

Z-5 Harness Sizing Instructions – June 23, 1998

Sizing

Getting the correct size is the single most critical aspect of ordering your harness. Please take the time to read and understand this sizing guide. A comfortable harness will serve to increase both your enjoyment and safety while flying.

Wills Wing harnesses are made in seven standard sizes: Small, Small Plus, Medium, Medium Plus, Large, Large Plus, and Extra Large. We also make custom size variations of each of these standard sizes. Use this sizing guide to determine whether you will fit properly into a standard size harness. Standard size harnesses are often in stock, or can be ordered with your choice of colors.

The harness sizing tables provide a relatively close fit if your chest measurement is near the large end of the range specified in the standard sizing table. A close fit will be more aerodynamic and in most cases more comfortable as well. Close fit harnesses will still accommodate mid-weight clothing for cold weather flying and allow a small gap behind the pilot's back for storage. If your chest measurement is near the small end of the range specified in the standard size table, the gap behind your back will be proportionately larger.

If you don't fit properly into a standard size harness, we will fabricate a custom size from the measurements that you provide on the order form. Additional sizing preferences, such as extra room for bulky clothing, can be accommodated with custom sizing. There is no extra charge for this service.

The optimum length for a Wills Wing pod style harness is with the harness armpit area pressed lightly into the pilot's armpit while allowing the pilot to fully extend his legs with his feet pressed against the boot. Harnesses are sized with a 1" foam block in the boot of the harness. The block is meant to be removed as the harness shrinks with age. Additional blocks can be ordered if the pilot prefers. In some cases we may size the harness a little long and provide two blocks for a wider range of adjustment.

Step One - Taking Your Measurements

The first step is to take all of your measurements. You'll need them whether you're ordering a standard or custom size harness.

Height:

Take off your shoes, and stand up straight on a flat floor with your back against a flat vertical wall. Have someone place a ruler on top of your head, hold it level, and measure from the bottom surface of the ruler to the floor.

Armpit to Floor Measurement:

Take off your shoes, and stand with your arms held 30 degrees out from your body with your shoulders level. Have someone hold a ruler firmly up in your armpit, and measure from the top of the ruler to the floor.

Chest Measurement:

Wearing a light shirt, and using a cloth or paper tape, measure the circumference of your chest at its largest point, but not "expanded." Women should measure around (including) the breasts, rather than underneath. Do not increase this measurement to allow for heavier clothing, or reduce it for a tighter fit for cleaner aerodynamics – either of these should be specified separately by requesting a non standard fit. (Note that a loose harness fit may compromise comfort and increase pressure rotating upright to landing attitude.)

Hips Measurement:

Wearing light weight clothing, using a cloth or paper tape, measure the circumference of your hips at their largest point.

Weight:

Weigh yourself without clothes.

Shoe Size:

Note your shoe size.

English			
Size	Height	Armpit range	Chest Range
S	62.125 - 64	48 - 50.25	37 - 39
S+	64.125 - 66	49.5 - 51.75	38 - 40
M	66.125 - 68	51 - 53.25	38 - 40
M+	68.125 - 70	52.5 - 54.75	39 - 41
L	70.125 - 72	54 - 56.25	39 - 41
L+	72.125 - 74	55.5 - 57.75	40 - 42
XL	74.125 - 76	57 - 59.25	40 - 42
XL+	76.125 - 78	58.5 - 60.75	40 - 42

Metric			
Size	Height	Armpit range	Chest Range
S	157.8 - 162.8	121.9 - 127.6	94 - 99.1
S+	162.9 - 167.9	125.7 - 131.4	96.5 - 101.6
M	168 - 172.9	129.5 - 135.3	96.5 - 101.6
M+	173 - 178	133.4 - 139.1	99.1 - 104.1
L	178.1 - 183.1	137.2 - 142.9	99.1 - 104.1
L+	183.2 - 188.2	141 - 146.7	101.6 - 106.7
XL	188.3 - 193.3	144.8 - 150.5	101.6 - 106.7
XL+	193.4 - 198.1	148.6 - 154.3	101.6 - 106.7

Step Two – Choose A Standard Size

In the table above, find the harness size corresponding to your height. If your height measurement falls outside the allowable range, stop here and proceed with ordering a custom harness.

Step Three – Check Armpit Length Corresponding To Height

In the table above, find the harness size corresponding to your armpit to floor measurement. If it is the same size that you chose based on your height, proceed to step four. If your measurement is less than the bottom end of the small harness range, or more than the top end of the extra large harness range, stop here and proceed with ordering a custom harness.

If your armpit measurement indicates one size smaller or larger than your height, choose the size indicated by your armpit measurement. If your armpit measurement indicates more than one size different, proceed to **Ordering a Custom Size Harness**.

Note: Each one inch boot block will adjust the harness equivalent to 1-1/2 inches in height which is almost one size increment.

Step Four – Check Chest Size Range Corresponding To Your Standard Size

In the table above find the size harness you chose from step two or three. See if your chest measurement falls within the allowable range. Keep in mind that if you are plus or minus one inch outside the given chest you may still fit in the harness but it will be with either a tight or loose fit. Note that a loose harness fit may compromise comfort and increase pressure rotating upright to landing attitude. If you prefer some extra room, and don't mind the compromises noted above, a loose fit is ok. If you never wear a heavy jacket and don't mind a snug fit, a tight fit is ok. If you decide that your chest measurement is outside the allowable range, stop here and proceed with ordering a custom harness.

