



VOLA

RACING



Cross-country skiing technical manual : this manual has been designed to explain the VOLA method of Cross-country ski preparation.

VOLA is a French company based at Passy in the Chamonix valley in the heart of the Alps. Since 1935, VOLA has been developing and producing technical waxes of the highest quality. Whether in alpine skiing, snowboard or cross-country disciplines, VOLA waxes are used in the most prestigious competitions.

This manual aims to present the complete range of VOLA cross-country products, their use and a guide to their application.

maintenance and preparation of skis

The preparation of cross-country skis consists of two phases : sliding and grip (in classic skiing).

The best results are obtained when choosing the best product for the conditions.

3 factors are taken into account;

- the temperature
- the hygrometry
- the consistency of the snow

The temperature is the simplest factor to determine, with the appropriate thermometer in the right place.

The thermometer ref. 016019 takes measurements to a 1/10th of a degree and can be used to measure air temperature as well as that of the snow.

The measurements must be taken in the shade at various points on the circuit and all the results taken into consideration.

The snow temperature doesn't evolve in the same way as that of the air. For this reason, VOLA's top of the range waxes are formulated according to the snow temperature.

Note :

MX / LF / HF = air temperature indicated on the box.

FD powders / Finisher / grip wax / klister = snow temperature indicated on the box.

The hygrometry can be measured with the equipment previously mentioned to obtain the level of humidity in the air. The hygrometry is considered low below 50%, normal between 50 & 75% and high above 75%.

Finally, identifying the structure of the snow is the most complex factor to determine and requires the most experience.

It involves noting the stage of transformation of the snow.

To simplify matters, 4 different types can be identified.

Fresh new snow : Sharp dendrites at the extremities of the snowflake. Requires harder waxes to prevent sharp crystals penetrating the wax and thus increasing friction.

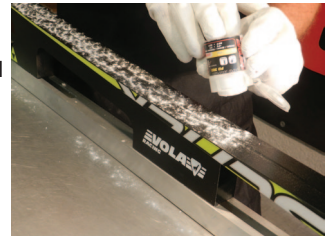
Slightly transformed older snow : The crystals of the snowflake become blunt and less piercing over time. The snow has not been exposed however to temperatures above 0 °C. These are the conditions most frequently seen in the Alps.

Transformed snow : The snow has been subjected to temperatures above 0°, the snowflake has lost practically all of its crystals and has a hexagonal shape. This shape means a higher surface contact with the ski base, therefore increasing friction and abrasion.
Requires wax with molybdenum.

Artificial snow : Resembles transformed snow, the main difference being its greater density, therefore higher friction. Artificial snow consists of a drop of water surrounded by ice.
As soon as the snow undergoes warming and transformation, friction diminishes (to the benefit of suction) and sliding quality increases. Softer waxes containing fewer abrasion-reducing elements can be used.

I / FD powders :

Fluorinated FD powders are the result of the knowledge and field tests of our research department. All of our FD powders are thoroughly tested for their sliding quality and durability as well as respecting the environment and the user. We strongly recommend the use of suitable protective masks such as ref. 015017 or 015018 when applying powders as well as waxing gloves.



Due to their high fluorine content, FD powders have exceptional sliding qualities in humid conditions. However, using them in conditions of lower humidity, leads to higher durability and therefore better sliding qualities, especially at the end of a race. FD powders also act as a film protecting the base, repelling dirt and pollution more efficiently than solid waxes.

It is advisable to build up layers when applying fluorinated waxes. This is because it is very difficult to bind the base of the ski with the fluorine. However, paraffin and wax molecules bind much better with the polyethylene molecules of the base. So ideally a low fluorine wax is used directly on the base and then LF and HF waxes (which still contain waxes and paraffin) followed by high fluorine waxes (FD powder, Finisher). The different waxes bind together and make a good contact with the base for increased durability and efficiency..

FD 300

Fluorinated powder with antistatic components.
Very effective in extreme cold.
Applied using iron (160 °C) or rotary cork.



FD301

VOLA's all-round fluorinated powder.
Particularly effective with old, fine, but only slightly transformed snow.
Difficult to apply, iron at 160 °C minimum.

Excellent results with the warm liquid finisher for unpolluted snow.

- 1/ Spread the powder evenly on the ski
- 2/ Iron the powder onto the ski (at 160 °C minimum)
- 3/ Spray the warm finisher on the powder
- 4/ Iron again for 4-5 seconds



FD 302

Fluorinated powder for air temperatures around 0 °C with high humidity.
Ideal for humid conditions with snowfall (air temp > -1 °C)
Use iron (160 °C) or rotary cork.



