

Structure Selection

FOUR DIFFERENT GRADES OF STONE GRINDING

The Norwegian XC-team has introduced a color coding system to select corresponding skis and structure of the glide zone:

Green (-5 °C and colder) Fine

Blue (0 °C to -5 °C) Medium/Fine

White (0 °C to +3 °C -moist): Medium/Coarse

Red (+1 °C to +10 °C -wet) Coarse

| Snow condition | CLASSIC | | SKI TECH | | |
|-----------------------------------------------------------------------------------|---------|-----------------|----------|--------|-----------------|
| | Linear | Linear broken V | Screw | Linear | Linear broken V |
| Green (-5 °C and colder) Fine snow, sharp crystals, low humidity | Linear | Linear broken V | Screw | Linear | Linear broken V |
| Blue (0 °C to -5 °C) Medium/Fine snow, sharp crystals, low humidity | Linear | Linear broken V | Screw | Linear | Linear broken V |
| White (0 °C to +3 °C -moist) Medium/Coarse snow, sharp crystals, high humidity | Linear | Linear broken V | Screw | Linear | Linear broken V |
| Red (+1 °C to +10 °C -wet) Coarse snow, sharp crystals, high humidity | Linear | Linear broken V | Screw | Linear | Linear broken V |

FINE STRUCTURES: Fine structures are mainly used on new snow and fine grained snow. For skating; fine structures are normally used from 0 °C (32 °F) and colder for classic; -5 °C (23 °F) and colder. Sharp crystals (present in dry new/fine snow) and a sharp structure is not optimal. A newly set (fresh) structure will in general give a “sharp” structure. In dry, cold, new and fine snow conditions (usually lower than -7 °C (19 °F)), the fine “sharp” structure should be “rounded” with Fibertex T264 ((or a plexi scraper). Though, this process is normally more important for skating than for classic skiing. On the other hand, in new snow with high humidity close to 0 °C (32 °F) the structure should preferably be sharper.

MEDIUM/FINE STRUCTURES: This structure is a widely used structure. For skating it is used in most snow conditions normally from -7 °C (19 °F) up to wet snow. In very wet conditions a medium/fine structure combined with the use of an imprint tool has proven good results. For classic skiing we recommend this structure in new and fine grained snow (normally between -7 °C (19 °F) and 0 °C (32 °F)).

MEDIUM/COARSE STRUCTURES: Mainly for classic skiing on coarse moist snow and wet, glazy new snow between 0 °C (32 °F) and +3 °C (37 °F), a medium/coarse structure is preferred. This structure is also used sometimes in free technique (skating) on wet, coarse-grained snow. In this case, most racers would prefer to adjust a medium structure towards a more coarse structure by using a manual tool. Reference the table below for specific recommendations.

COARSE STRUCTURES: This structure is rarely used in skating. For classic skiing it is used on coarse wet snow. Note! In general, it is better to use a somewhat finer structure than a structure too coarse.

PRACTICAL ADVICE FOR THE USE OF SWIX MANUAL STRUCTURE TOOLS

Linear, Broken and Screw structures:

There are no exact rules when to use the different structures. Generally, we can say that linear structure and broken linear structure (V) are mostly used in classic races. Screw and cross-structures often give a good “feeling” in free technique (skating) races.

Procedure then choosing structure

- 1 Check snow type, temperature and air humidity.
2. Course is classic or free technique (skating)?
3. Decide the stone-grinding structure.
4. Set the hand-structure as the last step, after brushing.

Use of the different imprint steels will vary with the underlying stone grind.

If the base has a fine structure it can be taken to “medium” by using the coarse imprint steel. In this way you will be able to make a fine stone grind fit “medium” conditions. However, it is not possible to make a coarse stone grind ‘fine’ with a ‘fine’ steel.

- Manually produced structure should be set after waxing, application of Cera F and brushing.
- After setting the structure, brush once more with the Blue Nylon brush.
- Always apply manual structures on race day since the intended effect can be reduced over time.
- For skating skis, start from the tip applying light pressure for the first third of the base slowly increase pressure from the front of the binding using medium pressure until the back of binding, from there to the tail use firm pressure.
- For classic skis, use even pressure, but preferably lighter pressure on the front part.
- If two or more imprint steels are used in combination, always start by using the coarser steel.
- With higher air-humidity, use more coarse structure. When in doubt, use finer hand-structure.
- Finer stone-grinding combined with a “coarse” hand-structure is better than coarse stone-grinding, combined with “finer ” hand--structure.
- On wet snow conditions, apply harder pressure on the tool.
- Run the rollers two times.
- Keep the rollers and steels clean and well protected during transport.

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Structure Basics

STRUCTURE BASICS:

Structure is a term used to describe patterns cut into the base to reduce base contact on the snow and to release surface tension from water films caused by base friction. These structure patterns are most often produced by stone grinding machines at the factory during production or by shops that specialize in the stone grinding process. It is also possible to produce structures using hand tools.

For a period of time there was much experimentation and testing of many types of patterns in order to find the best structure for different snow types. The search with different stone grinders, different structure depths, widths, and patterns, all aiming to find “the ultimate structure”, was overwhelming. Recently however, the development showed signs of simplification. Now service technicians agree more that snow types can be classified in more general terms to which more certain structure patterns can be matched. An appropriate structure is still of absolute importance, but it is applied with a set of basic principles in mind. The result is that variations in machine set structures are fewer and standardized. The tendency to “simplify” variations in stone grinding

can allow for a more accurate comparison of other significant factors such as skis and waxes, and in theory it is possible to travel with fewer pairs of skis.

Last but not least, structures made by hand on top of structures produced by machine have proven to give outstanding results. Manually set structures in combination with stone grinding can match the day's conditions more accurately and therefore enhance the effectiveness of a basic stone ground base. There is an important difference between structures produced by machine and those produced by hand. Stone ground structures are cut into the base, and are more permanent in nature. Hand structures use "imprint" tools that press the structure into the base, and consequently are temporary.

Swix imprint tools have the advantage of being easy and quick to use while at the same time offer the most adaptability of adjusting the structure to match the snow type. During the process of rewaxing the heat from the iron will cause the pattern to leave the base while keeping the stone ground pattern intact. In this way the base is ready once again for the next hand produced structure treatment and it is possible to apply the perfectly matching structure according to the conditions of the day.

Although there are variations in the patterns applied, structures can be classified into "fine", "medium-fine", "medium-coarse" and "coarse" structures. The most frequently used structures in World Cup are "fine" and "medium-fine".

For classic races more coarse structures are used as well. The difference between classic and skating is related to more varying conditions in a skating course than in a classic track. Also the factor of "feeling" that has to do with the resistance when "pushing" the ski forward is significant in skating, but less in classic. The "free feeling" can be lost, especially when skating uphill, when the structure is too coarse. Learn more at www.swixracing.us and SwixNordic on Facebook.

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Application of CH, LF and HF Glide Waxes

General Discription

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GLIDE-WAXING

Practical Application of CH, LF and HF Waxes

This is a general description of the methods and products used by skiers on the field.