Step Five – Unusual Characteristics

If you still fit a standard size to this point, ask yourself these questions:

- Is the circumference of my hips larger than my chest?
- Is the circumference of my waist larger than my hips?
- Do I have unusually short or long legs for my height?
- Do I have unusually muscular or large thighs for my height?
- Do I have unusually well developed lats or pecs? (e.g.: body builder)

If you answered yes to any of these questions, stop here and proceed with ordering a custom harness. If, after all this, you still “qualify” for a standard size harness, you may select one from inventory, or order your choice of colors in your standard size.

Ordering A Custom Size Harness

In the sizing area of the form, give us all of your measurements from step one and indicate your gender.

In the sizing area, specify whether you want “Tight,” Standard,” or “Loose” fit. A standard fit harness is designed for a relatively close fit, to minimize drag and maximize performance. A tight fit offers maximum aerodynamic performance at the expense of extra room. It is suitable for light spring/summer flying clothes, and allows a small gap behind the pilot’s back for storage. A loose fit allows for more storage or a bulkier jacket, but may compromise comfort and make it more difficult to rock upright for landing.

We use the following guidelines for chest sizing of custom harnesses. If you have test fit a stock harness, please review the information below to decide what kind of fit you prefer. Please note that new harnesses feel tight and restrict movement until the fabric and foam break in, which often takes 20 hours of flying.

Chest measurement larger than standard range. We increase the circumference of the harness by the difference between your chest measurement and the large end of the range specified for standard harnesses.

Chest measurements smaller than standard range. We decrease the circumference of the harness by the difference between your chest measurement and the small end of the range specified for standard harnesses

Adjustment for loose or tight fit. We adjust the perimeter of the harness by the difference of your chest measurement to the midpoint of the standard range. A tight harness is reduced 2 inches in circumference, and a loose harness is enlarged 3 inches in circumference from this nominal value. For example: if you specified a 39” chest and a loose fit, and your height corresponds to a medium plus harness, we would add 2 inches to the circumference of the stock size.

In the special instruction area of the order form, tell us about any “yes” answers in step five.

Note: If you have owned or test fit a Z-series harness please include the harness serial number or enough information for us to identify the harness size.

Specifying Harness Mains Length

Wills Wing harness main support straps are sized to hang a properly fitted, standard harness 1" to 2" above the control bar base tube of any WW glider, when the pilot attitude adjustment is slightly head down. That corresponds to a top of base tube to hang loop dimension of 55 inches. Variations in pilot size and individual harness adjustment preferences change the hang distance above the base tube with standard mains. We strongly recommend that you size your harness mains to fit a standard Wills Wing glider hang loop. Shorter main lengths are available on request, but they increase back compression and reduce comfort.

Other Ordering Instructions

Make sure that the entire order form is filled out. Missing or incomplete information will delay the processing of your harness order. The quoted finish date of your order is based on the day which we receive your completed order, not the day you place the order with your dealer. We recommend that orders be faxed or mailed in rather than placed over the phone. We also accept e-mail orders providing that all the necessary information is supplied. Orders with extensive custom work require a written form; phone orders will not be accepted.

Custom Options

If you are ordering a harness that requires a lot of custom work, such as special pockets or custom color design, it is essential that you provide us with as much detailed information as possible. Simple drawings and measurements will help to insure that your harness is made correctly the first time thus avoiding any expensive and time consuming re-work. If you order a custom camera box please specify not only the size of the box but the location as well. If you intend to carry an oxygen delivery system please provide us with the dimensions of your bottle (length of the bottle without the valve, diameter or girth) and where you’d like the bottle positioned. The standard radio pouch will stretch to fit a wide range of radio sizes but is primarily designed to fit the current generation of compact radios with a standard size battery pack. Older larger designs, or radios with large or long battery packs will most likely require a larger pouch.

Keep in mind that not every custom idea or option will be feasible. There are space and size limitations and the difficulty increases as the harness size decreases. We will notify you if it becomes impossible to fulfill your custom choices or if those choices require extensive modification of existing harness functions, such as having to displace the location of the stock pockets in order to add a custom camera box.

The standard front mount chute container will accommodate a wide variety of parachute sizes from an 18 gore PDA all the way up to a LARA 400 or equivalent. If you order a new Wills Wing/Free Flight reserve chute with your harness it can be installed in your harness free of charge. The optional (no extra charge) side mount chute container will accommodate chutes as large as a LARA 250 or 22 PDA.

Colors

Color choices can vary depending on supply. Your dealer should have a set of color samples on hand and he can contact Wills Wing if you are especially concerned about any individual colors. Neon or fluorescent colors fade more quickly than others do. The stock 600-denier polyester cloth is much more UV and abrasion resistant than the 420-denier nylon. The stock body design includes one of the four stock body colors and a choice of two colors in a split wedge design.

The optional stripe design is limited to the colors listed. The stripe is 1.5" wide Type III binding tape with a 1.5" space between the upper and lower stripes. You can specify a separate upper and lower color. If you only choose one color, it will be used for both. If you only want one stripe, please note that in the special instructions area of the form.