

From Icarus' website: choosing a canopy: <http://www.icaruscanopies.com/choosing.htm>

This article is meant as a guide only, there are many factors that come into play such as competence, DZ Altitude, density altitude etc. We suggest you discuss your canopy style and size with your instructor or safety officer at your DZ before making a performance style and size selection.

The wing loadings given here relate to Icarus canopies and Icarus canopy sizings. Many manufacturers use different sizing methods, our sizing relates to most canopies in the field but not all.

There has been some talk recently about rethinking wing loadings to determine performance as several factors are not allowed for using a weight to area ratio.

When a canopy size is changed and/or the weight under it varied, several factors change and many things do not remain in proportion. **HOWEVER, WING LOADINGS ARE STILL A VERY USEFUL REFERENCE TO ASSESSING AND PREDICTING A CANOPIES PERFORMANCE.**

Although interesting to understand, There has been too much importance put on this point in my opinion. Scale effect is significant when designing a model airplane but for our situation the differences involved are minimal and not worth introducing at the sacrifice of being able to talk easily in wing loading terminology.

There are three main factors you will need to consider when selecting a canopy:

- Your weight,
- Your experience and ability,
- The type of canopy ride you want.

There are many canopy "model specific" performance variations that are detailed below. We have graphed each canopies performance envelope as a quick guide on the next page. The performance of any canopy will vary greatly with wing loading. Any canopy can go from a student canopy to a rocket ship depending on the size ordered and the weight of the user.

Wing loadings are used as a guide to this combination of size and weight that will determine a canopies performance. Wing loadings are measured in Pounds (at exit weight) per Square foot (of canopy area) or "PSF" and are calculated by dividing the exit weight into the canopy size. We have further grouped wing loading ranges into 6 different classes of performance, to explain the performance you may expect within this wing loading class. There is a gradual change in performance between the classes. The class description describes the mid range of each class, and the wing loadings at either end may tend towards another class.

Class 1

Student Canopy

.5 to .75 Lbs/SqFt wing loading.

This wing loading will perform basically as a student canopy. You may wish to choose a canopy in this range if you are very unsure of your ability, physically injured or disabled in some way, elderly or frail or as a student canopy. A canopy in this class should not be jumped in over 15 knots. These canopies are easily affected by turbulence.

Class 2

Docile

.75 to 1.00 Lbs/SqFt wing loading.

Still a very docile range. This would suit an advanced student canopy or a first canopy for someone preferring to err on the safe side. Again affected by higher wind conditions before most canopies would be.

Class 3

Mid Range

1.0 to 1.25lbs/SqFt wing loading

This mid range of canopy is a good bench mark to work from. These canopies are high enough wing loading to start having a little fun yet low enough that a reasonably competent low time jumper could handle one as a first canopy (check with your C.S.O.) and still have a canopy they want to be jumping in a couple of hundred jumps time. This is also getting

into the range that must be treated with a little respect however still has a reasonably good margin for error. Most of the canopies we sell are in this range. From this loading up, most wind conditions allowable for jumping are not a problem.

Class 4

High performance

1.25 to 1.65 Lbs/SqFt wing loading

Now we're having fun ! We're also into potentially high danger area! Turn speeds are increasing air speeds and speed range are increasing dramatically all of which provides us with a direct trade off between fun and safety. Canopies in this range must be flown to the ground! Recovery arcs are generally over 200 feet and toggle input movements are getting noticeably shorter. A high degree of experience and competence is necessary to handle a canopy in this range. Flying a canopy in this range must be done by feel, every maneuver must be well planned ahead as things are happening very quickly. With a high wing loading turbulence will affect the canopy less but if affected remember you are traveling much faster. Being dropped 1/2 a meter by turbulence under a class 2 canopy isn't even going to affect your stand up landing but being dropped 1/2 a meter in the middle of your ballistic turf surf could ruin your summer. The same goes for other obstacles - buildings, fences, people, other canopies, etc, have much more impact at high speeds. Even uneven ground or short landing areas should be considered obstacles. These canopies will still be traveling horizontally in nil wind conditions. A collapsible pilot chute is recommended. Lowering the slider and loosening ones chest strap is suggested.

Class 5

Extreme

1.65 to 2.00 Lbs/SqFt wing loading

Not for the faint hearted. If you are one of the few people that want to fly a class 5 canopy consider every aspect of what you are doing very carefully. On the up side there is very exhilarating airspeed, quick response times and powerful maneuverability. On the down side our margin for error has reduced to almost nothing (!), compounded by the fact that if we do make an error we are almost certainly traveling at speeds that can maim. If you have or are considering a class 5 canopy we can't tell you how to fly it in this overview, we must assume you know what you are doing. Most people I watch flying class 5 canopies don't fly them to the limits of the canopy and the performance they achieve from their canopy could be achieved from a class 4 canopy flown to its limits with a far greater safety margin. These canopies generally have to be run out on landing. They must be fitted with a collapsible pilot chute. Lowering and collapsing the slider and loosening the chest strap is recommended. Canopy recovery arcs can be over 400 Ft radius. The step from a class 4 canopy to a class 5 canopy can be quite large i.e. for a 80 kg jumper with gear and weights the difference between a 105 and a 95 feels similar to the difference between a 130 and a 105.

Class 6

BALLISTIC !!!

2.0 to 2.4 Lbs/SqFt wing loading.

If you are considering this, you don't need an explanation.