FD300 A

Powder for artificial snow or cold conditions.
Similar to FD 300 powder but more effective with very cold, old, but only slightly transformed snow.

FD301N

Powder specially developed for the 2013 world championships in Val di Fiemme and used by national teams for the event.
Difficult to apply the iron needs to be at 160 °C minimum.
Used in the following conditions :
T °C snow -5 °C and -8 °C
Hygrometry : 60 to 80%
For fresh slightly transformed snow which has been subjected to cold conditions.



T2625+

Special powder developed and used at world cup level.
Very polyvalent powder for fresh snow.



Note :

The FD 300A, 300, 301N and 301 powders can be « lifted » and ironed a second time when the snow is rough or for long distances.

FINISHER warm & cold

100% fluorinated liquid waxes.

Used alone for distances less than 5km or as an accelerator on top of FD powders. Applied using cork and felt or with an iron when mixed with powders.



HF / HF WAXES

High fluor waxes can be used on their own with very good results, however adding an FD powder considerably improves sliding and durability.

Available in 2 x 30g or 110g.

HF GREEN

-10 °C / -25 °C

Iron Temp = 110 °C



HF BLUE

-7 °C / -15 °C

Iron Temp = 105 °C



High fluorine waxes for cold to very cold conditions.

At these temperatures, the fluorine doesn't greatly improve sliding qualities (except in humid conditions) but gives greater durability. Used alone or with FD 300 or FD 300A powders. Used as a base, they harden the base of the ski to protect it from abrasive sharp snow.

HF PURPLE

-2 °C / -7 °C

Iron Temp = 100 °C

High fluorinated wax for general winter conditions. The wide temperature range covers the majority of conditions seen during the season. HF PURPLE is excellent for old slightly transformed snow



HF RED

-5 °C / 0 °C

Iron Temp = 95 °C

High fluorinated wax for temperatures below or around freezing. As with HF purple, HF red covers a range of temperatures frequently seen in winter. HF red is recommended for fresh snow.



HF YELLOW

-2 °C / 15 °C

Iron Temp = 90 °C

High fluorinated wax for temperatures above freezing.

The high quantity of fluorine considerably improves sliding in warm conditions which are often associated with high hygrometry.

Be careful to only use HF yellow with clean snow to avoid picking up dirt.



HF MOLYBDENUM



The HF molybdenum range is colour-coded in the same way as the standard HF waxes. Molybdenum is a chemical compound with interesting water-repelling (hydrophobic) properties on certain types of snow. VOLA waxes with molybdenum work well with transformed snow which has a high element of friction (artificial, coarse salt, frozen or dirty). Its greasy consistency provides lubrication as well as repelling dirt and pollution. Requires a fine steel brush after scraping. Exists in 2 x 30g or 110g. .

HF Green Molybdenum

-10 °C / -25 °C

Iron Temp : 110 °C



HF Red Molybdenum

0 °C / -5 °C

Iron Temp : 95 °C



HF Blue Molybdenum

-7 °C / -15 °C

Iron Temp : 105 °C

Frozen transformed or very cold artificial snow ;
Use alone when the hygrometry is below 60%.
Use with FD300A or FD301N powders.



HF Yellow Molybdenum

-2 °C / +15 °C

Iron Temp : 90 °C

Wax for end of season transformed snow.
Repels dirt.



HF Purple Molybdenum

-2 °C / -10 °C

Iron Temp : 100 °C

Excellent for artificial snow.
Use with FD301 or FD301N powders.



III / LF waxes

LF waxes are excellent for training purposes thanks to their low fluorine content. They can be used for competition however in very dry conditions or as a base layer before applying HF wax or FD fluorinated powders. Due to their specific composition VOLA LF waxes are very easy to apply in cold or warm conditions.
Exists in 2 x 30g or 110g.



IV / MX waxes

MX waxes are the most economic of VOLA waxes. Composed of a subtle blend of waxes and paraffin, MX waxes allow simple ski maintenance at low cost (3 colours).
Exists in 110g or 3 x 30g three colours.



V / Bases

Bases are used to improve durability in the case of abrasive snow or long distance racing. They are used as a first layer before LF and HF waxes and FD powders. They can also be used as protection during transport or to treat new skis and those that have had the bases ground.

--- Extra hard base

Very good wax for preventing base abrasion in aggressive non transformed snow conditions. Its « plastic » consistency requires a higher iron temperature than other VOLA waxes.

--- Base BGF

A mix of fluorand graphite, excellent for wet transformed snow when the ice particles are apparent. Combine with HF PURPLE / RED / YELLOW + MOLYBDENUM



VI / Liquid wax remover and R021

Liquid wax remover cleans the wax chamber. It can be used at the end of the season to clean the base before applying the protective wax for the summer. In this case, the ski needs to be prepared as a new ski for the following season (see page 8). Available in 1 litre format.

