

ParaFly24 Porosimeter - reliably measure air permeability of the cloth in a few minutes.

An exciting moment after each check is to see how the air permeability (porosity) of the paraglider cloth has developed. Most check companies document the measured values in check reports (according to JDC or Kretschmer method) as a value per second. Sometimes only a rating like "Used - fully airworthy" is ticked.

In case of borderline readings, the check interval can be shortened to one year or the glider will not get a check at all. This makes sense, as flight safety is no longer guaranteed and unpredictable flight characteristics such as deep stall may occur.

If the glider is treated gently and is not exposed to too much UV, the paraglider cloth can retain very good porosity values for many years. The only exception is if there were complications in the manufacturing and coating of the cloth.

For safety-conscious pilots, it is therefore extremely interesting to measure the cloth values regularly. The measuring process only takes a few minutes (the longer the better 😊) and can thus be regularly evaluated and documented.

Especially if the glider is used or it has come to extraordinary stresses, such as extensive ground handling, dune soaring, high UV exposure, sand or ice contact or too hot storage, for example, in the trunk is worth a measurement.

Especially worthwhile is the measurement when buying a used glider, whose check is not new or expired. Here a bad surprise can be avoided with the next check.

The new porosity meter from ParaFly24 works quickly and reliably. It is delivered in working order and only a container (e.g. 10 L bucket) with water is needed.

Scope of delivery:

- Porosity measuring device with all required components (largely prefabricated).
 - Vacuum vessel
 - Lid with hose connection and 2 seals
 - Measuring holder upper part with 10 extra strong magnets and 100 mm seal
 - Measuring holder lower part with flange seal, as well as hose connection and seal
 - 120 cm hose
- Detailed assembly and operating instructions (download).

*In private use, the measurement of porosity does of course not replace the prescribed service or check of your glider. The glider must be checked regularly by an authorized check company according to the manufacturer's instructions and local regulations. In addition to the porosity measurement, this also includes the measurement of the lines, the inspection of the cloth for damage and other checks.

Scope of delivery and fully assembled measuring device



Mode of operation

The negative pressure is generated by a predefined water column. The device is designed so that on average 10 mbar of vacuum act on 38.5 cm² of cloth and then the time is measured until 0.25 L of air has passed through the cloth. The result (in seconds) corresponds to the specification of a JDC measurement.

Measurement procedure

The measuring points for the porosity check are specified by the manufacturer. These are often 3 to 5 different points in the topsail measured at a distance of 20 to 30cm from the leading edge in the center of a cell.

Experience shows that the highest occlusion is at the middle cell, so that for a "private measurement" at least the middle cell should be measured.

1. a bucket/barrel with at least 25cm diameter is needed and placed near the measuring point on the screen. The larger the diameter, the more accurate the measurement results.
2. now the bucket is filled with water at a height of at least 18 cm.
3. next, the transparent container is submerged in the bucket filled with water so that the water is above the uppermost line.
4. now the measuring holder is attached to the screen cloth. Attaching the measuring holder is best done with 2 people. The measuring holder with the rubber seal is placed on the cloth as shown and the cloth is stretched from the inside of the cap so that there are no folds.



5. then carefully center the magnetic counterpart from the inside so as not to place unnecessary strain on the cloth. As a rule, the 70/100mm rubber sealing ring supplied does not need to be placed between the magnetic holder and the cloth. If necessary, the rubber sealing ring reduces the magnetic force and increases the tightness.



6. The transparent container is now pulled vertically upwards until the lower line is level with the water line. The water column in the transparent container must be above the top line. The measuring process starts when the water column is at the height of the upper line. The stopwatch is then started. The stop process is terminated again when the water column has reached the middle line. The time in seconds is the measurement result and corresponds to the JDC value in seconds.

Meaningfulness of the measurement

Although the pressure changes due to different heights of the water column during the measurement, the measurement is representative. At the upper line the pressure is 12 mbar and at the lower line 8 mbar. This corresponds on average to the specified pressure of 10 mbar for the JDC measurement.

The following picture shows the prototype with pressure gauge to check whether 10 mbar negative pressure actually occurs when the water column is between the upper and middle marks.



Significant influences on a correct measurement result:

- That the bottle is first immersed in the container filled with water to such an extent that the water line in the bottle is above the upper line.
- That the upper and lower holders on the screen cloth are installed free of wrinkles and airtight.
- That the cap is tightened so that no foreign air gets into the bottle.
- That the bottle is pulled out of the water tank so that the lower line is aligned with the water surface when the water column is inside at the level of the upper line.
- That the bottle is aligned at a 90° angle to the water surface.

Measurement result according to JDC:

Seconds JDC	Condition / cloth value
> 350	As new / fully airworthy
150 - 300	Good / fully airworthy
40 - 150	Used / fully airworthy
10 - 40	Heavily used / regular check necessary, check only 1 year
< 10	Check not successful, consultation with manufacturer required

Since the measurements are subject to a certain tolerance at various points, the glider should be sent to check operation or manufacturer in case of borderline results.

We wish all the time safe and good flights :-)