your toggle setting is essential for getting the best flare out of your OMICRON. 7-cell low-bulk canopies do not flare as well as 9-cell ZP canopies, and for this reason, it is important to set your toggle for your personal jumping. This is a simple process that will be completed within a few jumps.

You will notice that your OMICRON came with no sewn loop on the main control line. You will see a small white mark a few centimeters from the end of the line.

We recommend starting with your control line toggle set **at or just above (shorter than) the white line**. First, make a double overhand knot above the white line, tighten, and then tie a second overhand knot on top of it to ensure that it is too large to pass through the grommet.

IMPORTANT: The knot, or combination of knots, **MUST** be large enough that there is zero chance of it passing through the grommet on your toggle. Once the large knot is tied, secure it to the toggle with a larks head as shown below.



Using this knot technique, it takes about two minutes to change your toggle setting.

Gradually shorten it each jump until you can comfortably use the full control range of your parachute. You should be able to achieve full stall – if you cannot, your toggles are too long. Handling should feel direct. The ideal toggle setting will vary with factors such as arm length, harness fit, riser length, and personal taste. Do not assume that any factory toggle setting will work perfectly for you.

Once the toggle is in the perfect place for you, have your local rigger fingertrap a loop at the final location. **Please take the time to get this right. By setting your toggles to the proper length, you will have much better landings for many jumps to come.**

Packing Your OMICRON



We recommend PRO (Proper Ram-air Orientation) packing your OMICRON. For wingsuit deployments, it is not necessary to roll the nose or dress it in any special manner. Consistent with normal PRO packing technique bring lines to the center of the pack job with folds neat and symmetrical.



Bring the trailing edge (tail) around the pack job. For wingsuit deployments, **do not roll the tail tightly around the pack job**. One or two simple folds, well below the line group, is adequate. Please note that the trailing edge is only folded slightly at the lower (the packer's right) hand. At the line group, there is plenty of "open" tail.



Lay the pack job down on the ground as per standard PRO packing technique. Thanks to the ultra-light material, this part will be much easier than you're used to! **Remember to leave some open space where the tail wraps around the line group.** Do not tightly wrap the tail at this section!



Reduce the pack job volume in preparation for d-bag placement. For wingsuit deployments, remember to leave the tail section open enough to allow airflow in during extraction.



Reduce the canopy in preparation for d-bag placement.



Stow your lines properly according to the type of deployment bag you are using.



Watch this video to learn how to propack your canopy

Operating Limits

The OMICRON has been independently load tested, is constructed from the highest quality materials currently available, and is built to industry-standards for main parachute systems; however it is not designed to be opened at speeds far above which are typical during a properly executed freefall deployment. The recommended maximum opening speed is 100 KEAS (Knots, Equivalent Air Speed) at Sea Level.

The maximum opening speed is 120 KEAS. Always respect the maximum opening speeds and the operational limitations of your equipment. Failure to do so, by exceeding the placarded opening speeds or maximum weights may result in serious injury, equipment failure, or death.

As with any parachute system: Even when well below the maximum opening speed, equipment failure, serious injury, or death may occur as a result of improper or imperfect packing, improper or imperfect body position, or improper or imperfect gear configuration. And finally, to hammer home the point that skydiving is always dangerous, even if you do everything perfectly and properly you can still be seriously injured, or die. That is the nature of skydiving and parachuting. Always remember that each and every jump is potentially fatal, and constant vigilance is mandatory. You are the person responsible for your safety.