--- R021

Very soft wax containing only paraffins with very low fusional qualities, thus conferring exceptional fluidity. Used warm while scraping R021 thoroughly cleans the base and dilates the pores of the base to allow waxes to penetrate the base. Iron Temp = 70 °C. Available in 200g format.



VII / Brushes

Carefully selected and manufactured, VOLA brushes are efficient and comfortable to use.

Bronze Brush

Brush with long fine bristles. This brush is the most aggressive of the VOLA range. It enables the base to be de-oxidised and cleaned before waxing. However one or two scrapes with hot R021 are often necessary to complete base-cleaning thoroughly (even more so for fine-structured skis). Use gentle pressure 10 to 15 times from tip to tail following the grain. Always use in the same direction.



Fine Steel Brush

Brush with very long fine steel bristles. Use for cleaning before waxing or initial brushing after scraping. The fine bristles combined with its aggressiveness allow wax residues to be completely removed after scraping. Indispensable for brushing molybdenum waxes and other soft, greasy waxes. Use very gentle pressure 5 to 10 times following the grain. Always use in the same direction.



Nylon brush

Brush with wide, medium-sized bristles. Use as a second brush after scraping. It polishes the base and gives a smooth finish to reduce friction with the snow. Use for initial brushing after application of FD powders. Use 15 to 20 times with a backwards and forwards movement.



Horse-hair brush

Brush with short, fine hairs. Used for finishing, its horse-hair composition polishes the base and gives it anti-static qualities for sliding. Indispensable for brushing FD powders. Used to lift FD powders when they are reheated with the iron.

Use 15 to 20 times with a backwards and forwards movement.

Note: VOLA brushes are available in rectangular or oval format with a strap (except the Fine Steel brush which is available in rectangular format only).



Rotating brushes

VOLA propose the same 4 types of brush presented above in rotating format as well as a cork for applying FD powders.

Using a rotating brush offers increased productivity and efficiency compared with a manual brush.

Note for using rotating brushes:

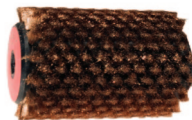
- Rotating brushes are used with a hexagonal fitting which is adapted to most drills and electric screwdrivers.

- The rotation speed must not exceed 1500 rpm and can be much less (800 rpm) for a bronze for example.

- Use gentle pressure.

- The sense of rotation should be such as to project the particles of wax towards the tail of the ski.

- Gloves and face mask should be worn.



VIII / Waxing Irons

VOLA waxing iron

Good value, quality iron. The thickness of the base (1cm) allows even heat distribution and retention of the heat. The base has holes to aid distribution of solid waxes and better « sliding » when applying FD powders. Temperature range from 60 °C to 160 °C.



5200 waxing iron

Electronic temperature control for accuracy to the nearest degree.



IX / Protective masks

When waxing skis, overheated wax can give off fumes from which it is advisable to protect oneself. VOLA offers 2 types of protection :



- For applying heated waxes : half mask made from light odourless thermoplastic elastomere. The filters being at the side, allow the user to breathe in less contaminated air which lengthens the life of the filters. Two A1B1E filters included



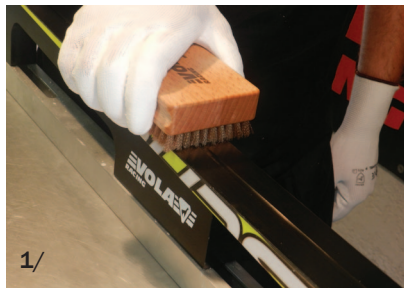
- For applying powders with the waxing iron : Breathing apparatus with intelligent assistance. Visual and audio indicator for battery and filters. Includes battery, charger, face mask and two A1B1E filters.

Preparation of new skis or with ground bases

The aim of this procedure is to prepare the base to receive waxes for sliding (fluorinated or non-fluorinated). The bases of new skis or with restructured bases contain impurities which increase friction on the snow and therefore reduce sliding.

The following steps assure the smoothest base possible while maintaining the structure. The base being made from PEHD, a porous substance, these pores are saturated to increase the wax-retaining properties and therefore the endurance.

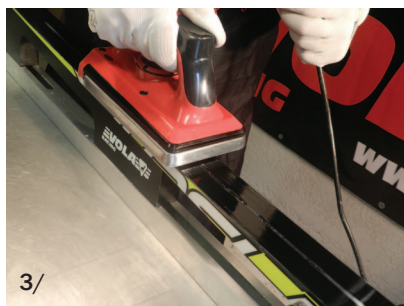
1/ Clean the base with the bronze or extra fine steel brush. These brushes efficiently remove accumulated pollution in the pattern of the structure during manufacture or grinding. They also prepare the base to absorb wax by opening the pores and de-oxydising it.



