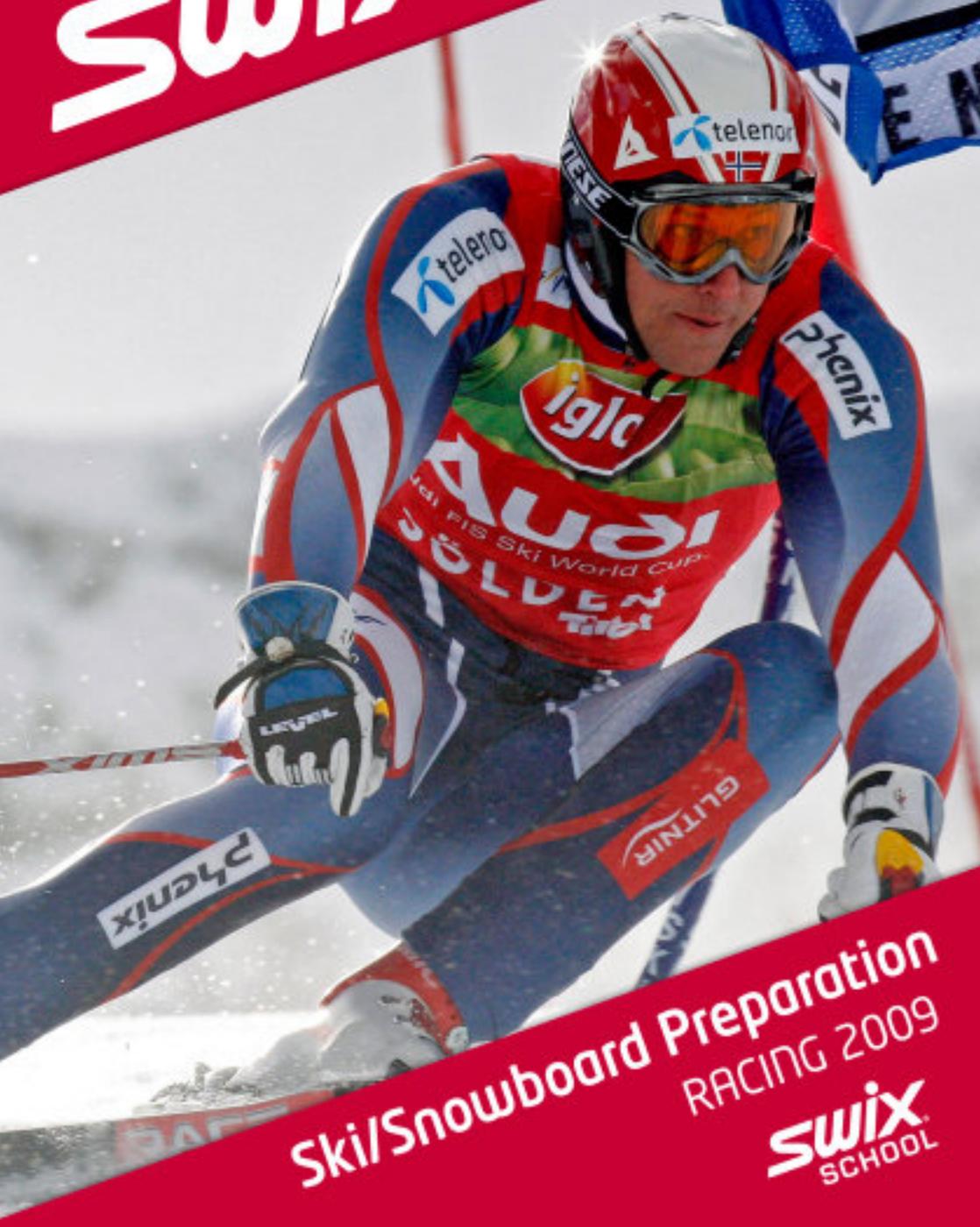


# swix®



Ski/Snowboard Preparation  
RACING 2009

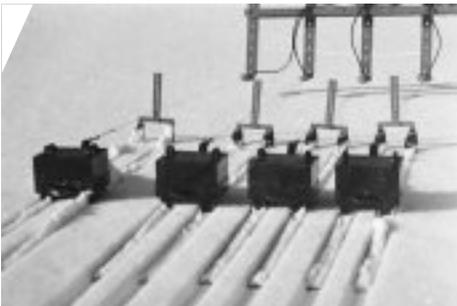
**swix**  
SCHOOL



Hot Waxing with the popular "Silver" when Swix was launched.



Test skier in speedtrap - 1946.



Scientific glide testing - 1946.

## Snow How Since 1946

Swix takes pride in its more than 50 year history as one of the strongest and most recognized brand names in skiing.

Followed by pioneering research work in the mid 40's, the Astra Pharmaceutical Company introduced revolutionary ski waxes based upon synthetic materials. The new 3-colored system was a breakthrough for all skiers, and demystified and simplified waxing. The new Swix system of waxing replaced the unscientific and often secret concoctions of tar, beeswax, melted bicycle tire inner tubes, and phonograph records, to mention just a few of the obscure ingredients.

This manual is made for racers and people who demand the absolute best performance from their skis and snowboards.

The information in this booklet is based upon feed back from our highly successful 2006 World Cup Racing Service Team. Swix takes part in the most important competitions with our own test team and service people. Testing and product development is done together with the ski and snowboard factories and their service technicians leading to new and better products.

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# Structure

When the base of a snowboard or ski has a certain surface structure, or texture pattern, the gliding performance is improved compared to a completely smooth base surface.

It is impossible to classify the infinitely variable types of snow and the unlimited number of possible structure patterns.

However, for practical purposes, structures can be grouped into three primary classifications:

- Fine Structures
- Medium Structures
- Coarse Structures

## Structures and Snowtypes

### FINE STRUCTURES

Fine structures are used mainly on new snow and fine-grained snow from 0°C and colder. Also used on older fine-grained snow from approx. -8°C and colder.

### MEDIUM STRUCTURES

Medium structures are used near the freezing point 0°C (32°F) in a range of about +4°C to -6°C with older fine grained snow.

### COARSE STRUCTURES

Coarse structures are used when the snow has gone through one or more cycles of thawing and re-freezing and/or in a melting state around freezing and we have coarse grained snow crystals. Typical snow temperatures are 0°C and air temperatures in a range of 0°C to +10°C.



## Structure Patterns

### LINEAR STRUCTURES

Fine Linear structures work well for colder, drier snow conditions.

### CROSS-STRUCTURES

The most often used structures are diagonal structures, stone-ground to cross type structures. They work better for snow with medium to higher moisture content and coarse snow crystals. This structure has an optical diagonal banding appearance that runs at an angle across the base. Too deep, coarse structures will affect the turning ability.

### BROKEN STRUCTURES

There are also numerous "broken" structure combinations produced by stone grinders or imprint tools. These vary in gliding property and turning ability.

## How to produce structures

Today almost all base structure patterns are created by the stone grinding process. Stone grinding machines have become amazingly sophisticated. The ability to control grinding parameters, and to duplicate specific structure patterns has greatly improved. Although it is still possible to create good structures by hand, it is so time consuming and limiting in terms of pattern types, that stone grinding is the more preferred method.

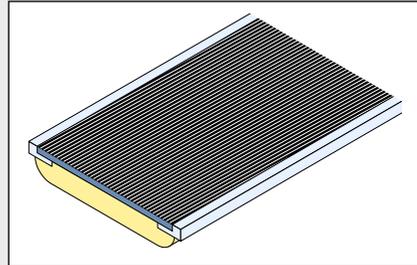
For top level racing, modern, high quality, stone grinding machines and knowledgeable operators are very important. The quality of the grinding result depends on the ideal selection of all the grinding machine parameters.

*Cutting Speed* - the rotational speed of the grinding wheel.

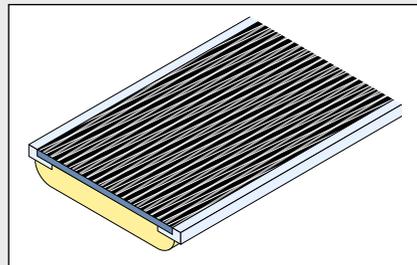
*Dressing Speed* - the speed at which the dressing tool is moved across the grinding stone's surface to prepare the grinding patterns.

*Feed Speed* - the speed the board or ski is moved over the grinding stone.

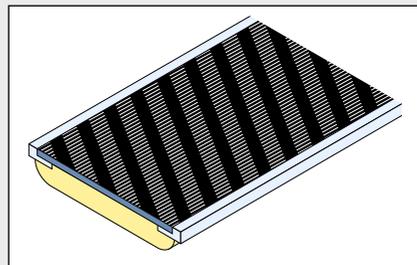
*Contact Pressure* - the amount of weight applied to the board or ski as it is moved across the grinding stone.



LINEAR STRUCTURE



CROSS STRUCTURE



BROKEN STRUCTURE

# Setting up Edge Angles

## SNOWBOARDS

A good vise is an enormous help when working on snowboards. Having the board constantly rotating and crashing around during edge work and waxing is really frustrating.

### BASE-EDGE

Having a base-edge bevel is important for snowboards. Exactly how much bevel is open for discussion, but some bevel is definitely recommended. Boards with railed edges (higher than the base) will ride erratically especially on flat terrain. Due to the high angle of the board when carving, and the strong leverage riders can apply to the single edge, edge-hold on very hard snow is less of a problem than with skis.

Generally a 1 degree bevel on the base-edge, and a 1 or 2 degree bevel on the side edge is used. Rounding off the edges at the tail and nose of the board is also important.

Start by setting up the base-edge bevel. The base bevel guides TA010 (1°) or TA015 (1.5°) provide an easy and accurate way of making base bevels for snowboards.

