

START®



Waxing guide for XC skiing

startskiwax.com

START



NEW!

New Start glider series

NEW!

» HF Gliders



NEW!

» MF Gliders



NEW!

» LF Gliders



NEW!

» SG Gliders



+10°C (50°F)... ...0°C (32°F)...

...-30°C (-22°F)

1. Safety instructions.....	4	
2. Base preparation.....	5	
3. Choosing glider.....	6	
4. Glide waxing.....	9	
5. Start fluor powders, blocks and liquids	10	
6. Coating	11	
7. Base structuring	15	
8. Kick waxes	16	
9. Kick waxing	17	
10. Klisters.....	18	
11. Waxing with Klisters.....	19	
Waxing examples	20	

1. Safety instructions

Different fluoro combinations are starting to be used as wax rawmaterials. This is why it is very important to know safe way to use waxes. When buying waxes be sure that there are user instructions and proper product information with. Normally familiar and well known trade mark ensures quality and safety for use.

Follow the instructions below when using fluorinated waxes.

Avoid too high temperatures

By using iron in waxing avoid too high temperatures, because overheating sets toxic gases free.

Take care of air condition

Inhaling fluorinated particles and gases is harmful for your health. Take care of air condition and use safety mask when ironing or brushing fluorinated waxes.

Do not use gas flames or open fire

The waxing cabin it is forbidden to use gas flames or open fire, neither smoking is not allowed.

Remember tidiness

Wash hands and clean clothes after waxing. There might be fluorinated particles or dust remains in the clothes.

Safety instructions for flying

To aeroplane is not allowed to take flammable products like wax removers, liquid gliders and liquid kick waxes. Also fluorinated powders and other products without sufficient clearance of consumption may be removed from baggage.

List of the products not allowed to take to aeroplane

- Wax removers
- Gliding zone cleaners
- Silicons or ice preventing products
- Tar for wooden skis
- Start FHF3 liquid fluor glider
- Easy kick waxes and gliders
- BMR9 Glider
- SFR300 Glider
- AWC30
- SFR300 Glider

2. Base preparation

Base preparation for new skis

Proper preparation for the new ski is basic condition for further success in the waxing and using the ski. We recommend that the new skis are not used or grinded before proper preparation. Basic preparation is done by using Base Waxes made for this use and which are soft enough to be well absorbed to the base.

Check new skis to control possible failures in manufacturing.

1. Wipe the bases with wax remover moistured fiber tex.
2. Melt Start BW-base wax or SW service wax on the base.
3. Absorb the wax in the base with the mild (110 C°) temperature moving the iron several times back and forwards on the base.
4. Scrape all removable wax as warm away with sharp acryl scraper.
5. Repeat the procedure with Start BW-base wax 2-3 times, but let the wax cool down before scraping.
For graphite bases we recommend to use Start BWG-graphite base wax 1-2 times after base preparing. After this skis are ready for glide waxing.

Base preparation for used skis

Preparation for used ski is similar with new ski, but before base waxing the need for possible grinding should be checked. Grinding removes old scratches and refreshes the structuring for the bases. Base waxing is allways done after grinding and during the season when needed.

Start Base and service gliders

- BW Base wax
- BWLF Fluorinated base wax
- BWG Graphite base wax
- SW Service wax
- SWLF Fluorinated service wax





3. Choosing glider

Defining snow conditions

Define and evaluate snow conditions and choose waxes to be used based on this. Note follow fact by evaluation:

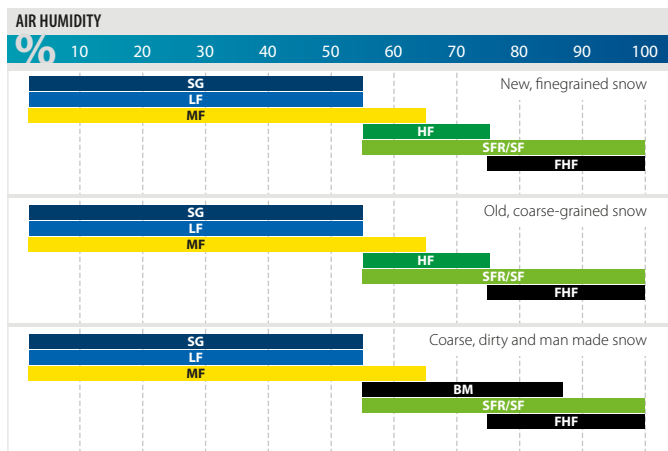
- Air temperature, evaluate possible changes during the race
- Snow temperature. Snow warms up slower than air during the day. The snow will remain colder than air.
- Air humidity. If humidity is high the snow will be moistured too. Expection for this is when it has been very cold for long time, the snowsurface is dry and snow crystals unnormal hard and sharp.
- The consistency of the track. If the track is made of man made snow, it consists more moisture than nature snow and is more abrrasive and coarse-grained.

If you don't have measuring equipments, request for temperature and humidity information from the competition organizer. They tell you how the track is made and from which kind of snow. Snow conditions you can determine yourself. Based on these facts you can select right waxes to use.

Controlling the humidity will help you to choose glider between fluorinated and normal gliders. Also the type of snow helps you to pick up suitable wax. Start has special range of gliders for different types of snow. The following chart will show the current ranges for different waxes.

START-product range consists of six different glider ranges, which have been developed based on long research and test work to get best possible material combinations.

Glider choosing chart:



START SG Gliders

When humidity is lower than 45 %, choose glider from non-fluorinated SG-range due to the temperature. Used as racing and training gliders and under the fluorinated gliders. SG-Gliders do not include silicons or any other additives. This makes them to suit well as base gliders under the fluorinated waxes.

Start SG -range

- SGG graphite
- SG2 white (+10°...0°C)
- SG4 red (0°...-3°C)
- SG6 purple (-2°...-7°C)
- SG8 blue (-7°...-12°C)
- SG10 green (-10°...-30°C)



Rh 0% ...55%



START LF Low fluorinated gliders

When humidity is less than 55%, pick up glider from START LF-glider line due to the right temperature. Used as racing and training gliders, suitable well as base layer for high fluorinated racing gliders.

START LF -gliders

- LF2 white (+10°...0°C)
- LF4 red (0°...-3°C)
- LF6 purple (-2°...-7°C)
- LF8 blue (-7°...-12°C)
- LF10 green (-10°...-30°C)



Rh 0% ...55%



START MF Medium fluorinated gliders

When humidity less than 65%, choose medium fluorinated glider from START MF-line due to the temperature. Used as racing and training gliders, suitable well as base layer for high fluorinated racing gliders.

START MF -gliders

- MF2 white (+10°...0°C)
- MF4 red (0°...-3°C)
- MF6 purple (-2°...-7°C)
- MF8 blue (-7°...-12°C)
- MF10 green (-10°...-30°C)



Rh 0% ...65%



START HF high fluorinated gliders

When humidity is 55-75%, choose high fluorinated glider from START HF-range due to the temperature. HF-giders are mostly used in new and varying snow.

Start HF -gliders

- HF2 fluor graphite
- HF2 white (+10°...0°C)
- HF4 red (0°...-3°C)
- HF6 purple (-2°...-7°C)
- HF8 blue (-6°...-12°C)
- HF10 green (-7°...-25°C)



Rh 55% ...75%



START

START Black Magic (BM)-molybdenum/fluor gliders

START BM-gliders consist of molybdenum fluor and are used mostly in old, coarse-grained and dirty snow when humidity is high (55-75%). Working very well especially for man made snow.

START BM-range:

- BM2 yellow (+10° ...0°C)
- BM4 purple (0°...-6°C)
- BM6 green (-6°...-25°C)



Rh 55% ...100%



START FHF Functional fluoro gliders

Fluoro chain types, specified due to the different conditions, are made to give optimal glide in high humidity conditions. With these functional fluorocarbon chains can be created optimized super hydrofobic and dirt preventing surface. FHF-gliders can be used as well on new snow as old snow conditions, when humidity > 75%

START FHF Functional fluoro gliders:

- FHF2 red (+5° ...-1°C)
- FHF4 purple (-1° ...-6°C)
- FHF6 blue (-5° ...-14°C)



Rh 75% ...100%



4. Glide waxing

Glide waxing consists of three phases: base glide waxing, glide waxing and finishing.