2/ Apply de-waxing paraffin R021 to the surface using the iron.



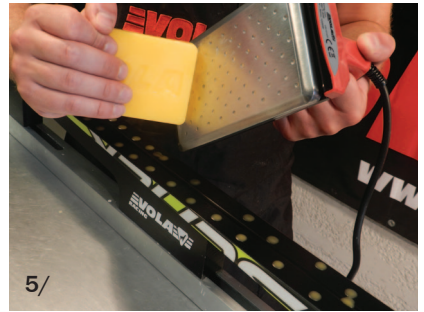
3/ Spread the R021 across the entire surface of the base.



4/ Before the wax cools and sets, scrape with a plexi scraper. The very liquid consistency of R021 attracts the dirt particles still present yet out of reach of the bronze or extra fine steel brushes. By capillary action, the dirt rises to the surface when the wax is scraped in a semi-liquid state. Repeat this stage until the scraped paraffin is transparent and no longer contains dirt particles.



5/Saturate the pores of the base with a soft wax such as MX 402. Leave to cool and harden (around 20 mins).



6/ Scrape and brush with the bronze or extra fine steel brush. Repeat 6 times



7/ Use the extra hard base to seal the wax into the pores of the base. Leave to cool and harden (around 20 mins). Scrape and brush with the bronze or extra fine steel brush. Your skis are now ready to be waxed appropriately for the conditions.



Note :

The heated thermojoimax cover speeds up this long, fastidious stage. The skis are placed in a cover containing an electrical circuit which heats up the base of the ski to 60°C for 30 minutes. The impregnation takes place more gently over a longer period of time than with an iron. The efficiency of the cover is estimated at 8 times the normal method using the iron. The principle resembles the thermal bag which heats the entire ski and its components. The risk being overheating the core and deforming the base or worse, irreversibly changing the heart of the ski.

Applying solid waxes (bases, MX, LF, HF)

1/ Clean the base with the bronze or extra fine steel brush.



2/ Apply wax suitable for the conditions. Watch the temperature carefully as the wax shouldn't give off smoke.

Spread the wax across the entire surface of the base using the iron. Leave to cool and harden at room temperature (around 20 minutes)



3/ Scrape off the excess wax (starting with the groove) with a scraper for grooves and a standard plexiglass scraper



4/ Optional : When using soft waxes (MX402, red and yellow LF/ HF, Molybdenum HF, Extra Hard Base, BGF, RO21) :

Use the fine steel brush to remove the wax residues present on the base.



5/ Use the nylon brush to polish the base.



6/ Use the horse-hair brush for perfect finish and shine.



7/ Remove the remaining wax particles from the base with the antistatic cloth.



Applying FD powders using the rotating cork

As previously explained, fluorinated FD powders are excellent for long-lasting sliding quality. The base of a ski has great difficulty binding with fluorinated substances. It reacts very well however to paraffins and solid waxes. The best solution is therefore to build up layers starting with the least fluorinated to enable the best fixing of the fluorinated FD powder. So, powders are rarely used alone and are usually applied over a « base ».

Be careful :

In this case the base can be an LF or HF wax and not necessarily an Extra Hard Base or BGF. It is advisable to use equipment reserved for applying powders so as not to mix the fluorinated substances with wax residues (waxing iron, brushes, scrapers and cloths).

Applying FD powders with the rotating cork gives shorter-lasting results than with an iron. The temperature of the iron tends to fix the powder better than the cork which relies on heat created by the friction of the cork on the base.

However, powders applied using the iron need time to adjust and so are not 100% efficient at the start of the race.

They need polishing which takes place naturally over 3 to 5 km due to friction on the snow.

Using the rotating cork offers optimal sliding from the start, but for a short distance (2 to 4km maximum). This type of application is therefore recommended for short distance races.

1/ Apply the base wax according to the conditions. Allow to cool, scrape and brush as previously explained.

2/ Put the powder on the whole length of the base. The powder should cover the base of the ski entirely, avoiding powder-free spots. A 30g pot can be used to prepare 4 or 5 pairs of skis.