Once the desired bevel is reached using a bevel guide, that's as far as you can go. From then on, the base itself will prevent the file from reaching the steel edge. If the base edge needs filing again, then the bevel angle must be increased or the base surface taken down slightly by stone grinding. However, you should be able to maintain the base-edge with stones for a reasonable length of time before getting a new stone-grind in order to lower the base to expose more steel edge for beveling.

### SIDE-EDGE

Next bevel the side-edge to the desired angle. Use a file guide. For new boards insert a panzer file in the selected TA290/TA285 File guide with a clamp. The TA086/TA090 File guides with roller bearings for reduced friction are also preferred by many. The panzer file quickly shapes the edge. After initial geometry set-up, switch back to a normal file section. Use fairly light strokes while filing. Let the file do the work without being forced.

### DEBURRING AND POLISHING

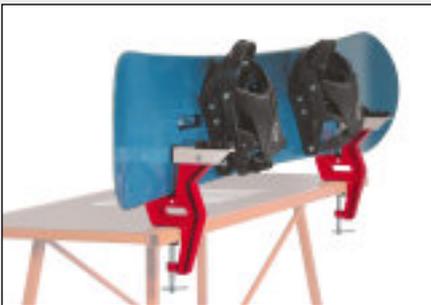
Polished edges are much faster, sharper, and will stay sharp longer. There are very small burrs left on the edge from filing. If these are left remaining, they tend to break away from the point of the angle causing the edge to become dull sooner. Use the Swix Fine Grit Diamond Stone (TAA600), the Swix Ceramic Polishing Stone (T0998), or the Swix Hard Gummy Stone (T0994).

## DETUNING

The edges should be rounded off with a file from the point where the edge contacts the snow, up around the tail and nose. Polish away the factory grinding or hand-file striations with a stone. Depending upon riding style and board manufacturers' recommendations, you might want to slightly detune (dull) the edges back from the contact point about 15 centimeters. Use the Swix Soft Gummy Stone (T0992). Swix Fibertex T266N also works for this. Rub the stone back and forth along the edge point to reduce the sharpness. This is good stone to carry with you - if the board is hooking at the ends of the turns more than wanted, detune the edge more and/or further back from the ends.

## Note:

Before filing edges, if you have hit rocks causing the damaged spot to become tempered, you must remove these hardened spots with a stone like the Swix T240. If not, the file will skid ("zing") over the hardened areas resulting in uneven sharpening. Removing the damaged spots with a stone is easy and very effective. It will make filing much easier than trying to fight through hardened steel, dulling the file.



### SNOWBOARD VISE (SB031)

Simple two piece vise for vertical and horizontal use.

## SKIS EDGE ANGLES

Edge bevels are a little more critical for skis than boards due to the independent edging action of two skis, less edge leverage due to narrower ski width and boot placement, and different types of turns than snowboarding.

### BASE EDGE

Once you reach the desired base edge angle using a guide, the base itself prevents you from returning to the original bevel. You will need to go to greater bevels in order to reach the steel edge with the file. You might want to consider starting with a new pair of skis with a base edge bevel of less than 0.5 degrees. Later, when the base edge needs resurfacing by filing, you can go to a 0.5 degree, and later perhaps to a

1 degree bevel. This might be what is happening anyway as you try to reach the edge by “cheating” just a little with the file and file guide.

After this point you will need to have the base slightly lowered by stone grinding, belt sanding, or sanding by hand. After the base and edge have been brought back to flat, you can once again set-up the desired base-edge bevel.

Once the base edge bevel is established, maintain it as long as possible using stones. When this can no longer be done effectively, it is time for a machine stone grind.

### SIDE EDGE

Side edge bevels are easy to set-up, maintain, and change if necessary. World Cup technicians always use guides and holders for the files. Usually for new skis (and boards) a short pansar

### HERE ARE SOME GENERAL GUIDELINES USED ON THE WORLD CUP:

SL base edge = 0 to 1 degree bevel

GS base edge = 0.5 to 1 degree bevel

SG base edge = 0.5 to 1 degree bevel

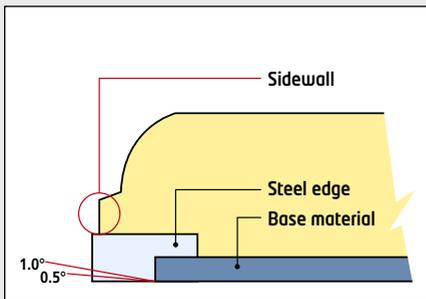
DH base edge = 0.5 to 1 degree bevel

SL side-edge = 3 to 5 degree bevel

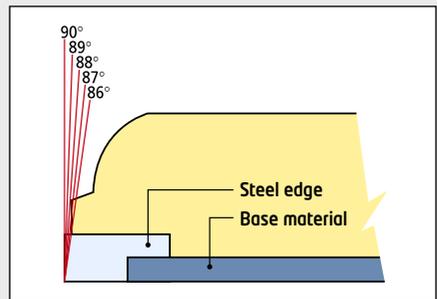
GS side-edge = 3 to 5 degree bevel

SG side-edge = 3 degree bevel

DH side-edge = 3 degree bevel



Base Edge Bevel - Usually 0.5 to 1 degree.



Side Edge Bevel.

file section is used for initial edge angle set-up. The pansar file quickly cuts away any irregular or hardened spots that might be remaining from machine finishing. Next the edge is sharpened using a normal file.

Side edge beveling has the effect of giving the ski edges more grip, or ability to hold on the snow surface. The harder the snow surface the more grip required to hold securely. Side edge beveling is normally in the range of 1 to 5 degrees.

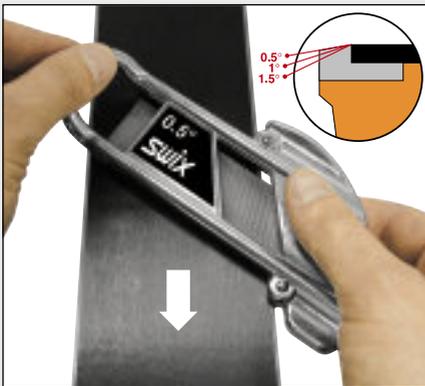
**POLISHING**

More tuning for increased performance is accomplished by polishing the edges. Polished edges are much faster, sharper, and will stay sharp longer. There are very small burrs left on the edge from filing. If these are left

remaining, they tend to break away from the point of the angle causing the edge to become dull sooner. Use the Swix Fine Grit Diamond Stone (TAA600), The Swix Ceramic Polishing Stone (T0998) or the Swix Hard Gummy Stone (T0994).

**DETUNING**

The edges should be rounded off with a file from the point where the edge contacts the snow, up around the ends. Polish away the factory grinding or hand-file striations with a stone. Depending upon skiing style and ski manufacturers' recommendations, you might want to slightly detune (dull) the edges back from the contact point about 15 centimeters. Use the Swix Soft Gummy Stone (T0992) or Diamond Stone (TAA200). Swix Fibertex T266N



**PROFESSIONAL  
 BASE-EDGE BEVEL  
 FILE SLEEVES -  
 EASY TO USE**



TA005, TA0075,  
 TA010, TA015.



**WORLD CUP SKI VISE (T0149-50)**

Swix three piece vise with wide jaws 50 mm for better grip and stability when working on carving skis and radial alpine skis. 40 mm to 85 mm.

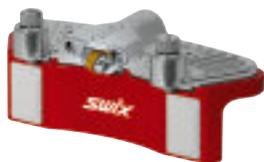
also works for this. Rub the stone back and forth along the edge point to reduce the sharpness. This is a good stone to carry with you - if the ski is hooking at the ends of the turns more than you want, detune the edge more and/or further back from the ends.

**Note:**

Before filing edges, if you have hit rocks causing the damaged spot to become tempered, You must remove these hardened spots with a carborundum stone like the Swix T240. If not, the file will skid (“zing”) over the hardened areas resulting in uneven sharpening. Removing the damaged spots with a stone is easy and very effective. It will make filing much easier than trying to fight through hardened steel, dulling the file.

**SIDEWALL REDUCTION**

After several side-edge filings it will be difficult to maintain the bevel angle because the file is hitting the edge off set or sidewall. Use then the TA100 Sidewall Cutter that now comes with round Titanium cutting blade. It will expose the steel edge and make it possible to work on the side edge.



**Sidewall Cutter Aluminium (TA100)**

## Edge Preparation Products

The Swix File & Stone Product group is designed specifically for edge work on skis and snowboards. The files' details such as chroming hardness and thickness, cutting tooth angle, depth, and teeth per centimeter, all are based upon expert advice from World Cup technicians and file producers. The line of stones is to-the-point to get the job done accurately and without confusion.



**Side Edge File Guides**

- for skis and snowboards  
0° (TA290), 1° (TA289), 2° (TA288), 3° (TA287),  
4° (TA286), 5° (TA285)



**Side Edge File Guide**

- with Roller Bearings and Clamp for skis and snowboards.  
4° (TA086), 3° (TA087), 2° (TA088), 1° (TA089),  
0° (TA090)



**Side Edge File Guide (TA3003)**

Professional Side edge sharpener. Adjustment from 90 to 85 degrees.

## STONES

Diamond Files offer the special option of having the cutting ability of a file and the deburring and polishing ability of a stone all in one tool.

The Diamond Files are perfect to carry in the pocket for quick removal of the fines burrs created on the edge when ski or riding on aggressive man-made snow. Just a couple of quick passes with the Diamond File on the side-edge will cut away the burrs for smoother turning. Will fit into the Swix file holders for the most accurate results.



### Diamond Stone (TAA100/TAA100S)

X-Coarse 100 grit. Deburring and sharpening diamond stone. Works great for removing case hardening in the tip and tail from grinding stone entry and exit of the ski at the manufacturing facility, and from hitting rocks. 100 mm/70 mm.