Base waxing

The purpose of base waxing is to create durable dirt and moisture preventing primer under the glide wax. For this purpose suits very well Start SGG (Graphite) or Start SG6 (blue) gliders. Under the fluorinated waxes are mostly used Start HFG-fluor graphite or BWLF-low fluorinated base glider.

Note! Under the Black Magic-molybdenumfluor gliders is recommended Start LF08(green) or BWLF low fluorinated gliders.

- Be sure that the base is dry and clean before starting waxing
- Primer the base
 - LF8 or MF8 – cold weather conditions
 - Start SGG Graphite under the non fluorinated SG-giders
 - Start HFG fluorgraphite or BWLF fluorinated gliders
 - BWLF fluorinated glider under the Start BM-molybdenum fluor gliders
- Scrape extra wax away and use Brass brush to clean the structure or rills of the base.

Glide waxing

Try to define snow conditions very carefully to get best possible knowledge for choosing glider. If special finishing is not needed, the glider will be the finishing layer.

If conditions are very wet and the track is compact, big structures are needed in the base. Check the base. If it is even or there is minor structure, use structure tooling to make bigger structures to optimize gliding features.

1. Melt glider to the base with waxing iron and let it absorb well.
2. Scrape extra wax away with acrylic scraper. Hard gliders (graphite, blue, green and BM6) can be scraped warm.
3. Brush the base after scraping very well (hard gliders first with steel, copper or brass brush).
4. Finish the brushing with nylon or natural hair brush to clean the structuring in the base.
5. Polish with fibertex to get the brushing dust away.



5. Start fluor powders, blocks and liquids

Fluor powders and liquids are made for finishing the waxing and to reduce the tension between the water film and base. Especially when the track is compact and the humidity is high (>75%). Snow might be new and will turn compact under the base preventing the water film to escape. This increases the suction effect caused by too thick water film. In disciplines using same track (xc, jumping) the glaze effect of the surface can be noticed after some runs. This is a mark of constant water film. This will cause a suction effect which can be reduced with top finishing fluor products, base structuring or Start Golden line polymer gliders. Waxing can be made according to the duration of the event with hot or cold waxing.

START R-serie fluor blocks

Start -fluor blocks (SFR92, SFR99 and BMR5) are concentrated fluor carbon based finishing/coating waxes used to add quickness and glide to the ski under humid conditions. Start fluor block usage recommendations:

START Fluor Blocks:

- FHF11 (-1° ...-15°C)
- SFR92 (-9° ...-20°C)
- SFR99 (+9° ...9°C)
- BMR5 (+10° ...-5°C)
- LF03 (+1° ...-10°C)



Rh 75% ...100%

Fluor block cold application:

1. Apply fluor block thin layer to glider waxed base.
2. Rub the layer with nature cork. Brush with finishing brush the structure of the base clean.
3. Polish with fibertex. This top finishing suits on the fluor powders too.

Fluor block hot application:

1. Apply thin layer of block glide waxed base.
2. Fasten fluor block layer with wax iron threw fibertex. Cover the bottom surface of the iron with fibertex so that iron itself does not touch the wax. Move iron evenly along the base. Fibertex prevents fluor gases to escape to air and evens the heat of the iron. The heat should be at the same level with what the glider below was worked with.
3. Let the base cool down, brush slightly with finishing brush and polish with fibertex.

6. Coating

Finalizing gliding base has a significant role for getting good glide. With gliders themselves it is not always possible to get optimal surface. This is why it is beneficial to coat the gliding surface with special waxes. With coatings it is possible to soften gliding surface, prevent moisture penetrating or harden the base for better wax durability. Check the purpose of different coating products. Note that coating is made after structuring the base.