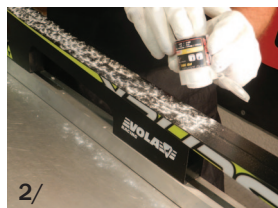
3/ Using a forwards and backwards movement, press the powder into the base with the rotating cork. Be careful to check that the cork is rotating in the correct direction (from the tip of the ski to the tail). The powder should be projected towards the back.
Rotation speed < 1500 rpm

4/ Polish with the felt pad (forwards and backwards movement, 10 times)

5/ Polish with the nylon brush (10 times)

6/ Polish with the horse-hair brush (5 times from the tip to the tail).

7/ Finish with an antistatic cloth to clean the base.



Applying FD powders using the iron

Applying FD powders using the iron is the most common method in cross country skiing. It results in a much longer-lasting finish than an application using cork or any other method.

1/ Apply the base wax according to the conditions. Allow to cool, scrape and brush as previously explained.

2/ Put the powder on the whole length of the base. The powder should cover the base of the ski entirely, to prevent damage to the base during ironing and to avoid powder-free spots. A 30g pot can be used to prepare 4 or 5 pairs of skis.

3/ Press the base lightly with the iron to set the powder.

4/ Iron along the length of the ski to press the powder into the base.
Optional : For long distances, for the FD 300 / 300A / 301 / 301N powders, or in abrasive snow conditions, lift the powder with the nylon brush using a light forwards and backwards movement. The powder should almost return to its initial state. Repeat stages 3/ and 4/ (press and heat). Allow to cool for 10 minutes at room temperature

5/ Remove the excess with the plexi and groove scrapers.

6/ Polish with the nylon brush (10 times)

7/ Polish with the horse-hair brush (5 times from the tip to the tail).

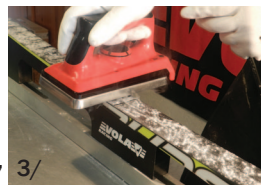
8/ Finish with an antistatic cloth to clean the base.

Note : Some FD powders (particularly 301 and 301N) can be used in conjunction with liquid accelerator WARM FINISHER for excellent results. This combination is very effective damp, unpoluted new snow conditions.

Follow the above stages for application with the iron. Between stages 3/ and 4/, apply the WARM FINISHER spray on the surface of the powder (which has been set at the previous stage) then use the iron as described in stage 4/.



Application of WARM FINISHER between stages 3/ and 4/.



Applying finishing waxes

Finishing waxes have greater acceleration capacities than powders applied using the iron or cork, but are less durable. They are therefore used as a final layer over FD powders (applied using the iron or cork). Consequently they enable a powder applied with the iron to perform well immediately or a powder applied with the cork to give greater acceleration. Their liquid consistency assure the avoidance of wax-free spots on the base.

1/ Apply the base wax according to the conditions. Allow to cool, scrape and brush as previously explained. There is no need to use the horse hair brush or antistatic cloth.

2/ Apply the FINISHER (warm or cold) along the length of the ski using the spray.

Allow the solvent to evaporate (a few minutes)

3/ Heat using a cork (rotating or manual)

4/ Polish with the felt block.

5/ Polish with the horse-hair brush.

6/ Finish with an antistatic cloth.



The structure of the base :

The structure corresponds to the motifs drawn on the surface of the ski base.

The ski slides on the snow. While sliding, the movement creates heat which melts the snow crystals and transforms them into a film of water on the surface of the base.

It is precisely this film of water which enables the skis to slide and which must be managed efficiently. According to the conditions and type of snow, the melting process takes place differently and won't leave the same quantities of water on the surface of the base.

By choosing the right tool and motif, it is possible to influence these characteristics and reduce friction or suction to obtain skis that slide as well as possible.

Several tools are available for structuring skis :

- Mechanical grinders which remove some of the substance and engrave the motif into the base. The motif is drawn onto the grinder with a diamond, which then engraves it onto the base of the ski. The structure in this case is permanent. This technique is used for new skis from the factory. Specialist shops are usually equipped with this type of machine.

- Manual tools which draw motifs using cutters or metal rollers. Easy to use these tools create temporary structures that are easy to alter according to the conditions. By simply waxing the skis the base returns to its initial state. For high level skiers, technicians generally use manual tools as they can quickly adapt to changes in the conditions and refine the initial mechanically-engraved structure.

I / The Speedy Ski Roller is a Finish product from a company that manufactures high quality structuring tools, consists of 2 kits containing 3 or 4 structuring rollers and the machine.

The strength of the Speedy Ski Roller kit resides in its quality and the diversity of its rollers. The base is composed of two axes which work with a system of gears. The first has a rubber pad which while it turns, leads the structuring roller. This means the ski is structured along the length in the direction of the slide and not the opposite, which is the case with structuring tools without a gear system.

Up to 25 different rollers exist to adapt to all kinds of snow (see table).