### Diamond Stone (TAA200/TAA200S)

Coarse 200 grit. Deburring and maintenance stone. One of two stones that can do it all in the diamond category. Works great for maintaining sharpness and smoothness. 100 mm/70 mm.



### Diamond Stone (TAA400/TAA400S)

Medium 400 grit. 2nd in your must have diamonds to maintain a smooth and sharp edge. Starts to bring out that high polish shine. 100 mm/70 mm.



### Diamond Stone (TAA600/TAA600S)

Fine 600 grit. First diamond stone when you have smooth, clean edge to start honing and polishing the set edge. Great grit for finishing tech skis. 100 mm/70 mm.



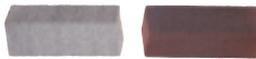
### Diamond Stone (TAA1000/TAA1000S)

X-Fine 1000 grit. Final diamond polish when looking for that mirror finish. Extremely exact edge accuracy. Used on alpine skis to achieve that super smooth finish. 100 mm/70 mm.



### Pocket stone (T0240)

Fine and coarse. Coarse side for removing hardened steel and burrs after hitting rocks. Fine side for polishing after use of file.



### Gummy Stone (T0992)

Soft, for prepping and de-tuning tips and tails.

### Gummy Stone (T0994)

Harder for polishing edges.



### Ceramic Stone Fine (T0998)

For final polishing of the edge. A very high quality ultra fine grit for final finish of the steel edges.

### RACING PROFESSIONAL FILES

The Swix file program offers specialized files of the highest quality. The files are made to our own specifications to meet the demands of World Cup Service Technicians.

The new Racing "X" files have been especially designed for sharpening ski and snowboard edges. The steel quality, the tooth geometry and the hardening process of the file ensure a high precision tuning and a top-quality surface.



#### WC Racing Pro Medium File (T0102X100B)

100 mm. 13 Tpi. Stainless steel. Extremely sharp high quality file for edge geometry set up. New generation of files that reduces the need for second use of files for finish. Lasts 10 times as long as regular files.



#### WC Racing Pro Fine File (T0103X100B)

100 mm. 17 Tpi. Stainless steel. Extremely sharp fine high quality file for edge geometry set up. New generation of files that reduces the need for second use of files for finish. Lasts 10 times as long as regular files.



#### Swix Fine File (T0104X120 and T0104X)

6"/15 cm. 20 tpcm, fine cut. Chromed Finishing File, shorter in length, increased TPCm to smooth out all Striations left by 2nd cut file. Most durable, best cutting 6" file Swix offers.



#### Swix 2nd Cut File (T0106X120 and T0106X)

8"/20 cm. 16 tpcm. Chromed all purpose file. Best all round shop/consumer file produced by Swix. Side beveling, base beveling set up before diamond work. Durable beyond all other files offered. A retail must for consumers.



#### Bastard File (T0107X120 and T0107X)

8"/20 cm. 13 tpcm. Chromed Bastard removal/setup file. Best file for setting side angle. Non-tang files offer a truer, flatter file for exact degree application. Best file for initial side bevel.



**Specially designed Panzer file (T0108X)**

30 cm/12" anti-rust treated file. Coarse, 13Tpcm. For initial edge "take-down" on new boards and skis after stone grinding. High steel removal power. Also can be mounted to the waxing table for sharpening acrylic scrapers, and for removal of excess polyethylene after base repair.



**Specially designed Panzer file (T0108SB)**

8.5 cm/3.5". Short version for use in file guides.



The X Games 2007.

# Base Brushing

## The Swix Brush Programme in General

The Swix Brush Program is subject to continuous development based on feedback from the Swix Racing Service Department that serves World Cup technicians, athletes, and teams throughout each season. As a result, Swix customers are guaranteed the highest quality products taking into account the latest developments and methods of World Cup technicians.

Swix Brushes are divided into three main categories of use, plus the economy line.

- The Swix "Pre-Wax" Brushes are designed to use before waxing for base restoration ("freshening") by removing the burnish and oxidization from the base surface, and brushing old wax out of the structures (base patterns) in ski and snowboard bases to clean and "open" the base for better wax absorption.
- The Swix "Post-Wax" Brushes are for use after waxing and scraping to brush the wax out of the base patterns. To many, these brushes are the most important. The base must be waxed, yet the structure patterns must also be revealed to minimize friction. The brushes in this category are designed to be efficient at removing wax but gentle enough to not have a base scratching effect.
- The Swix "Cera F" Brushes have the purpose of "application brushing" and final finish brushing. Professional technicians reserve these brushes just for use with Cera F so the final waxing result cannot be compromised with wax other than Cera F.



- The economy brushes are multipurpose brushes made as an affordable alternative for the sport skier.

For each of these categories the Swix brushes are carefully selected with special qualities in mind. Swix selects not only the specific material for each purpose, but also the certain length of each fiber, a certain thickness and stiffness for each fiber, and lastly, the bristle density. By specifying the characteristics thoroughly, each of the Swix brushes has its own "personality" and fulfils a specific purpose.

Most of the Swix brushes come in two sizes. The smaller rectangular are easy in use and convenient when travelling. The larger oval brushes are suited for efficiency and comfort when preparing multiple skis.

## Brushes used Before Waxing

### T192/T188 Steel Brush

A fine steel brush for "cleaning" deep into the structure before waxing. 5-6 strokes. For refreshing the base. Makes bases absorb more wax.



## Brushes after waxing and scraping

### T1790/T179R Steel Brush (or T162/T182 Bronze Brush)

A medium coarse steel or bronze brush to use after waxing and scraping. 10-12 strokes.

### T160/T186 Blue Nylon Brush

A fine soft nylon brush for polishing. 4-5 strokes.



Kenny Nault,  
 Technical  
 Freeride Director  
 in the USA,  
 at the X Games  
 2007.



**It is recommended to use separate brushes for the waxes from the brushes used for Cera F.**

## Brushes for Cera F Powder

### T194/T199 Stiff Nylon Brush

For “brush up” (not away) of Cera F powder after ironing (and before ironing FC7 and FC78 the second time). 4-5 strokes back and forth.

### T157/T195 Horsehair Brush (or T164B/T198B Wild Boar Brush)

Second brush on Cera F powder. An “animal” brush for brushing powder away. 10-12 strokes.

### T160/T186 Blue Nylon Brush

A fine soft nylon brush for polishing. 4-5 strokes.

## One brush for Cera F Solid Turbo

### T196 Combi “Turbo”Brush

This is another handy brush, that some World Cup Technicians use at the race start site for second-run. Cera F Solid application. This brush has natural cork on one side and short, fine nylon bristles on the other.

## ROTO BRUSH PROGRAM

Use of a Roto Brush is a great way to save time when there are many skis or boards to prepare. For club team racers where coaches and parents are preparing the skis for the entire team, a Roto Brush is almost a necessity. Even many top level technicians will use Roto Brushes for initial brushing after scraping, and then usually finish with hand brushing. Also Roto-corking is often the preferred way to apply Cera F Powder, Solids and Liquid.

The best drill choice for roto-brushing is one with a power cord rather than batteries. These drills retain a more constant speed, have higher revolution per minute capacity, and variable speed options. RPMs from about 1000 to 2000 are used for brushing.

**T16M Horsehair**

The best all round brush. The initial brush on all waxes. Used on regular waxes and Cera F. (Do not use the same brush on regular wax and Cera F.) 100 mm wide.

**T17B Black Stiff Nylon**

Special brush for hard cold waxes. Can also be the first brush on Cera F. 100 mm wide.

**T17W White or Blue Nylon**

Polish brush for wax and Cera F. Also preferred by some as “all round” brush. 100 mm wide.

**T15HPS**

Handle with 140 mm driveshaft and 100 mm wide protection cover.

**T14HPS**

Handle with 100 mm driveshaft and protection cover.

**T18C Cork**

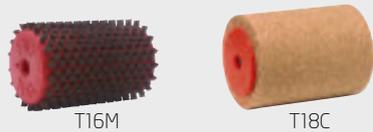
High quality cork for Cera F application of powders, liquids and solids. 100 mm wide.

**T19S Steel**

Fine steel brush to clean base structures before waxing. Can be used as second brush on wax after T16M Horsehair brush.

**NOTE!**

- Always use safety glasses when roto-brushing.
- Use the Protective Cover (T12PS) to avoid getting wax particles and powder in the face.
- Don't press too hard, let the brush do the work!
- Brush from tip to tail with the brush rotation throwing the wax particles towards the tail.



T14SS - 100 mm

T14SM - 140 mm

T14SL - 200 mm

# Factors Influencing Waxing

## Temperature

The temperatures shown on the Swix wax products are normally both snow and air temperatures. If nothing is specified, the temperatures are air temperatures. Taking a reading of the air temperature in the shade is the first basic starting point for wax selection. This should be done at several points along the course especially keeping in mind where the most critical point is, such as a flat section. Snow temperature at the surface can also be helpful. But remember that once the temperature reaches the freezing point (0°C or 32°F), snow will remain at that temperature regardless of rising air temperature. At this point it is best to use air temperatures and focus on the proper steps for dealing with the increased water content of the snow.

## Humidity

Humidity is important, but more as a local climate trend rather than a need to measure every percentile. It is important to know if the competition is taking place in a dry climate, meaning average humidity below 50%; a normal climate of 50% to 80%, or a high humidity climate 80% to 100%. Beyond this, of course, is adjusting to the situation of falling precipitation.

## Snow Granulation

The appearance of the snow crystal and consequent snow surface is important for wax selection. Falling, or very fresh new fallen snow is the most critical situation for waxing. The sharp crystals require a wax that will resist snow crystal penetration, but at warmer temperatures must also have the ability to repel water. It is in this special, critical waxing situation that Cera F excels.

Man-made snow is today the most common snow in racing situations. Freshly made snow at cold temperature definitely require the addition of synthetic paraffin such as with CH4, LF4, HF4 and CH6, LF6, and HF6. After man-made snow has "settled" for some days and the surrounding atmosphere has affected the snow surface, the gliding characteristics of the snow improve and normal waxing considerations return.