Care and Maintenance

When properly cared for, the OMICRON will last most skydivers for many jumps. Team pilots have taken it past 1500 jumps in fully serviceable condition. The factors that will shorten the lifespan of your canopy are primarily Moisture, Heat, UV Exposure, Hard Openings, and Improper Storage:

1. Keep your canopy dry at all times. All moisture exposure will degrade the cloth. Avoid water landings, and try to keep your canopy away from moist or wet landing areas. Never pack or store your canopy when wet or damp. If your canopy becomes wet or damp, hang dry it in the shade, NOT in direct sunlight.
2. Do not store your canopy in a hot location. Avoid leaving it in hot vehicles, for instance.
3. Do not expose your canopy to unnecessary or excessive UV/sunlight – obviously your canopy is not allergic to the sun, but we don't recommend letting it sit out in direct sunlight unnecessarily.
4. Avoid hard openings. Pack appropriately, and moderate your airspeed at deployment.
5. For periods of extended non-use, store your canopy unpacked, in a cool, dry, dark location, away from solvents, batteries, or any chemical that will damage or degrade synthetic materials. Exposure to car battery acid or even the fumes emitted from car batteries will degrade your canopy and other nylon skydiving equipment. Always discard/destroy any equipment that has had significant exposure to battery acids or harmful solvents.

6. Keep your canopy clean, and out of the dirt and dust as much as possible. Allowing any type of dirt, sediment, or debris to accumulate inside your canopy or on the exterior surfaces will degrade your canopy's lifespan. Packing a dirty canopy will cause sediment to abrade the surfaces of the materials.

A necessary part of maintaining your canopy is understanding and recording its usage. We recommend logging every jump that you make on your OMICRON, and recording deployment parameters for each jump such as wingsuit, non-wingsuit, type of wingsuit, estimated airspeed, etc.

OMICRON line sets are made to exacting specifications. Replacement line sets can be ordered directly from Squirrel LLC. We do not recommend purchasing line sets from your local rigger.

In addition to you inspecting the OMICRON before each jump, your OMICRON should be thoroughly inspected by a certificated rigger every 200 jumps or annually (whichever comes first), or whenever it is potentially exposed to conditions including but not limited to those listed above.

Specifications

Size/ Flat Surface Area	Student (lbs/kg)	Begginer (lbs/kg)	Inter. (lbs/kg)	Advanced (lbs/kg)	Expert (lbs/kg)	Max In-flight* (lbs/kg)
OMICRON 116	NO	NO	110/50	116/53	150/68	198/90
OMICRON 125	NO	NO	118/54	125/57	162/73	207/94
OMICRON 130	NO	NO	123/56	130/59	169/77	209/95
OMICRON 140	NO	NO	136/62	147/67	182/83	215/98
OMICRON 150	NO	NO	150/68	165/75	195/89	220/100
OMICRON 160	NO	NO	160/73	176/80	208/94	226/103
OMICRON 170	NO	NO	170/77	187/85	221/100	231/105
OMICRON 180	NO	NO	180/82	198/90	230/104	239/108
OMICRON 190	NO	NO	190/86	209/95	239/108	246/112
OMICRON 200	NO	NO	200/91	220/100	249/113	254/115
OMICRON 210	NO	NO	210/95	231/105	258/117	261/118
OMICRON 220	NO	NO	220/100	242/110	269/122	269/122
OMICRON 230	NO	NO	NO	253/115	276/125	276/125

Size/ Flat Surface Area	Aspect Ratio	Cells	Certification	Load Test
ALL SIZES	2:1	7	None	400 lbs **

* Max In-Flight Weight = Jumper + All Equipment.
 ** See www.squirrel.ws for details.
 - Minimum In-Flight Weight varies with landing conditions.

Contact Us

Please consider the following important points:

1. We designed, tested, and built your canopy.
2. Our job is to make sure that you fly as safely as possible, while having the most fun possible.
3. Our job is to help you understand, use, and progress on your canopy.
4. Our job is to answer your questions, and we like our job.

For these reasons, **we highly recommend that you contact US (SQRL) if you have any questions** about any product that we make. We 100% guarantee that the information you receive from us will be more relevant, more accurate, and more thorough than anything you can find in facebook comments, internet forums, or even your DZ gear shop guru. So, again, call us. Email us. Together with your dealer & the local SQRL pros near you, we're here to help.

-Matt, Mike, Will, Marty, & All the Team.

www.squirrel.ws
fly@squirrel.ws
855-FLY-SQRL

THANK YOU FOR FLYING SQUIRREL!