NORDIC TECHNICAL MANUAL

FISCHERSPORTS.COM

SKILETICS®

SKILETICS® is the modern way to maximize workout time and improve your cross-country skiing. Make a plan to become more fit than you've ever been this winter with a Fischer SKILETICS® total body conditioning program. Take the challenge to ski faster and train harder to feel, look, and ski better.

Get your personal workout plans and more information on
SKILETICS.COM

CONTENT

1. EDITORIAL

THE FISCHER TECHNICAL MANUAL

As a salesperson you are extremely important to the future of cross country skiing. You convey your knowledge and enjoyment of the sport directly to the customers, enabling them to envisage an exciting cross country skiing experience. Customers come to you to find the best equipment for themselves. They want to get out and enjoy the snow and the winter.

At Fischer we value your passion for skiing and want to help you convey this enthusiasm to your customers with the best products and the latest information.

This technical manual is a helpful tool for everybody involved in Nordic ski sports. Thank you for taking the time to read this handbook. There is something of interest for everybody, from entry level to professional. We would be pleased to hear from you with any suggestions for keeping the information up-to-date.

The purpose of this reference guide is to support you with useful, comprehendible information - and not just about Fischer products. It will extend your knowledge of cross country skiing and make it easier for you to sell the Fischer brand.

There are a number of information sources open to you and your customers in addition to the information offered here.
(www.fischersports.com)

We wish you a successful winter!
Your Fischer Nordic Team

Ried, August 2018

2. THE HISTORY OF FISCHER

FISCHER IS THE NORDIC NUMBER ONE PLAYER

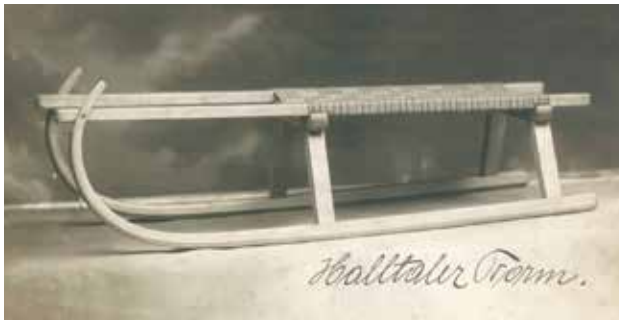
Based in Ried im Innkreis, Upper Austria, the company offers a complete range in the Alpine and Nordic skiing sectors. Skis, boots, poles, bindings and hockey equipment are sold worldwide.

The company was founded in 1924 by Josef Fischer senior who, in the beginning, mainly produced rack wagons and toboggans, plus skis made to order. By 1934 the factory employed 85 staff and was making 40,000 pairs of skis. Today, Fischer has an annual production capacity for more than one million pairs of Alpine and Nordic skis.

In 1984 the development of the Air Core construction introduced the mass production of lightweight skis. In 1988 Fischer installed the first base structure grinding machine for serial production. Fischer‘s innovation – the Nordic Cruising series – was launched in 2002. The shorter, wider skis with the specially patented Wide Body Technology improve climbing performance and stability. With the RCS Carbonlite, Fischer created the lightest racing ski in the history of the company so far in 2006. The Nordic Hole Ski presented in winter 08|09 set whole new standards in terms of lightness. The first cross country skis featuring Nordic Rocker were presented at ISPO 2011 with the Offtrack Cruising line. The latest generation in racing skis was presented at the ISPO show in 2013: Speedmax has opened up a whole new dimension in racing ski speed. 2014 the best-selling mechanical climbing system, known as Crown grinding, has been enhanced to Vario Crown.

Fischer began to sell cross country boots in 1994. The company changed to the NNN (New Nordic Norm) binding system in the 07|08 season and took the leading position with this system. From 2012 Fischer's focus in the boot sector was on "Fischer Climate Comfort", which not only gives you optimum performance and a perfect fit but also perfect in-boot conditions for your feet. In 2015 and 2016 the Speedmax package was made complete by the Speedmax boot and the Speedmax pole. New bindings, binding plates and cross country skiing soles developed by Fischer were presented under the TURNAMIC® brand with the 17|18 range and were used by the World Cup athletes right from the start.

The name Fischer has been associated with competition sport since the 1974 World Championships in Falun (SWE). Since then more than 2.100 Olympic medals, World Championship medals and countless World Cup victories have been won on Fischer cross country skis. At the Olympic Games in Vancouver (CAN) Fischer dominated not only in the ski but also in the boot sector. This success was repeated and underlined 4 years later in Sochi with a new record of 103 medals and again confirmed in PyeongChang 2018. As the most successful ski and boot brand in the World Cup the successful and innovative family business confirm from season 09|10 on its position as the unrivalled number one in Nordic racing.



3. WHAT IS CROSS COUNTRY SKIING?

Cross country skiing involves far more than you might at first think. Offtrack Cruising, Nordic Cruising, Women My Style, Backcountry, S-Bound, Sport and Race are the various activities covered by the term „Cross country skiing“.