At rising air temperatures above 0°C (32°F) the snow temperature still remains at 0°C (32°F). The water surrounding the snow crystals increases until the snow pack becomes saturated with water. Waxes that are highly water repellent and coarse base structures are needed.

## Snow Friction

The friction on ice and snow is a mixed friction. It means that it is neither a true dry friction nor a true fluid friction. The contact is partly dry, partly wet. At very low temperatures the frictional mechanisms gradually might be described by laws governing dry friction.

At intermediate freezing temperatures, around -4°C to -10°C (25°F to 14°F), the water film between the frictional partners has the optimal thickness to create low kinetic friction.

Approaching the freezing point, the water film increases in thickness, and when conditions for melting is present, free water enters the system.

The contact area between ski and snow increases and the friction will increase. Suction gradually builds up as the amount of water increases.

# swix HIGH PERFORMANCE GLIDEWAX

# CERA NOVA

With fluorinated compounds from **Miteni (Italy)**



	110°C (230°F)	120°C (245°F)	135°C (275°F)	140°C (280°F)	150°C (300°F)
CATEGORY 2 High Fluorocarbon BW					
CATEGORY 3 High Fluorocarbon HF					
CATEGORY 4 Fluorocarbon LF					
CATEGORY 5 Hydrocarbon CH					

PH080

# Cera F Powders, Solids and Liquid



## SWIX CERA F - Still...

- **The Most Trusted**
- **The Fastest**
- **The Highest Purity**
- **The Most Podium Results**

Refinements and improvements were made to the Cera F Line in 2008, and testing is ongoing as usual for further refinements in the quest to be able to supply racers and snowboard riders with the best possible glide performance.

There are many fluorocarbon products in the market, but very few have gone through the synthesizing steps to modify the fluorocarbon powder like Cera F for specific use on ski and snowboard bases.

Swix Cera F has a coded batch production system for tracking quality control. The result is:

- Longevity, outstanding base bonding capacity
- Speed and acceleration
- Resistance to snow contaminants
- Exceptional purity for best performance

Also, Cera F powders, waxes and liquids do not contain CFCs and are not harmful to the environment.

## Safety reminder

Neither Cera F powder or its vapor from ironing should be exposed to temperatures above 300°C (570°F). Therefore avoid exposure to torches, heat guns, space heater, and cigarette smoking.

Recommended ironing temperatures for Cera F are approximately 150°C/165°C (300°F/330 F) which are far below the level for Cera F decomposition.

**Category 1:**  
**100% Fluorocarbon**

## Cera F Powder

### FC78 - Super Cera F Powder

A sensational new Cera F powder with a wide ideal range from +1°C to -10°C. Positioned between FC8 and FC7. Used with a base of HF4, 6, 7 or 8, or HFBW4, 6, 7 or 8. High melting point 144°C. Recommended iron setting 165°C (330°F). with a 5 to 6 second pass of the iron. FC78 is ironed twice during application. Iron, brush back to powder form, and iron again. Available in packages of 30 gram.

OBS! Should be used by experienced waxers to avoid overheating of ski base.

### FC7 - Cera F Powder Cold

The Cera F for cold conditions. Very wide range in colder and dryer conditions, new or old snow, -2°C to -30°C. Used when the snow is icy, man-made snow as for top level races and half-pipe competitions. Iron temperature setting of 155°C with a 5 to 6 second pass of the iron. FC7 is most often ironed for better base bonding, and because of its high melting point (hardness). FC7 is ironed twice during application. Ironed, brushed back to powder form, and ironed again. FC7 can also be applied using the Roto-Cork, or by hand corking. The base waxes for FC7 are generally HF6, HF6BW or LF6, HF7, HF7BW or LF7. Available in packages of 30 gram.

### FC8 - Cera F Powder All round Conditions

The temperature range for this powder falls within the average, normal winter temperatures, and therefore FC8 is the most used of all Cera F waxes. Temperature range is +4°C to -4°C (40°F to 25°F). FC8 is ironed once. Maximum ironing temperature setting of 150°C (300°F). One pass with the iron taking no more than 5 or 6 seconds. Roto-Cork or hand corking application is also possible. The base waxes for FC8 are HF8, HF8BW or LF8. Available in packages of 30 gram.



### FC10 - Cera F Powder Wet

This powder is designed for very wet conditions. The temperature range is from +2°C to +20°C (36°F to 68°F). Good during thawing conditions, late season when there is strong sun effect, and wet falling snow at 0°C (32°F). Iron once at maximum ironing setting of 150°C (300°F) with a 5 or 6 second pass of the iron. Application with the Roto-Cork or hand corking is also possible. The base waxes for FC10 are HF10, HF10BW or LF10. Available in packages of 30 gram.

### FC10B0 - Cera F "Black Snow" Powder

Cera F for wet transformed "dirty" snow, 0°C to +20°C. FC10 with black lubricant additive that reduces friction in polluted wet snow. Used with HF10BW or HF8BW. Iron once at maximum ironing setting of 150°C (300°F) with a 5 or 6 second pass of the iron. Application with the Roto-Cork or hand corking is also possible. Available in packages of 30 gram.

## Application of Cera F Powder by ironing and corking

*Swix Waxing Techniques are also available on the Swix Website in video form in "The Swix School".*

Cera F is applied using an iron more often now due to increasingly aggressive characteristics of man-made snow for top level races. For natural snow, or normal (less icy) man-made snow, Cera F can still be applied just by corking.

### IRONING

1. Set the iron temperature to the maximum setting, FC78: 165°C, FC7:155°C, FC8: 150°C, FC10: 150°C, FC10B0: 150°C.
2. Apply an even layer of the powder on the base. Or, if using Cera F Solid, apply an even layer of the block form. Lightly touch the iron along the base to stick the powder to the base.
3. Iron the powder into the base. Make just one pass with the iron taking not more than 5 - 6 seconds to go the length of the ski or board. In the case of snowboards, make one pass on each half of the board.
4. Use a stiff Nylon Brush (T199/T194N) to "brush-up" the powder. Use a firm back and forth scrubbing motion. (If using FC78 or FC7, at this point you should make a second pass with the iron.)
5. Continue with a Wild Boar (T164/198) or Horsehair Brush (T157). 10-15 strokes.
6. Finish by brushing with a Blue Nylon Brush (T186 or T160), using about 10 strokes of the

brush. Use firm short strokes working your way along the base from tip to tail. Lightly wipe off any remaining powder dust with Fiberlene. Further polishing is not necessary.

For FC10, FC10B0 and FC8, it is recommended to iron only once. For FC78 and FC7 powder, due to its higher melting point, you should iron twice. This means after the "brush-up" Step 4, make another five second pass with the iron, and then continue with the remaining corking and brushing steps.

### Note:

It is not recommended to use brushes with metal bristles when working with Cera F powder or Cera F Solid.

### CORKING

1. Sprinkle an even layer of powder on the base. When corking, less powder is needed than for ironing. A layer of Cera F can also be applied by rubbing on a layer using Cera F Solid.
2. Polish the powder into the base using the Swix Natural Cork (T22) or Combi Cork/Nylon Brush (T196). Use firm pressure back and forth so the cork will generate heat causing the powder to form a way film.
3. Use the Horsehair Brush (T157) or Wild Boar Brush (T164/T198). Use a firm back and forth scrubbing motion to further polish the powder into the base pattern.
4. Brush the excess powder off the base with the Blue Nylon Brush (T196, T160 or T186). 10-15 strokes.

**Category 1:**  
**100% Fluorocarbon****Cera F Solid Turbo**

The Solid versions of Cera F Powder are 100% fluorocarbon powder pressed under very high pressure into solid 20 g. blocks. In addition, they contain the BD solid lubricant additive. The purpose of the solid forms of Cera F is for on-hill, rub-on application when it is not possible to return to the indoor waxing rooms when competitions require more than one run.

- 1: Rub on a thin even layer.
- 2: Cork into the base with the Swix Natural Cork (T20) or Combi Cork/Nylon Brush (T196).
- 3: Brush the base with the Combi Cork/Nylon Brush (T196) or a Swix Blue Nylon Brush (T160/T186).

Cera F Solid can also be ironed on.  
See application steps for Cera F Solid.

**FC7BS - Cera F Solid "Cold Turbo"**

100% fluorocarbon solid block of wax.  
Temperature range from -0°C to -20°C (earlier FC1S). For transformed/man made snow. The black additive has positive effect in cold snow, dry friction. Used alone or as the final "accelerator" layer.

**FC8WS - Solid White Uni Turbo**

100% fluorocarbon solid block of wax.  
Temperature range from +4°C to -4°C. For fine grained snow. For clean white snow covering most normal winter conditions. Wide range. Used alone or as the final "accelerator" layer.

**FC10BS - Solid Wet Turbo**

100% fluorocarbon solid block of wax.  
Temperature range from 0°C/+20°C.  
For wet/polluted/coarse snow. The black lubricant additive has positive effect in polluted snow. Used alone or as the final "accelerator" layer.

**Category 1:**  
**100% Fluorocarbon**

## Cera F Liquid

### Boost Your Performance to the Max

Swix Cera F Liquid is designed for use as the final layer when waxing for top-level competitions. Based on Cera F technology, Swix Cera F Liquid offers the same high performance quality as the Cera F Powder Waxes.

Quick and easy to apply, Cera F Liquid is also ideal for the quick performance fix at events with multiple runs, such as the second run in alpine races and half-pipe competitions. The snow should be moist to wet, and not new. There are several ways to apply Cera F Liquid:

#### ROTO-CORKING

Shake well. Then apply a layer of liquid using the included felt applicator or with Fiberlene. Allow 5 minutes for the liquid to dry.

