Determination of ski length and side cut radius

Ski length

To control the ski length, the developed length (flat material length) is used.

Side cut radius

The rear and front ski lengths are measured starting from the narrowest point of the ski. In order to avoid that the entire side cut radius becomes distorted by the different geometries of the tail and tip, the rear ski width is recorded at 90% of the measured rear ski length whilst the front ski width is recorded at 80% of the measured front ski length.

The length is measured using a measuring tape with a precision of 1 mm and the width using calipers providing a precision of 1/10 mm.
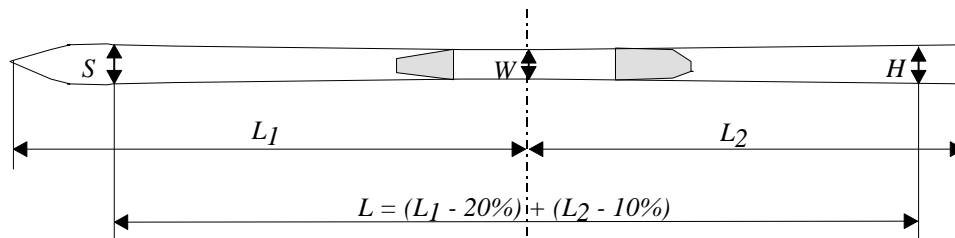
The side cut radius *R* is calculated by using the following formula:

$$R = \frac{L^2}{2000 * (S + H - 2 * W)}$$

L, S, H and *W* must be given in mm. *R* is given in m.

If the side cut radius lies below the valid limit set by the rules after the first measurement, the measurement including the calculations must be repeated three times. The arithmetic mean X_R calculated from these three side cut measurements. To account for measurement errors in the length and width, the side cut radius is recorded as 1.015 X_R. This figure will reflect a measurement error of 1.5% on average. 1.015 X_R must be greater than or equal to the valid radius limit set by the rules.

Since the formula of the existing measuring method intends to reflect the unadulterated (undistorted) measurement of a side cut radius, this assumes that a continuously differentiable and monotonous curvature shall be maintained between point "S" and point "H", i.e. without any turning point in-between those two points.

In order to reflect the above, it is clarified that the radius determination assumes that:

At any point on the distance from W to H the width has to be smaller than at H.
At any point on the distance from W to S the width has to be smaller than at S.

If any of the above assumptions are not fulfilled, the concerned ski cannot be found as conform to the specifications.