From enjoying a bit of exercise out in the fresh air, to tenths of a second crossing the finish line. As there are so many different activities, the material must fulfil a wide variety of requirements.

For this reason it is necessary to be able to place the customer in a target group in order to find the best equipment. This, combined with genuine advice, is the reason why sportspeople feel good with Fischer.

CROSS COUNTRY SKIERS LIVE LONGER

True or false?

People are very aware of the positive aspects of endurance sports in this respect. Even away from the stopwatches, regular exercise is a key element of life outside work for a healthier and thus a higher quality of life. When it comes to winter endurance sports, cross country skiing is at the top of the list. Exercising in the great outdoors on Nordic skis is exceptional not only for the body but also for the soul.

Approximately ninety percent of the body’s muscles are in action, and the cardiovascular system is given an outstanding workout in accordance with the intensity of the exercise. In fact, more than 500 calories are burned per hour, seemingly without any effort, like snow melting away in the springtime sun. Together, the mental relaxation afforded by rhythmic gliding through the winter countryside also soothes the soul If the cardiovascular and musculoskeletal systems are healthy then all you need is the right equipment to enjoy your sport, which can be found at sports retailers. Whether you are a novice, come from a different sport or are an ambitious sports enthusiast, Fischer’s extensive product portfolio with its wide range of models has just what you are looking for.

With the right equipment and preparations, you will be set for the perfect cross country experience.

CUSTOMER BENEFITS

Cross country

- Exercise for a healthier life
- Ninety percent of the body’s muscles are in action
- The cardiovascular system is given an outstanding workout
- More than 500 calories are burned per hour
- Through mental relaxation cross country also soothes the soul
- Fischer offers an extensive product portfolio for all claims

3.1 TARGET GROUPS

3.1.1 RACE

You know who you are. You think in hundredths of a second and individual grams are critical to you. You seek efficiency more than comfort, and speed more than anything. There are complete ranges of high performance equipment for you for race day as well as for the hard training days leading up to it. To see the Fischer Nordic ski and equipment Race collection on display you only need to look at a World Cup race podium.

3.1.2 FITNESS

If you use some faster skiing or you just get of the house onto the snow whenever possible to stay fit, there are two options within the Fitness collection with the technology and designs to match your needs. The Sport collection of equipment and traditional-length skis is designed for skiers who usually stay on prepared tracks to enjoy some energetic skiing. A little speed and a focus on technique are part of their ideal day on the snow. The Cruising collection of mid-length skis and equipment is for skiers who also enjoy a prepared track, with the goal of a relaxing or revitalizing ski session with friends. They appreciate control and stability rather than speed.

3.1.3 ADVENTURE

If you'll go anywhere for good snow and the challenge of unknown trails, we have the right equipment to make you happy wherever you find that untouched snow. If there are really no limits to your exploring, take a look at the Backcountry family of Adventure skis, boots, and poles. Expedition tested and tough for skiers who push the limits of themselves and their gear. Where the goal is to experience ungroomed forest trails and challenging hills starting from your own backyard, the reliable Offtrack Cruising family of mid-length Adventure skis and equipment will get you up, down, and back in safety and comfort.

3.1.4 JUNIOR

Many kids and young people discover enjoyment in cross country skiing from just playing around. They may discover ambition and talent for competition. The stars of tomorrow are being born today. They have fun moving on skis – they just need the right equipment, matched to their needs.

3.1.8 SKILETICS®

SKILETICS® is aimed at customers who want to get into shape or maintain their fitness level. Newcomers from other fitness sports form the core of this lifestyle-oriented customer group. SKILETICS® is a welcome alternative or addition to their fitness training programme. Rather than skiing as many kilometres as possible using perfect technique and at top speed, they are more interested in taking advantage of perfect full body training on skis to get into shape through a brisk workout. After a demanding workout they can enjoy the pleasant tiredness as the reward for their efforts. The training programmes are tailored for novices, advanced and experts.

CUSTOMER BENEFITS

Cross country – physiology

- Whole-body training - 95 % of all muscles
- Positive effects on cardiovascular system
- Improves stamina performance
- Increases blood circulation

General benefits

- Outdoor sport for the whole family
- Easy to handle
- Straightforward to use
- Easy to learn for all age groups and either sex
- Winter alternative to Nordic Walking and Inline Skating

4. WHY CROSS COUNTRY SKIING?

Who isn't looking for a sport which combines health, fitness and the countryside? Cross country skiing is viewed as one of the healthiest sports available. Large muscle groups are put to use and the cardiovascular system trained. In the fresh air, the enjoyment and pleasure are foremost – everyday pressures disappear when you're out on your skis. After a few steps you can definitely feel the relief for body and mind!