Set Roto-Cork at approximately 1500 RPMs using medium pressure and a short back and forth motion working along the base from tip to tail. Continue with the Swix Horsehair Hand-Brush (T157) or Wild Boar Brush (T164/T198), and finish with the Swix Blue Nylon Hand-Brush (T160/T186).

#### HAND CORKING

Shake well. Apply the liquid, allow 5 minutes for the liquid to dry.

Cork into the base with the Swix Natural Cork (T20) or Combi Cork/Nylon Brush (T196).

Brush the base with the Combi Cork/Nylon Brush (T196) or a Swix Blue Nylon Brush (T160/T186).



#### FC8L Cera F Liquid

100% fluorocarbon. For normal snow conditions +4°C to -4°C (40°F to 25°F). 29 ml.

#### FC10L Cera F Liquid

100% fluorocarbon.  
+2°C to +20°C (36°F to 68°F). For wet fine grained snow and very wet corn snow. 29 ml.

#### IRONING

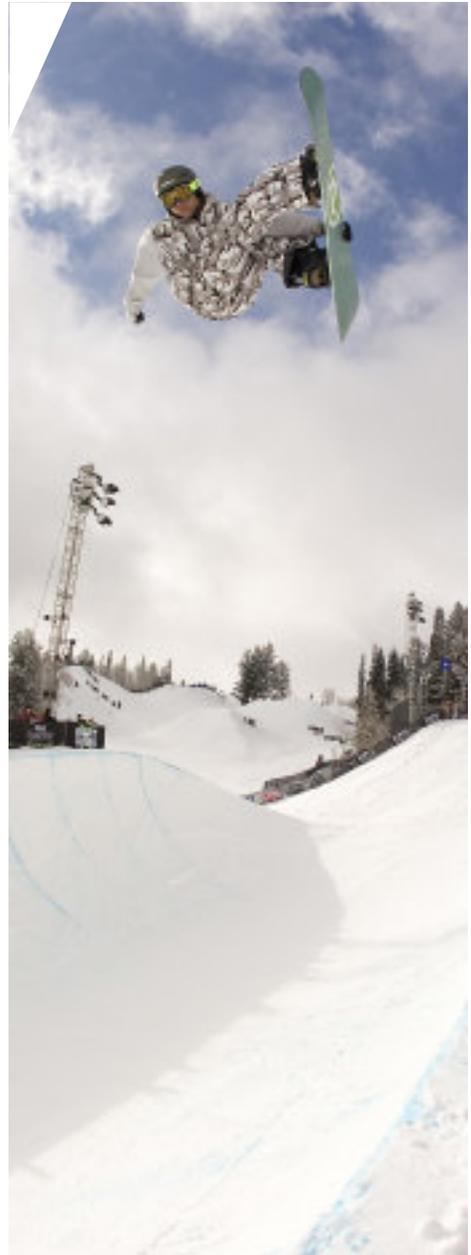
Shake well. Then apply a layer of liquid twice using the included felt applicator or with Fiberlene. Allow 5 minutes for the liquid to dry. Set the iron at 145°C (293°F). Make a pass with the iron of 5 seconds. The liquid will bubble like it is boiling, but no harm is being done to the base. Allow cooling for about 5 minutes, then brush with Swix Horsehair Brush (T157) or Wild Boar Brush (T164/T198). Additional final brushing can be done with the Swix Blue Nylon Brush (T186/T160).



### FC8A - Cera F Rocket Spray

100% fluorinated. +4°C to -4°C. For transformed and fine grained snow. Apply on top of HF10, 8, 7 or HFBW10, 8, 7. Also used on top of Cera F powder as “topping”.

New upside down spray-on for better controlled application. Bottle of 70 ml.



**Use of Cera F Liquid as the final layer will absolutely assure that there are no voids in the pure fluorocarbon wax layer resulting in the highest possible speed performance.**

Category 2:

## HFBW Waxes



HFBW Black Wolf is a result of years of intensive research to improve our gliding products and fully substitute the BD-line. The waxes have provided excellent results in the World Cup. The Black Wolf series strength is its performance on artificial snow, transformed snow and dirty snow and also at cold conditions when the dry frictional phenomena is relatively high. This patented additive gives lower frictional coefficient to the waxes than the BD-additive. Available in 40 gram or 180 gram bar size.

### HFBW

Black, -10°C to -32°C. Made for extremely cold conditions, contributing to a high portion of dry friction. To be used alone or as a base for Swix Cera F FC7.

### HFBW

Black, -6°C to -12°C. Very well suited for man-made snow during cold conditions. The BW-additive reduces friction towards snow-particles and has excellent wear resistance. Mainly used as a base for Swix Cera F FC7 or FC78.

### HFBW

Black, -2°C to -8°C. Easy application. Good dirt resistance. To be used on man-made snow or transformed snow, partly polluted. Used as a base for Swix Cera F FC7, FC78 and FC8.

### HFBW

Black, +1°C to -4°C. Performs extremely well on man-made snow or transformed natural snow as well as dirty snow due to resistance towards pollutants. Normally used as a base for Swix Cera F FC78 or FC8.

### HFBW

Black, +10°C to 0°C. The softest wax in the Black Wolf -line. The preferred choice on wet, dirty, coarse-grained snow as a base for Swix Cera F FC10 or FC10B0.

**Category 3:**

**HF Waxes**



The Swix Cera Nova System is the most used wax line in World Cup competition. The Cera Nova High Fluorocarbon Waxes – HF, topped with Cera F have become a World Cup standard. HF means high performance. Beware of brands using the Swix “HF” classification but having far less fluorocarbon content. The lower price of these brands suggests simplified, lower raw material quality, and/or reduced fluorination, and as a result – less performance.

Swix HF Waxes mean high performance from high water repellency, high resistance to snow contaminants, and high longevity. Trust the best! Available in 40 gram or 180 gram bar size.

**HF4**

Light green, -10°C to -32°C (14°F to -25°F). Normally at temperatures this cold, the advantages of fluorocarbon content become less. However when the humidity is very high, above 80%, and it is very cold, this wax is excellent. It is not necessary to use Cera F as an overlayer. Formula is upgraded for 06/07.

**HF6**

Light blue, -6°C to -12°C (21°F to 10°F). At this temperature point the base blend to which the fluorocarbon is added also contains a combination of hard synthetic paraffins which have proven very effective at colder temperatures and abrasive man-made snow. Used very often in combination with HF7, or used alone with high humidity (over 70%) from -8°C to -12°C on new snow and -10°C to -12°C on old snow. For lower humidity it is often mixed with LF6 and

CH3 for hard icy slope conditions.  
Recommended final Cera F powder layer: FC7.

**HF7**

Violet, -2°C to -8°C (28°F to 18°F). HF7 fits the important wax conditions that fall between -2°C to -8°C (28°F to 18°F). This popular formulation requested by World Cup technicians can be used alone or mixed with other waxes. Its consistency makes it easy to iron and scrape. Cera F Powder FC7.

**HF8**

Red/pink, +1°C to -4°C (34°F to 25°F). This wax falls into in a common wintertime temperature and therefore is used often. The combination of HF8 and FC8 Cera F as the final layer has become a highly successful racing standard.

**HF10**

Yellow, +10°C to 0°C (50°F to 32°F). For very wet conditions. Falling wet snow, rain, and a water saturated snow surface. At these temperatures dirt in the snow is often concentrated at the surface, therefore HF10 is best used with Cera F, FC10 as an overlayer. HF10 is often mixed with HF8.

**HF12**

COMBI. Contents HF7 Violet 20 g and HF8 Pink 20 g. Two of the most used HF waxes in one package. An economical way to get into the HF-line.

#### Category 4:

### LF Waxes



LF stands for Low Fluorocarbon. These are fluorinated hydrocarbon waxes having a lower percentage of low melt-point fluoro additive. They are used as training waxes, or as racing waxes with Cera F as a final layer, or alone as a race wax mostly at lower temperatures. The temperature ranges and wax colors of the LF waxes coincide with the HF category, however they are distinguished from the HF waxes by the 60 gram bar size. They are also available in packages of 180 gram.

#### LF4

Light green, -10°C to -32°C (14°F to -25°F). For use alone at low humidity at very cold temperatures and harsh man-made snow.

#### LF6

Light blue, -6°C to -12°C (21°F to 10°F). Very good as a base layer for other waxes. Also a very good training and racing wax alone in low humidity conditions. At this temperature range the addition of synthetic waxes increase the resistance against wear on aggressive man-made snow. Many times also mixed with HF6, HF7 or LF4. In World Cup often used with FC7 as final overlay.

#### LF7

Violet, -2°C to -8°C (28°F to 18°F). Very good race wax at low humidity. Often mixed with LF6, HF6 or HF7. For racing at normal and high humidity Cera F FC7 is recommended as final overlay.

#### LF8

Red/pink, +1°C to -4°C (34°F to 25°F). The low-percent fluorocarbon counterpart to HF8. For racing it is recommended to use Cera F FC8 as the final overlayer within this temperature range. Also used very often as a wax for training, travelling and cleaning.

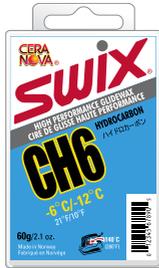
#### LF10

Yellow, +10°C to 0°C (50°F to 32°F). For very wet conditions. Also good for base preparation and to protect the bases when traveling. The snow is often dirty at the temperatures calling for LF10, therefore an overlayer of Cera F FC10 is recommended.



#### LF3

LF3 Cold Powder. -10°C to -32°C (14°F to -25°F). 50 g. A very hard powder wax having a high content of fluorocarbon material. Used when the snow is very fine-grained and very cold. Easy to iron and scrape. Also helps to reduce base abrasion on cold, aggressive snow.

**Category 5:****CH Waxes**

CH stands for Hydrocarbon. This category has no fluorocarbon material in the blends. They are 100% high performance hydrocarbon paraffins. Although they can be looked upon as an economical racing wax group, the colder waxes perform very well alone.