The differences between the rollers are seen in the motifs (linear, pine needle, diagonal, double diagonal...) but also in the spacing and depth of the lines engraved into the ski base. The rollers are chrome-plated, giving very precise structures with rounded ridges, which slide much better than motifs engraved by other structuring tools. As well as these advantages, the Speedy Ski Roller is the only type which offers the possibility of structuring the central line of cross-country skis



Kit A :

- + S300 (linear for humidity above 75%, not for use on fine grains).
- + H30-18 (Motif for very wide range of uses for temperatures between -10 °C and 0 °C).
- + H50-18 (one of the most commonly used motifs, T °C between -2 °C and +2 °C).



Kit B :

As kit A plus :

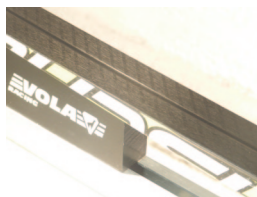
- W75-24 (Pine needle, humidity above 85%, T °C between -2 °C and +4 °C).



II / VOLA structuring tool

Offers 9 different rollers. 3 motifs (linear, diagonal, W) each with 3 depths and widths (fine, medium, coarse). The machine (ref 012036) is delivered with the medium, diagonal roller.

	H% < 50%		50% < H% < 75%		H% > 75 %	
	NEW	OLD	NEW	OLD	NEW	OLD
-8° / -20 °C	Diagonal Fin	Diagonal Fin	Diagonal Fin	Linéaire Medium	Diagonal Medium	W Fin
-2° / -10 °C	Diagonal Fin	Linéaire Fin	Diagonal Medium	Linéaire Medium	Linéaire Medium	W Medium
-4° / +10 °C	W Fin	Linéaire Fin + W Fin	W Fin	Linéaire coarse + W Medium	Coarse diagonal	Linéaire Coarse + W Coarse



Protocole :

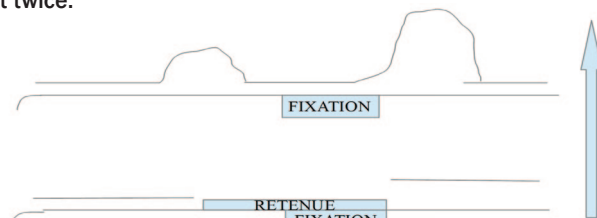
Applying a manual structure is the last stage in the preparation of skis. It takes place after brushing a solid wax or FD powder. As the structure is temporary, scraping, brushing or heating with the iron will alter the motifs applied.

- 1/ Choose the appropriate roller/s for the conditions.

Note : When using several rollers, always use the largest first.

- 2/ Apply from the tip to the tail at least twice.

Pressure for a skating ski :



Pressure for a classic ski :

- 3/ Use the horse-hair brush 2 or 3 times to finish.



Grip Waxes

Applying grip waxes is the phase which requires the most experience in the preparation of cross-country skis. As with the choice of waxes for sliding, grip waxes require knowledge of the variable environmental factors (temperature, humidity, granulation of the snow). This knowledge however may not be enough and won't prevent errors in choosing the right product.

Preparing classic skis to grip is mainly a compromise between sliding and gripping. It is therefore indispensable to keep an up-to-date record of information in order to improve one's knowledge in this area.

First of all, the area of the ski where grip wax is applied is the pushing zone, which is known as the « wax chamber ». It starts at the tail and continues to around 30cm in front of the binding.

To determine the zone, specialist shops usually have a marble plate (« marbre ») which allows the ski to be put under pressure according to your weight. A laminated sheet is then passed between the ski and the plate, which senses the pressure points. The wax chamber corresponds to the zone under the foot where the laminated sheet senses no pressure.

Some ski manufacturers give indications to help you choose. These can help but it is always advisable to use the above method.

If you don't have the possibility of determining the wax chamber with the marble plate, wax your skis extending the area lengthways in front of and behind the binding.

Ski for around 10km.

At the end of your outing, the gripping wax will have migrated and disappeared on the areas which don't need grip wax. The area where the grip wax is still present corresponds roughly to your wax chamber.

Having determined the wax chamber, it needs to be prepared for the application of grip wax. For the grip wax to stick as well as possible to the base, it needs to have a rough surface. This is achieved by using glass paper (100 or 120) with a backwards and forwards movement along the wax chamber. Ideally, use a cork block to support the glass paper, enabling it to remain as flat as possible. This process should be repeated before each application of grip wax. It obviously takes longer when preparing new skis or skis that have been machine ground.



Note :

Never use wax for sliding on the wax chamber as this can reduce the adherence of grip wax. (Protect the wax chamber when applying waxes for sliding)

In this respect, sanding must always be done after preparation of the sliding areas.

