



**Autrans – VERCORS Nature Reserve  
1 December 2006**

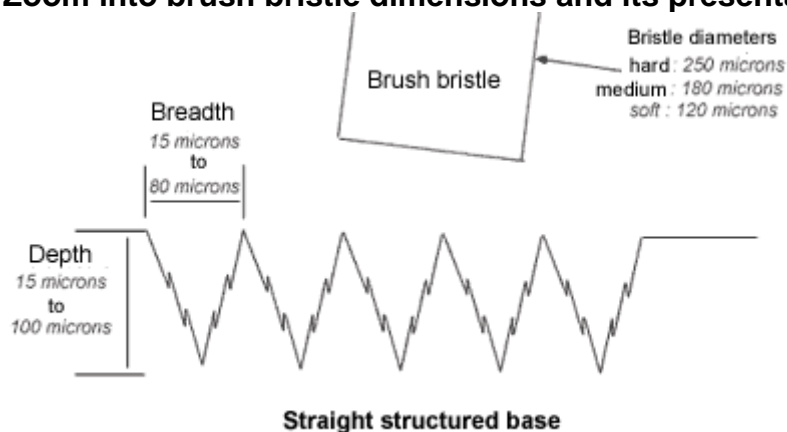
### **New skis waxing**

The process of ski fabrication includes two steps prior to final quality control and packing:

Your ski base finishing: making your skis perfectly flat with a stone grinding machine and finally structuring them for hydro-dynamic process. The last stage is very important in “the management of water film” caused by “heating-up” generated during ski contact with snow. With different manufacturers structures may be either both straight and thin or in geometric forms (straight fishbone pattern looking upwards or downwards, curved branches, sinusoids, etc.).

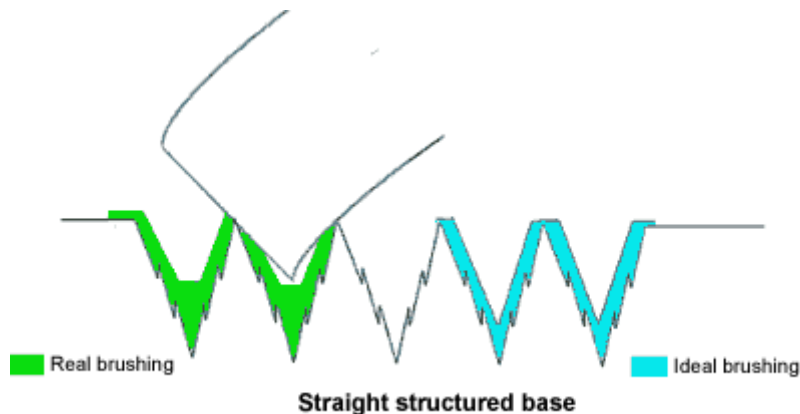
Semiliquid wax application: plays rather antioxidant than water-repellent role. It is either levigated with or without infrared radiation or applied with hot roll waxing. The following results show recommended steps when buying new skis.

### **Zoom into brush bristle dimensions and its presentation**



**Observations:** Structures for cold snow are very difficult to brush. So for this kind of snow we often have to use straight and very fine structures that can be prepared with brass brushes. Their rigidity allows us to use 12-micron diameter bristles to clean the entire structure. Microscratches produced by aggressiveness of this brush are not damaging, on the contrary they can sometimes better the results. It is still banned to use brass brushes in preparing structures for fresh and transformed snow...

Straight structure topography design (ski crosscut) surveyed by laser head scanner before and after brushing:



**Observations:** The deepest base point is about 2 to 4 microns, thus, it is impossible to clean ski base correctly with mechanical brushes. Remember that from 20 to 30% of wax remain at the bottom of the structure and that application of highly fluorinated wax after maintenance wax only dilutes this underlayer and reduces fluorine content of your racing product. So we advise you to apply only PFX6-LF as maintenance wax on your racing skis.

#### **Study protocol:**

We inserted a marker (\*) in the “first” wax applied in factory. The study was carried out on three types of application (spraying, spraying + irradiation, hot roll waxing) at the same time.

- 1 light exposition and zone reference measuring
- 2 waxing + scraping + brushing with hard and medium brushes, use of traditional PFX1-CH low temperature wax (-5°C/-15°C).
- 3 light exposition and zone reference measuring

...

We continued this way until getting a light level theoretically close to 0.

**Results:** After 5 traditional waxing sessions we obtained an acceptable dilution level of initial wax. This study was first effectuated for cold and then for hot wax scraping. With hot scraping we got better results after 3 waxing sessions, thus corroborating our recommendation for hot scraping with mechanical cleaning of your ski structure.

**Recall:** the use of cold wax which has a higher melting point comparing to warm wax (135°C against 58°C) allows to implement the process of mechanical cleaning. In fact, after passing a gelatinizing phase and once solidified wax will capture all ingrained dirt and old melted wax. The analysis of extracted wax surplus shows the

presence of other organic matter than hydrocarbon (CH). This improvement is achieved by base warming-up, which avoids you buying a thermo-bag (3 000 euros/ 20 000 F) or infrared light exposition (4 000 euros). We advise you to use either a heat gun or an iron. The heat gun should be adjusted to a medium temperature and used minimum at a 30-cm distance (but you should know that its usage may be limited outside). If you use an iron, avoid its direct contact with ski base, you can insert a piece of moistened cotton twill. Water will control the iron inertia (as its temperature rise often exceeds thermostat regulations). Your base is warmed-up longer and more profoundly. The aim is first of all to expand the base so that it captures more wax into its structure.

**Attention:** you should respect all this so that not to “put a strain” on your base, as it is sensible to any thermal shock (waxing and cooling down outside).

(\*) Marker: it is a reagent belonging to colouring agents’ family. It can never change the wax chemical formula, as it is only a pigment. It reacts to optical excitation in a certain wave length. In a visible zone it emits light that will be captured, filtered and measured in order to detect its concentration after each waxing or skiing session or even after each km. The measuring is carried out with the use of WWC wax wear control device (DRAGONSKI’s patent in February 2001).

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