Their colors and temperature ranges coincide with the HF and LF Waxes. The CH waxes can be distinguished from the LF waxes by their darker shade of color. They are 60 gram bars or packages of 180 gram.

**CH3**

-12°C to -32°C (12°F to -25°F).

A pure white hydrocarbon powder for very cold conditions. Can be used alone or as a base for other waxes during abrasive conditions. Easier to apply and scrape than other cold conditions waxes.

**CH4**

Green, -10°C to -32°C (14°F to -25°F).

CH4 is slightly harder than HF4 and LF4. It can be mixed with other Cera Nova waxes to increase durability on ice and aggressive man-made snow, especially for slalom and giant slalom.

**CH6**

Blue, -6°C to -12°C (21°F to 10°F).

Common wintertime temperature range plus the addition of some synthetic wax to further adapt the wax for man-made snow.

CH6 is a very good wax for training and racing. It offers good glide plus base protection at an economical price.

**CH7**

Violet, -2°C to -8°C (28°F to 18°F).

CH7 is a good general purpose pre wax and travel wax because its range for use falls in the middle of the system. CH7 makes a good base bonding wax for either warmer or colder waxes applied later.

**CH8**

Red/pink, +1°C to -4°C (34°F to 25°F).

A very good, reliable and economical racing wax, as well as a general base prep wax and "travel" wax.

**CH10**

Yellow, +10°C to 0°C (50°F to 32°F).

For very wet, saturated snow. Also a good wax for base prep and travel wax.

# Swix Special Waxes

## How to avoid base burn on abrasive snow:

- 1: Sprinkle CH3 powder along the base near the edges.
- 2: Use a scraper to push the powder in a row approx. one centimeter from the steel edge.
- 3: Iron carefully so the wax melts into the base along the steel edge.
- 4: Allow the base of the ski or board to return to room temperature.
- 5: Scrape and brush as usual.
- 6: The waxes of the day are applied as usual on top and on the rest of the base. In slalom on icy, abrasive man made snow, apply CH3 on the entire width of the base.

## Base Prep Wax (BP88)

This is a special CH blend requested by World Cup technicians for use during initial base preparation and travel waxing. It is economical yet still made with a blend of the highest quality paraffins and microcrystalline waxes.

## Base Prep Cold (BP77)

This is a blend requested by World Cup Technicians for use on "cold" snow skis. Used on new skis and as travel wax.

## MB77

A fluorinated wax formula for conditioning ski and snowboard bases. Formulated for mid-range temperatures plus the addition of molybdenum for further resistance to snow abrasion. Can be used alone for general skiing or training, and can also provide a base for Cera F Powders and waxes. Recommended iron setting: 135°C (275°F).



## GW66

Great wax and protection for board and ski bases on glacier snow. Specially formulated for summer training to provide resistance to base abrasion, resistance to dirt, and snow treatment chemicals while still maintaining fast and smooth gliding properties. To be ironed. Recommended iron setting: 140°C (280°F).

## Travel Wax

Bases should not be left exposed to the air for extended periods of time without a protective

layer of wax. Following the race or training, when travelling to the next site, it is a good idea to apply a ironed layer of wax. In this case scraping is not done until it is time to prepare the skis once again for racing or training. The wax layer prevents the base from oxidizing and from getting scratched or dirty.

A good choice of wax for storage or transport is BP88, CH7 or LF7. These waxes have an inter-

mediate range for temperature and use. It is easy and effective to adapt the base to warmer or colder waxes from the temperature range of "7". Also, sometimes, due to late arrival at the race site, there is not enough time to take all the steps for preparing the skis. By having a wax on the skis in the range of "7" all that is necessary is quick scraping and brushing and most conditions will be adequately covered.



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SCHOOL

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## SAFETY RECOMMENDATIONS

- o Wax room ventilation. Make the extra effort to see that the area where you work on skis has exhaust fans and fresh air supply. Race organizers usually give the location for working on race equipment too low a priority, and often the waxing areas have little or no ventilation.
- o Do not expose waxes to open flames such as from a waxing torch, heat guns, space heaters, fire places, etc. Do not smoke cigarettes while waxing with fluorocarbon or fluorinated hydrocarbon waxes. In fact, don't smoke at all! There is a chemical danger associated with fluorocarbon waxes when they are overheated. If fluorocarbon waxes are exposed to a heat source having a temperature higher than approximately 300°C (570°F), the fluorocarbon material disintegrates developing a poisonous gas. Normal iron temperatures will not cause a harmful breakdown of Swix waxes.
- o When using power brushes for brushing waxes a substantial amount of wax "dust" particles occur. To prevent inhalation of the particles use a "particle" mask. This can be the paper-type used in wood working.
- o Use safety glasses when Roto-brushing.
- o If you question the quality of the waxes you are using, or feel that your exposure amount to waxing is extensive, use a respirator mask. It should be a cartridge type for filtering organic vapors. This type of mask is important to use when doing base repair with a burning polyethylene repair candle or base welder.
- o Be aware of the type of base cleaner you are using. Have good ventilation. And dispose of the rags or Fiberlene properly.

# Ironing

## Important rules:

- 1: Using the proper iron that keeps a stable temperature.
- 2: Using the proper iron pass speed, like 5 to 6 seconds per length for Cera F.
- 3: Ironing at normal room temperature.
- 4: Having the proper ski base condition at the start of the process.
- 5: Don't hold the iron in one place for any length of time!



### T72 "World Cup" Digital iron (T72110)

With a 12 mm extra thick heating plate which provides optimal temperature stability. New generation and patented "Heating paste technology".

This digital iron utilizes an advanced microchip to control the temperature. Easy to set temperatures by pressing buttons, temperature given in an accurate digital temperature display. The heating plate is angled in one end for easy and precise application control when waxing with Cera F powders. Wax-guide with the right temperature setting for each category included.



### T73 "Performance" iron (T73110)

New generation and patented "Heating paste technology". With 8 mm thick heating plate giving a stable temperature. Accurate temperature control by microchip and a new dial design. Heating interval from 100°C to 165°C (212°F to 330°F). The heating plate is angled for easier application control when waxing with powders. Wax-guide with the right temperature setting for each category included.



### T74 "Sport" iron (T74110)

Economical iron with adjustable temperature. Standard heating plate. Light indicator for correct temperature setting. With clip for the FCI method: Fast Clean Ironing with paper between the wax and the base.



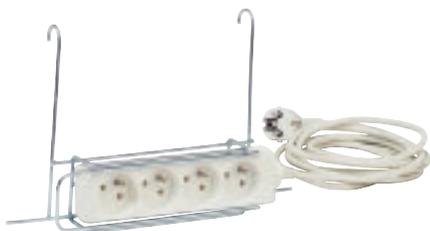
**Swix Iron Cover (R0384)**

For protection and easy traveling. Fits all irons.



**Practical Waxing Iron Holder (T0073-H)**

For mounting on to waxing table or workbench. Reduces the risk of dropping a valuable iron on floor. Fits all Swix Irons.



**Socket Holder (T0076ES)**

To mount on T76 waxing table.





— 165°C/155°C  
330°F/310°F



— 150°C  
300°F



— 150°C  
300°F



— 140°C  
280°F



— 135°C  
275°F



— 120°C  
245°F



— 110°C  
230°F

## STEP BY STEP TREATMENT OF BOARDS AND SKIS WHEN NEW OR AFTER STONE GRINDING

Skis or boards put through a stone grinder and structured by hand need accurate follow-up treatment for optimum performance. This process depends partly on the type of pattern given to the base.

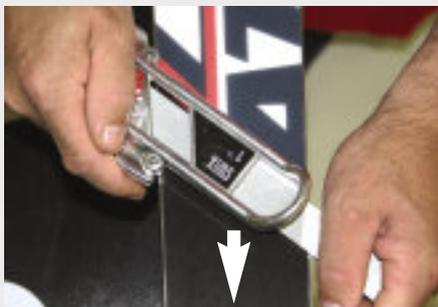
Cold snow patterns need more extensive treatment than wet snow patterns. It is very critical that all micro-burrs are removed from the base, in cold snow conditions.



- 1.** Work the base with Swix Fibertex T266N, violet color, both directions at least 100 times. This removes oxidation and polyethylene micro fibers (hairs) from the surface.



- 2.** During the Fibertex treatment, use the Steel Brush (T179) from time to time to help lift and expose fibers to be cut away with the Fibertex.

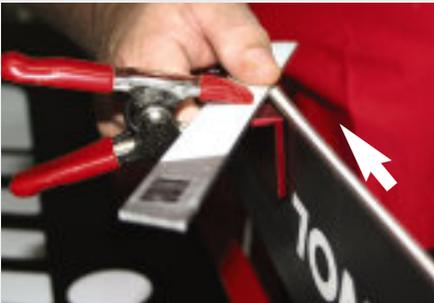


- 3.** Base edge filing with Chrome file (T107X or T106X). Use Swix Base Edge Bevel Guide (TA005). 0.5° bevel is most common.



**4.**

Sidewalls may need to have be cut back or planed to expose more steel edge before filing. Use the Sidewall Cutter (TA100).



**5.**

Side edge filing. Initial filing with Panzer File (T0108) one or two strokes is enough. Finish filing with Chrome File (T0106X). Most used angles in SL and GS are from 2° to 5°.



**6.**

Deburr the edge by running a fine grit stone along the edge. A smooth edge without burrs will keep its sharpness longer. Use the Swix Ceramic Stone (T0998) or a Diamond Stone (TAA100).



**7.**

Clean with soft waxes CH10 or CH8 at least twice to remove the filings and particles from Fibertex. Use Hot Scrape Cleaning Method - see page 57.

Simultaneously the soft wax also saturates and protects the base, which later is treated with a harder wax.