- SF10/SF30 (+5° ...-5°C)
- SFR40 (+5° ...-5°C)
- SFR60 (-3° ...-7°C)
- SFR75 (-5° ...-15°C)
- BM7 (+10° ...-3°C)
- FHF5 (+5° ...-1°C)
- FHF7 (-1° ...-5°C)
- FHF9 (-5° ...-14°C)



Rh 75% ...100%

Powdering can be made by hot or cold application.

Fluor powder hot applying



1. Spread even layer of powder on to the pre-prepared base surface.



2. Melt the powder with the waxing iron until the wax forms into a smooth layer on the base surface.

ATTENTION! Melting temperature for all powders 150°C



3. Let cool down and remove extra wax by brushing with nylon and finishing brush.



4. Brush the gliding base after the testing once more with finishing brush.

Cold applying for fluor powders:

1. Spread the powder evenly on to the pre-prepared base
2. Adhere the powder evenly by rubbing with natural cork and brush with finishing brush.



Usage of Start Fluor Powders:



Start SF10 / SF30 Fluor powder

Humidity over 75%. Universal powder for variable snow conditions.



Start SFR40 Fluor powder

Humidity over 75%. For new, fine and old snow +5...-5°C.



Start SFR60 Fluor powder

Humidity over 75%. For new, fine and old snow -3...-7°C.



Start SFR75

Humidity over 75%. For new and fine snow -5°...-15°C.
Use together with LF- and HF- gliders.



Start BM7

Humidity over 75%. For coarse-grained and dirty snow
+10°...-3°C. Use together with BM-glidors.



START FHF functional fluor powders

FHF-line powders are used, when humidity is high (>85%). FHF5-, FHF7- and FHF9- powders are on their best on the FHF-line gliders. FHF-line powders need quite high melting temperature (>+150°C). High temperature provides bigger amount of FHF-powder as normal speed powder.



Usage amounts of powders. On the left picture normal powder and on the right FHF-Series powder:

Powder melted correctly looks smooth and even mat surface.

START R-series Fluor liquid waxes

SFR400 Sprint and BMR9 are modern fluor liquid gliders, which are easy to use and durable for sprint and junior usage.

SFR300 Fluor liquid glider

Humidity over 75%. For old and variable snow conditions +2° ... -7°C. Can be used simultaneously with all gliders.

BMR9 Molybdenum/fluor liquid glider

Humidity over 75%. For coarse-grained and dirty snow +10° ... +3°C. Can be used simultaneously with all gliders.



Waxing with R-series liquid waxes:



Spread liquid glider on to the pre-prepared gliding base. Let dry well and remove extra wax carefully by brushing.

START FHF-Series fluor liquids



Start FHF3 finishing liquid

Start FHF3 finishing liquid (+1...-5°C) is made for moisture conditions. Used as finishing wax for powder or high fluor glider.

START FHF1 finishing liquid

Start FHF1 finishing liquid (+10...+1°C) is made to use on wet conditions on the top of FHF5 powder. Liquid is used as little as possible and must be polished very well. The liquid provides very tight water and dirt repellent surface. Fluoro molecular structure provide maximal hydrophobic properties. If track is not wet the FHF1 liquid is used just under the powder.

Waxing with Start FHF1-liquid:



1. Apply the n1-liquid on to the gliding base.
Note! Only 2-3 drops for entire base both sides of the groove.



2. Spread liquid to get very thin film on to the base e.g with thumb or fibertex.



3. Remove extra liquid by brushing with natural hair brush and wipe finally with fibertex.



4. Polish the base with hard nylon brush and finishing brush. Wipe once again with fibertex in order to get very thin film on to the base. This phase is repeated until no liquid removes from the base.

Note! The waxing will not work if FHF1-liquid layer is too thick!



Base structuring

7. Base structuring

Start has developed this structuring tool in collaboration with the Finish Ski Association's Service team. In moisture and wet snow conditions these light structures, pressed on the gliding base, prevent the suction effect caused by water film between the ski base and snow. Structuring the base creates the possibility of getting air into the water film, which is beneficial for glide. By using the Start Structuring tool the ski bases can be a fine stone grinded with fine stone grind structure. The needed structure can be made due to the snow conditions each time and removed by some hot waxing actions. This expands the function range of the ski.