Grip waxes fall into two main categories, « grip wax » and « klusters ». Grip waxes with their firm appearance, are used in new snow conditions and/or non-transformed, when sharp crystals are present.

Klusters, softer in appearance, enable smoother, transformed snowflakes to penetrate the kluster and allow the skis to grip.

This is a general rule. As always experience is vital when choosing the right product, as even careful analysis of the conditions can sometimes prove to be insufficient.

Applying a Grip Wax :

There are 7 different grip waxes in the VOLA range. The temperatures indicated on the packaging correspond to the snow temperatures.

1/ Firstly, protect the edges of the wax chamber to avoid getting grip wax on the sliding areas.

2/ It is advisable to apply a warm base coat first to improve durability, particularly for long distance races or with abrasive snow. The green P43 grip wax is ideal. Apply a fine layer of P43 on the wax chamber which has been sanded.

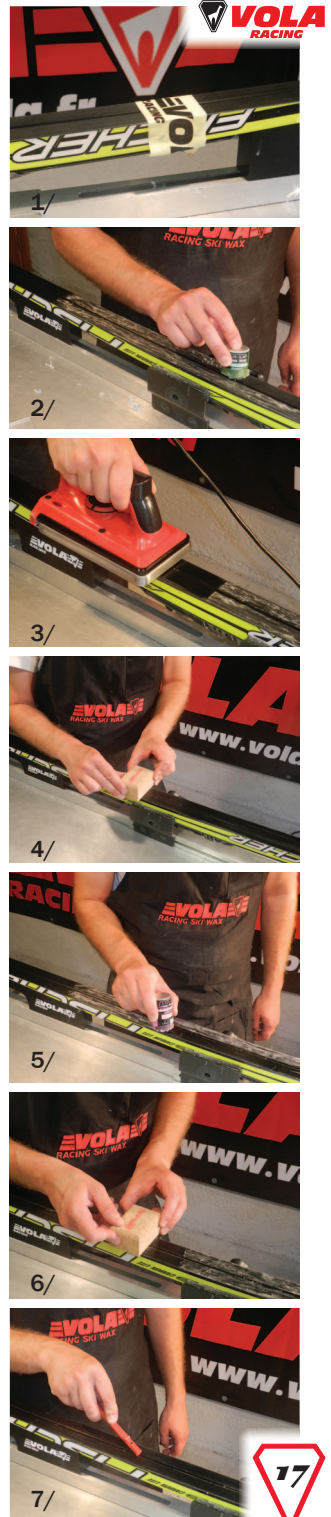
3/ Use the waxing iron (100 °c) to spread the wax evenly. Allow to cool.

4/ Sand lightly with a cork to obtain a smooth, even layer.

5/ Apply the grip wax according to the conditions. The thickness and amount of wax depends on the height of the camber of your skis. The higher your skis the more layers will be needed. It is better to apply several thin layers than one thick layer. The aim is to obtain the smoothest possible surface in order to get the best slide (especially when the temperature is hovering around 0 °C to avoid frost).

6/ Sand with a cork using a backwards and forwards movement between each layer of wax. As a general rule, between four and eight layers of wax are needed according to the camber of the skis.

7/ Clear the central groove. Your grip wax is ready.



Green Grip Wax P43

-10 °C / -20 °C

For new or fine, very cold snow.

Can be used as a heated base.



Blue Grip Wax P40

-5 °C / -11 °C

For new snow and cold temperatures.

Excellent quality for sliding.

Blue Extra Grip Wax P45

-5 °C / -11 °C

Similar to Blue Grip Wax P40

Better on older snow.



Purple Grip Wax P41

-1 °C / -5 °C

For new snow and normal temperatures.

Purple Extra Grip Wax P46

-1 °C / -5 °C

Similar to Purple Grip Wax P41

Better on older snow.



Red Grip Wax P42

0 °C / -2 °C

For fresh humid snow.

It is important to make the last layer as smooth as possible.

Universal Grip Wax P44

For training or leisure skiing.

Can be used for racing when the track is shiny or mixed with the heated green base grip wax to give the base elasticity



Advice :

If you have only one pair of classic skis, you must have two different wax chambers. One, longer chamber for Grip Wax and one thicker, shorter chamber for Klisters.

Grip Waxes are easier to apply cold, whereas Klisters soften if heated with a paint burner.

Always use a clean cork in good condition.

Avoid putting grip wax in the central groove.

Use a different waxing iron to apply heated bases and for preparing sliding zones.

Applying a Klister

There are 5 Klisters in the VOLA range.

1/ It is advisable to apply a layer of base Klister heated up. The green Klister K43 is ideal for improving the adherence of other Klisters on the base and therefore the durability. Dot green Klister K43 along the central groove.