**8.**  
Moisten a piece of Fiberlene (T150) with the Glide Wax Cleaner (I84) and apply to the glide zone of the base.



**9.**  
Rub forward and backward a few times with a Nylon Brush (T161B).



**10.**  
Wipe off as much as possible with Fiberlene (T150).

Let the ski dry for 5-10 minutes.



**11.**  
Brush firmly with the Steel Brush (T179R).  
The ski is now ready for application of new glide wax.



**12.**

Iron on the harder CH4 or CH6. Just melt the wax on the base surface without heating the entire board or ski. The purpose is to lift and stiffen polyethylene micro-hairs to be more easily cut away with the scraper.



**13.**

Scrape away the layer of CH4 or CH6. Use a sharp acrylic scraper. Use light strokes, shaving away the excess wax.



**14.**

Brush the base using the Steel Brush (T179R), approx. 50 strokes.



**15.**

Hot wax with CH8 or BP88. Let cool approx. 5 minutes. Scrape with 3 mm plexi scraper (T0823) and brush with Steel Brush (T179R). Repeat 5 to 10 times before skis are put on snow.

**Continuous use of skis and boards, in between waxing, improves glide.**

# swix®

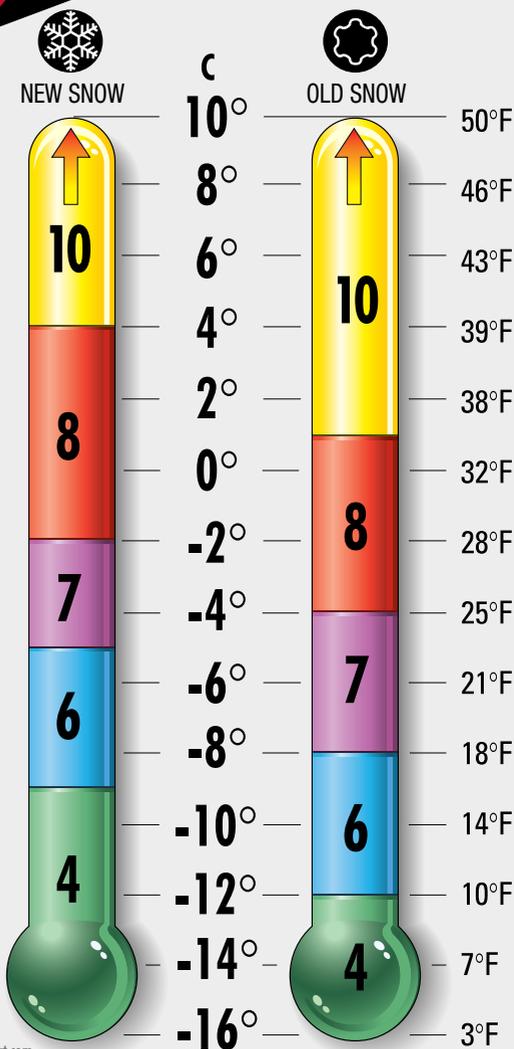
**HF WAX**  
**HFBW WAX**  
**LF WAX**  
**GH WAX**

**CERA  
NOVA®**

## WAX CHART

Use HFBW waxes on:

- New snow mixed with older snow
- Dirty snow



## STEP BY STEP - RACE PREPARATION

This is a general description used by top level technicians.



- 1.**  
Scrape off travel wax with a plexi scraper.



- 2.**  
Brush with the Steel Brush (T179).  
10-20 strokes.



- 3.**  
Polish the base edges with a Hard Gummy Stone (T0994).



- 4.**  
Polish the steel edges with the Fine Diamond Stone (TAA600).



- 5.**  
Deburr with the Soft Gummy Stone (T0992) or Fibertex T265.



- 6.**  
Apply the race wax for the day. For cold conditions use first CH3 to protect base burn by the edge.



- 7.**  
When using LF4, HF4 and CH4, the harder, brittle waxes for colder temperatures, scrape the excess layer while the wax is still semi-soft to avoid chipping of the wax later.



**8.**

When the skis or board have cooled, or allowed to stand overnight, scrape once again with a sharp plexi scraper using light strokes. Scrape the excess wax from the sides and groove with Swix scraper (T0087) and Fibertex T266.



**9.**

Brush the base with the Steel Brush (T179). 10-20 strokes.

# Cera F Application

## CORKED APPLICATION OF CERA F POWDER

Complete edge filing and polishing. The base should be waxed and thoroughly brushed according to the steps outlined in the manual.



### 1.

Sprinkle an even layer of powder on the base. When corking, less powder is needed than for ironing. A layer of Cera F can also be applied by rubbing on a layer using Cera F Solid.



### 2.

Polish the powder into the base using a Cork (T20) or Cera F Polisher (T154) with Fiberlene. Use firm pressure back and forth so the cork will generate heat causing the powder to form a waxy film.



### 3.

Use the Wild Boar Brush (T198) or Horsehair Brush (T195). Use a firm back and forth scrubbing motion to further polish the powder into the base pattern.



**4.**

Brush the powder out of the base with the Wild Boar Brush (T198) or Horsehair Brush (T195). 10-20 strokes.



**5.**

Follow with more brushing using the Blue Nylon Polishing Brush (T160/T186).

Lightly wipe the base with Swix Fiberlene. 5-10 strokes.



**6.**

Take the skis or board outside to allow cooling to the outside temperature. This is usually done at the start site. Put the board or skis base down in the snow for a few minutes. Brush once again with the Blue Nylon Polishing Brush (T160/T186) and lightly wipe with Fiberlene. 5-10 strokes.



**7.**

Some servicemen prefer to apply Cera F Solid as "topping" and brush at the race start site.



## IRONING APPLICATION OF CERA F POWDER

A standard package of 30 grams normally is enough to wax 2 to 3 pairs of Downhill skis. A sufficient layer of powder has to be applied. If the layer is too thin, the high temperature of the iron might destroy the base.

Before the application of Cera F, the skis have to be waxed with the actual, traditional wax for today's conditions.



### 1.

Distribute the Cera F powder evenly on the base. Don't forget to apply enough powder to protect the base from direct contact with the iron. Lightly touch the iron along the base to stick the powder to the base.



### 2.

Iron the powder into the base. Make just one pass with the iron, taking approx. 5 to 6 seconds. Recommended iron temperature setting for FC7 is 155°C (310°F), and for FC78 it is 165°C (330°F).

For FC8 and FC10 the temperature setting should be approx. 150°C.



### 3.

After cooling to room temperature (5 min.) brush the powder up from the base with the stiff Black Nylon Brush (T194/T199). 10 strokes.



**Note:**

FC78 and FC7 Powders should be ironed twice:  
 Brush the powder up (not away) with the Stiff Nylon  
 Brush T194. Brush and iron once more.  
 Wait 5 minutes.



**4.**

Continue with the Wild Boar Brush (T198) or  
 Horsehair Brush (T195). 10 strokes.



**5.**

Finish with the Fine Blue Nylon Brush  
 (T160/T186). 3-4 strokes.



**6.**

At the start site place the board or skis in  
 the snow. After the base has adjusted to  
 temperature of snow make final brushing  
 with the Blue Nylon Polishing Brush  
 (T160/T186). 5-10 strokes.



## CERA F POWDER ROTO CORK APPLICATION

The initial steps before Cera F Roto Corking are the same as for the ironing in method of Cera F.

It is recommended to have one separate Roto Cork (T18C) for each different Cera F. Roto corks can be cleaned by setting in drill at high speed and then apply Bronze Hand-Brush (T162) towards the cork.

Cera F applied with Roto Cork is sometimes applied on top of ironed and brushed Cera F as a "topping".



1. Apply Cera F evenly.



2. Use a waxing iron to fix the Cera F powder to the base. Iron temperature to be around 150°C to 155°C (300°F to 310°F). Iron quickly, 3 to 4 seconds for one ski or board.



3. Use the Roto Cork (T18C) at a speed of approx. 1.500 RPM. Start from the tip and work the Cera F powder into the base by moving the drill back and forth approx. a foot at a time as you work your way towards the tail. Use light pressure. Let the skis/snowboard rest for 5 minutes at room temperature.



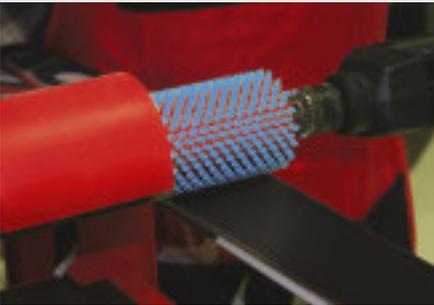
**4.**

Use the Horsehair Roto Brush (T16M) with speed 1000/2000 RPM. Start from the tip and move back and forth approx. a foot at a time towards the tail. (OBS! Do not use the same brush as for standard waxes.) Use light pressure.



**5.**

Continue with the Horsehair Roto Brush (T16M) from tip to tail two more times in one movement of four to five seconds.



**6.**

Finish with the Blue or White Nylon Roto Brush (T17W). Twice in one continuous pass from tip to tail in four to five seconds. (OBS! Do not use the same brush as on standard waxes). Use light pressure.



## CERA F SOLID TURBO ROTO CORK APPLICATION



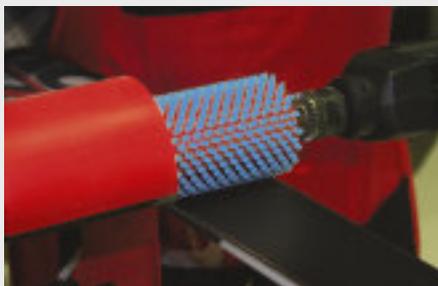
- 1.**  
Rub on an even layer.



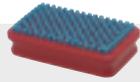
- 2.**  
Use the T18C Roto Cork at a speed of approx. 1.500 RPM. Start from the tip and work the Cera F into the base by moving the drill back and forth approx. a foot at a time as you work your way towards the tail. Use light pressure.