Attach the pre-prepared ski well to the waxing table or profile. If you want to use liquid waxes as coating, structure the gliding bases before liquide waxing.

Evaluate the snow condition very carefully and choose suitable roll to work with.



Structure roll 5 for cold snow (also fine snow) when humidity is more than 75% (reserve part).



Structure roll 10 for old cold snow when humidity is more than 75%.



Structure roll 20 for high humidity and moisture snow 0°...-5°C (reserve part).



Structure roll 30 for moisture and wet snow.



Structure roll 100 for moisture snow (reserve part).



Structure roll 300 for wet snow and together with roll 30 for very wet conditions.

1. Structuring is made by pushing the tool against the base running from tip to tail. Place Start structuring tool on the gliding base at the tip so that structure roll is in the back side and the driving wheel on the front side of the tool.
2. Lock the structuring roll by pushing the button on the wall and place the tool exactly to the place wanted. Acting like this you can always renew the structure. Before starting structuring check that the guiding rails are placing correctly on both sides the ski walls
3. Press Start Structuring tool properly against the base and push the tool towards the tail along the base.
4. After structuring, brush properly with nylon and finishing brush.



8. Kick waxes

Start has three different full lines of kickwaxes in the product range, which can be used alone or parallel with other lines. These lines have suitable wax for every kind of snow conditions in both recreation and racing skiing.

START tar based kick waxes

- for fine-grained, new snow when the humidity is low.

New snow often results in changing track conditions. It is difficult to get grip, and the risk of icing is great. Tar waxes are exceptionally suitable for new snow conditions, since the tar adapts to temperature fluctuations, increasing the range of conditions in which a wax can be used, and decreasing the risk of icing. The wax mixtures are relatively soft, and invariably require a base wax to be used, usually the Start regular base wax. Tar waxes harden when they are cooled, and thus always need to be applied outside, so that they can be applied in thin, discrete layers, this will also aid in their effectiveness. In general, the tars are an easy to use

START synthetic kick waxes

- for old, coarse-grained snow.

Old coarse-grained snow is more abrasive than new snow, and thus requires waxes with a higher durability. On the other hand, obtaining grip is relatively easy, but requires the wax to be hard enough to maintain its gliding properties. Synthetic waxes are tougher and harder than the tar waxes, and are therefore more durable and improve gliding properties. To ensure that the wax stays on the base, particularly for longer distances, it is recommended that base wax or base klister be applied under these waxes. This base wax layer should be applied using an iron. The surface layers should always be applied outside.

START FHF-functional fluoro kick waxes

- for new and old snow, when humidity more than 55%

On moisture conditions the snow surface is often dirty and track will be clancy. On these conditions liquid friction slows the speed and it might be tricky to get grip enough. To get grip on these conditions the softer kick waxes can be chosen. This might cause easily dirt and moisture collecting, which reduce the ski gliding. Better way is to choose FHF fluoro kick wax, where molecular structure of the fluoro compound prevents suction effect and dirt collecting.

FHF-kick waxes are softer than normal kick waxes and provide better grip and glide abilities. Especially on moisture snow and high humidity conditions FHF-kick waxes are better in all levels than ordinary fluoro or synthetic waxes.

START Black Magic kick waxes

The chemical composition of Start Black Magic and Black Magic Fluoro make them an entirely new type of finishing layer grip wax, which can make grip waxing easier. These waxes can be used as a thin surface layer on top of the wax in all conditions, or mixed with other waxes in changing conditions. Start Black Magic waxes are a powerful deterrent to dirt accumulation and icing. At the same time increase the grip, glide and durability of the wax. The Black Magic waxes perform well in a broader range of temperatures, which eases waxing, since the ski doesn't need to be re-waxed each time it's used, even though weather conditions might be significantly different.