2/ Use the waxing iron (100 °C) to obtain a smooth layer. Put the skis outside to cool down. Be careful not to place the Klister in direct contact with the snow.



3/ Once the skis have cooled down, apply the wax of the day along the base in a herringbone shape.



4/ The best way to spread out the Klister is by using your thumb.



5/ A paint burner can be use to soften the wax and make application easier. When using several Klisters, alternate the different Klisters when applying in a herringbone shape and smooth with your thumb.



6/ Clear the central groove of grip wax.



Green Klister K43

-10°C / -20°C

Used as a heated base or on its own for frozen transformed snow.



Blue Klister K40

-5°C / -14°C

Used alone or between Green Klister K43 and purple, red and silver Klisters to improve adherence.



Purple Klister K41

-3°C / -6°C

For transformed snow and standard temperatures.



Red Klister K42

0°C / -3°C

For transformed snow around freezing. Excellent sliding qualities.



Silver Klister K44

0°C / -1°C

Mix with purple Klister K41 or red Klister K42 in warm or changeable conditions.



Advice :

If your skis slide backwards or don't grip sufficiently :

- Either you haven't applied enough layers of wax
- or you have applied a wax that is too cold and hard.

Start by adding an extra layer or two and then do a test.

If the grip is still insufficient, apply a thin layer of a warmer wax.

Your skis must be dry when you add an extra layer of wax.

Use a paint burner to remove the humidity.

If your skis don't slide and grip too much :

- Either you have applied too much wax (too thick)
- or you have applied a wax that is too soft and warm so that snow builds up in the wax chamber slowing you down excessively (known as the « botte » phenomenon).

To solve the problem you need to remove all the wax and start again with a thinner

layer in the first case, or with a harder, colder wax in the second.

Grip wax should always be applied in a dome shape. The extremities of the wax chamber require much less wax than under the foot where the height is more important.

Spray zero degree LF

VOLA's Zero Degree spray is an alternative for preparing classic skis when conditions for applying grip wax become difficult. This is often the case when it is snowing at around 0°C.

The new snow is sharp but transforms very quickly because of the humidity, the temperature and the passage of skiers on the track.

The leeway between using grip waxes and klisters is very reduced. Several possibilities for preparation are available and it is difficult to choose the correct one without carrying out tests.

- Grip Wax(es) :

For damp conditions with snowfall around 0° with little transformation. Apply a layer of heated green grip wax P43, then apply purple grip wax P41, red grip wax P42 or universal P44 using the iron, testing the grip at each stage.

- Klisters with Grip Wax(es) :

For very humid conditions with snowfall around 0°. Apply a fine layer of heated green Klisters K43. Allow to cool then apply a fine layer of purple klisters K41 or silver K44 (if the course is very wet). Apply a fine layer of red grip wax P42 or universal P44.

- Skis 0° (known as « râpes »)

All ski manufacturers propose this type of ski with a microporous base in the wax chamber. These skis are excellent during snowfall around freezing when the track is shiny. Before these new generation skis arrived we sanded the wax chamber of standard classic skis. VOLA's Zero Degree spray greatly improves the sliding quality and durability of the grip of this type of ski.

Protocol :

1/ Sand the microporous area of the ski (using 100 then 120 paper).

2/ Remove the dust with a soft cloth.

3/ Apply the spray to the wax chamber.

4/ Spread out with the thumb. Allow to dry for a few minutes.

5/ Remove excess with a soft cloth.

6/ Shine using the felt.



Protecting skis during transit or at the end of the season.

It is very important to protect the bases of the skis with a layer of wax during transit to avoid scratching and damage.

At the end of the season, skis must be protected from dust and oxydation by applying a layer of wax.

For transporting skis during the ski season :

If you own several pairs of skis, Extra Hard Base is generally used for « cold » skis and BGF base for « hot » skis as travel wax.

If you only have one or a few pairs of skis, use MX 401 or Extra Hard Base.
It is advisable to avoid very soft waxes for transportation.

For end of season protection.

1/ Clean the entire base with a liquid de-waxer.



2/ Brush with a bronze or fine steel brush (preferably rotating).



3/ Apply a thick layer of MX401 or Extra Hard Base using the iron.
Leave the wax on the base during the summer.





VOLA

RACING

Règles d'or

1 / The more your skis are waxed, the more they will slide, whatever the conditions and the type of snow.

2 / The ski base must be rewaxed between each session because the wax protect from the abrasion of the snow which burns the polyethylene sole.

3 / A ski should always be stored waxed to prevent the base from drying in contact with air. The wax is designed to feed the sole.

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