- 3.**  
Use the 16M Horsehair Roto Brush with speed 1.500 RPM. Start from the tip and move back and forth approx. a foot at a time towards the tail. (OBS! Do not use the same brush as for standard waxes.) Use light pressure.



- 4.**  
Finish with the T17W Blue or White Nylon Roto Brush. Twice in one continuous pass from tip to tail in four to five seconds. (OBS! Do not use the same brush as on standard waxes.) Use light pressure.



## CERA F SOLID TURBO HAND CORK APPLICATION



- 1.**  
Rub on an even layer.



- 2.**  
Cork in with a Natural Cork (T20/T22) ...



or the Combi Cork/Brush (T196).  
Approx. 20 strokes.



- 3.**  
Brush with the Blue Nylon Brush (T196 or T160/T186). Approx. 10 strokes.



## FC8A ROCKET ROTO CORK APPLICATION



**1.**

Spray on the FC8A while pressing the button. Keep the nozzle 4-5 cm above the base.

Let dry for approximately 5 minutes.



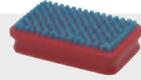
**2.**

Work the liquid into the base with the Roto Cork (T18C). 1000-1500 rpm. Work from tip to tail moving the drill back and forth. Do not press too hard.



**3.**

Finish with the Blue Nylon Brush (T160/T186).



## FC8A ROCKET HAND CORK APPLICATION



### 1.

Spray on the FC8A while pressing the button. Keep the nozzle 4-5 cm above the base.

Let dry approximately 5 minutes.



### 2.

Work the liquid into the base with a Natural Cork (T20 or T22) or Combi Cork/Brush (T196). 15-25 strokes.



### 3.

Finish with the Blue Nylon Brush (T160/T186 or T196). 5 strokes.



## CERA F LIQUID ROTO CORK APPLICATION



- 1.**  
Apply with Fiberlene or felt applicator.  
Let dry for 5 minutes.



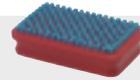
- 2.**  
Use the T18C Roto Cork at a speed of approx. 1.500 RPM. Start from the tip and work the Cera F into the base by moving the drill back and forth approx. a foot at a time as you work your way towards the tail. Use light pressure.



- 3.**  
Brush with the Wild Boar Brush (T164/T198).  
Approx. 10 strokes.



- 4.**  
Finish with the Blue Nylon Brush (T160/T186).  
5 strokes.



## CERA F LIQUID HAND CORK APPLICATION



**1.**

Apply with Fiberlene or felt applicator.  
Let dry for 5 minutes.



**2.**

Cork in with a Natural Cork (T20/T22) or  
the Combi Cork/Brush (T196). 15 - 25 strokes.



**3.**

Finish with the Blue Nylon (T196 or  
T160/T186). 10 - 15 strokes

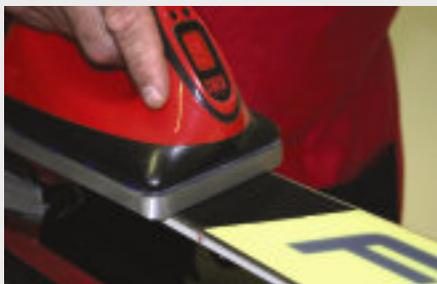




## CERA F LIQUID IRON APPLICATION



- 1.**  
Apply with Fiberlene or felt applicator twice.  
Let dry for 5 minutes.



- 2.**  
Two passes with the iron. 3 - 4 seconds.  
Wait 5 minutes for the ski to cool down.



- 3.**  
Brush with the Wild Boar Brush (T164/T198)  
or Horsehair Brush (T195/T157).  
Approx. 10 strokes.



- 4.**  
Finish with the Blue Nylon Brush (T160/T186).  
5 strokes.

# Roto Brushing Wax

When you have many skis to do Roto brushing can be timesaving.

You will need a drill that can do a minimum of 1000rpm and ideally up to 2000rpm or more. It is recommended to use protection eyewear.

## ROTO BRUSHING CERA NOVA WAXES



### After Scraping:

#### 1.

Use the Steel Brush T179 from tip to tail in one movement. Two repetitions.



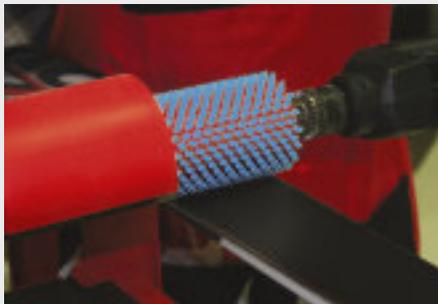
#### 2.

Use the T16M Horsehair Initial Roto Brush with a speed of 1000rpm to 2000rpm. Use light pressure. Start from the tip. Wax particles should be thrown towards the tail. Move the drill back and forth approx. a foot at the time as you gradually work your way towards the tail.



#### 3.

Continue to use the T16M Horsehair Roto Brush (1000rpm/2000rpm) from tip to tail two more times in one continuous pass of three to five seconds.



4. Finish with the T17W Blue Nylon Roto Brush, 1000rpm/2000rpm. Make a continuous pass three times from tip to tail in three to five seconds.

Now the ski or snowboard is ready or you can start with application of Cera F.



R0392



T0150



T0151



RR045



I0064

## CLEANING THE BASES WITH WAX

An important method for cleaning the bases on alpine skis and snowboards is to use wax instead of solvents. The following method also applies to cleaning the bases after using Cera F.



**1.**  
 Start with firm brushing of the base with the Swix Steel Brush (T179) to remove oxidation and to open the base structure from dirt and old wax.



**2.**  
 Select a soft wax (lower melting point) such as BP88 (Base Prep), CH10 or CH8. The iron temperature should be approximately 100°C to 120°C (212°F to 250°F). Iron the wax continuously moving the iron until the board or ski is thoroughly warmed and the wax remains in a liquid form on the base. The warming of the base and the liquid state of the wax will “open” the base surface microstructure and float contaminants away from the base into the wax.



**3.**  
 While the wax is still in liquid form, scrape the wax off the base. It is possible to wipe the liquid wax off as well, followed by a few light passes with the scraper.

Repeat if necessary. Following riding or skiing in very dirty conditions you may want to repeat the “hot-scrape” process 2 or 3 times with additional brushing with the Swix Bronze Brush in between wax applications.

The “hot scraping” method of cleaning avoids the “drying-out” of bases caused by some solvents.

**Note:**

This is the same procedure that is used to condition the base to the wax selected to fit the day's conditions. For example, if LF8 is the wax choice, iron the wax into the base and scrape while it is still liquid or soft. Apply LF8 once more, iron, but then allow the base to completely return to room temperature before scraping. This will adjust and condition the base from the soft cleaning wax to LF8.

**Clean bases are faster bases!**

## THE USE OF GLIDE WAX CLEANER (I84)



1. Brush lightly with the Steel Brush (T179R).



2. Moisten a piece of Fiberlene (T150) and apply to the glide zone of the base.



3. Rub forward and backward a few times with a Nylon Brush (T161B).



- 4.**  
Wipe off as much as possible with Fiberlene (T150).

Let the ski dry for 5-10 minutes.



- 5.**  
Brush firmly with the Steel Brush (T179R). The ski is now ready for application of new glide wax.



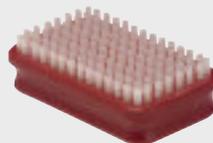
T150



I84



T1790



T161B

## REPAIR BASE SCRATCHES AND EDGES



- 1.**  
Repair base scratches by melting Polystick into the damaged part.



- 2.**  
Remove excess repair material with a Panzer file (T0108).



- 3.**  
Finish the repair area by sanding with #320 grit sandpaper and Fibertex T265. If needed, structure or align the existing structure using the Swix Steel Brush (T179) and Fibertex T266N Violet Aluminium Oxide.



- 4.**  
Edges. If edges have damaged or case hardened spots, stone the edges with the Swix Pocket Stone (T0240), coarse side or a coarse Diamond stone/file (TAA100).

## VICES



### T149-50 VISE

3 piece vise with wider jaws 50 mm for better grip and stability when working on carving skis and radial alpine skis. 35 mm to 90 mm.



## SWIX FIBERTEX

Swix Fibertext is a nylon fiber pad in which small abrasive particles are bonded to the nylon fibers with resin. The purpose of Fibertext is deburring, whereas sandpaper is designed to remove base material.



### T264 FIBERTEX X-FINE

For deburring. To be used on new skis or newly stone ground skis to remove micro hairs before waxing.

### T266 FIBERTEX

For use with solvent to clean the base, and for polishing the base after scraping and brushing. Does not remove mass from ski base.

### T266N FIBERTEX ALUMINIUM OXIDE

Violet. To be used before waxing to remove oxidized layer to open base.

### T267N FIBERTEX COMBI

T264, T266N & T268.

### T268 FIBERTEX NO ABRASIVE

For polishing after waxing and brushing.

## SWIX SUGGESTED ALPINE RACING PROGRAM



T76 Table

T149-50 Vises

T76-SH Ski Rack

T75WH Waste Bag Holder

T76WL Light

T73H Iron Holder

T73110 Iron

T824 Scraper

I62 Base Cleaner

T150 Fibertene Cleaning Paper

T265 Fibertex Deburr Pad

TA100 Side Wall Cutter

TA088 Side Edge Holder 2°

TA010 Base Edge Holder 1°

T107X Bastard File

TAA200 Coarse Diamond Stone

TAA1000 Fine Diamond Stone

BP88/CH10 Prep Wax

FC1S Fluoro Block Turbo

HF8 Race Wax

LF6 Race Wax

CH4 Race Wax

T182B Bronze Brush for Wax

T186B Finish Nylon Brush

T196B Turbo Brush

R271 Wax Apron

T165 Brake Holder

R396 Skistraps