START Racing Fluor Kick Waxes

RF-kick wax line is a fluorinated kick wax line. Suitable for use as kick wax alone or as a finishing wax applied on the top of kick waxing

Tar kick waxes:

- Yellow (+2° ... +1/2°C)
- Purple (+1/2° ... -1/2°C)
- Red (0° ... -3°C)
- Blue (-2° ... -7°C)
- Green (-7° ... -12°C)
- Black (-10° ... -30°C)



Rh 55% ...75%

Synthetic kick waxes:

- Yellow (+3° ... +1°C)
- Purple (+1° ... -3°C)
- Blue (-2° ... -6°C)
- Green (-5° ... -10°C)
- Nordic (-10° ... -30°C)



Rh 0% ...55%

RF kick waxes:

- RF yellow (+3° ... +1°C) Rh 55% ... 100%
- RF purple (+2° ... -2°C) Rh 55% ... 100%
- RF red (-1° ... -5°C) Rh 55% ... 100%
- RF blue (-4° ... -10°C) Rh 55% ... 100%



Rh 55% ...100%

Black Magic Molybdenum kick waxes:

- BM (+2° ... -30°C)
- BM Fluor (+2° ... -30°C)



Rh 75% ...100%

START FHF functional fluor kick waxes

- FHF20 yellow (+3° ... +1°C)
- FHF40 purple (+2° ... -2°C)
- FHF60 red (-1° ... -5°C)
- FHF80 blue (-4° ... -10°C)



Rh 55% ...100%

9. Kick waxing

1. Check that the grip zone has been properly prepared and cleaned.
2. Choose a base wax that is suitable for the conditions. Then, depending upon which base wax is chosen, either iron and cork it onto the ski according to the appropriate directions.
3. Apply one thin layer of grip wax appropriate for the day's conditions, and smooth it with a cork.
4. Cool the waxed ski outside, and then apply many thin layers of an appropriate wax for the day's conditions. Smooth each layer with a cork before applying any subsequent layers.
5. Test the grip, add same or softer kick wax to get better grip, if necessary. You can also top the kick waxing with START BLACK MAGIC –finishing wax or FHF-functional fluor kick wax.

10. Klister

There are different types of klister in Start wax collection

- Base klister
- Start klister
- Specialty klister
- Molybdenum/fluor klister

All start klister may be used alone or together with other klister as a kick wax.

Klister are used for grip wax when the track is extremely icy or wet. Klister are stickier than hard waxes. They are also more durable, adhering to the ski for a longer period of time in abrasive and icy conditions. In coarse, wet snow conditions, grip properties of klister are again better than hard waxes. Thus, in these conditions they are generally a better choice than hard waxes. If the track is dirty, it is necessary to apply a layer of either hard wax or a specialty finishing wax product to resist dirt and debris accumulating in the grip zone. Note! Klister are much softer than hard waxes, and that loose snow can stick to klister, particularly if the skier stands in one spot with klister waxed skis on. This snow can be loosened from the ski by kicking it vigorously down onto the track surface.

Standard Klister:

- Red
- Special (+2° ... -2°C)
- Purple (0° ... -5°C)
- Blue (-4° ... -15°C)



Rh 55% ...100%



Specialty klister:

- Universal Plus (+10° ... +1°C)
- Wide Universal (+10° ... -5°C)
- Base Klister



Rh 55% ...100%



Special klister for finishing layer or blending:

- FHF10 red (+10° ... 0°C)
- FHF30 purple (+2° ... -5°C)
- FHF50 white (+10° ... -5°C)
- BM molybdenum klister (+10° ... -10°C)



Rh 55% ...100%



11. Waxing with Klusters



1. Clean the grip zone of the ski. When using klusters, the waxed area of the grip zone is generally shorter than when using hard waxes. Abrade the grip zone with 80-150 grit sandpaper



2. Warm the kluster in it's tube with a hot air gun. Warm kluster is softer and easier to apply in an even layer. Squeeze kluster onto the grip zone, on both sides of the groove.



3. Spread the kluster with your thumb, hand, or with a cork.



4. Clean any excess kluster from the groove and side walls of the ski.

Put the ski outside and allow it to cool. Assess the weather, and track conditions to determine the need for a covering layer. If one is needed, choose an appropriate wax to use for this covering layer. Apply to the cooled surface using the appropriate directions. **Note!** Finished kluster wax base should not be touched with your hands!!