But that's not all: cross country skiing has also been used for the treatment of light cardiovascular problems, slightly high blood pressure, rehabilitation after heart attacks, metabolic disorders and even diabetes. Very good results have been shown in these areas.

5. CROSS COUNTRY SKIING TECHNIQUES

There are basically two different skiing styles; the original technique is the Classic Style. At the beginning of the eighties, a new skating style was developed as a result of new technology in track preparation. The two techniques place different demands on the skier and the material.

5.1 SKATING

The skating technique involves kicking with the inside edge as you push away from the ski with its edge turned into the snow. The skis are held in a chevron formation with the open end pointing forwards. The movement is similar to speed skating on ice and inline skating. There are various ways of coordinating the arms and legs, but we will not go into that much detail here. A smooth trail without tracks is required for skating. To be able to skate properly the skier needs to be able to ski on one foot.

5.2 CLASSIC

The main movement in this style is the diagonal pace, which can be used on flat ground and slopes. The acceleration is achieved through the diagonal arm and legwork. The skis are held parallel in the track. In order to push off with the legs, it is necessary that there is adherence friction between the ski and the snow crystals. This can be brought about by waxing or with a mechanical assistance such as Crown Tec, Premium Crown, Vario Crown, Zero+ or Twin Skin. There is, of course, a great difference between the pace of a racer and a ski hiker and it is important to consider this when choosing the material.

5.2.1 RACER

Forwards motion (gliding on one ski) is generated by a dynamic kick given when changing from one ski to the other. Working with the poles is optimised to make a considerable contribution to forward motion. The relationship between legwork and armwork lies at 60-40.

5.2.2 SKI HIKER

He is doing a walk with cross country skis. Hardly any one-legged gliding. The poles are almost solely for balance and hardly needed for forward thrust. The relationship between legwork and armwork lies at 95-5.

5.2.3 FITNESS SKIER

This group is in between the racer and the ski hiker. He is physically fit but due to technical deficiencies or lack of balance is unable to glide on one leg for any length of time. The training is supported by average pole work. The relationship between legwork and armwork lies at 80-20.

EVERY TENTH OF A SECOND COUNTS.

RACE CODE BY FISCHER RACE DEPT.

RACE CODE – THE SEAL OF QUALITY

Fischer has dominated the Nordic World Cup year after year as the most successful ski and boot brand since the 09|10 season. In doing so, the undisputed number one makes a clear statement in terms of technological supremacy. Not only overall World Cup winners such as Johannes Høsflot Klæbo (NOR), Kaisa Mäkäräinen (FIN) and Akito Watabe (JPN) swear by the Speedmax series and the new TURNAMIC® binding setup! Developed by the Fischer racing department together with top athletes in the World Cup, meticulously tested and optimised ready for series production: these products with the RACE CODE mark of quality are available from specialist retailers for all racers and ambitious sports enthusiasts. After all, Fischer does not limit its successful racing technologies just to the elite.

6. THE SKI

6.1 SKI CONSTRUCTION, COMPONENTS AND FUNCTIONS

SALES TIP
During the conversation with the customer, you can use the pictograms on the back end of the ski. These give you information about the skis, the sidecut, the surface finish and much more!

Fischer skis are produced using a sandwich type of construction. Different materials are layered on top of each other and then pressed. A hard, long-lasting, load-bearing centre which is surrounded by fibre-glass or carbon laminates is essential for this sandwich construction form. Fischer uses different types of wood and Air Core – a special lightweight core with a honeycomb structure – exclusively as its core material. Fischer does not use foam as a core material, as foamed cores have a shorter service life and do not have the same high-quality flex behaviour that wood cores offer.

Over the years there has been continual improvement. During the nineties, the Cap Construction was introduced to ski production. The idea behind this innovation is that the whole ski is covered, edge to edge, by a continuous cap. This improves the surface and sidewall resistance against the elements and also gives the designers many possibilities for forming and styling the ski.

In order to improve quality and production precision even further the company invested in a whole new hydraulic press system in 2012. These presses guarantee that there will be continuous further ski developments.

6.1.1 SURFACE

The surface gives the ski its basic design. It also protects the ski against moisture, UV rays, heat and cold, plus various solvents such as wax remover. The surface consists of resistant coatings and design screen print paints.

6.1.2 TOP SURFACE LAMINATE

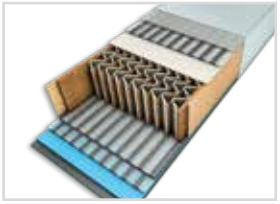
Underneath the surface lies the surface laminate. Thrust-tension, which is caused by bending the ski surface, is absorbed and this plays a major part in increasing the flexural strength of the ski. Fibre glass and carbon are used.

6.1.3 CORE

The height of the core plays an important role in the flexural strength of the ski. A higher core results in a stiffer ski. Pull and thrust tension which is caused by bending the ski is absorbed by the core. Racing skis are regulated by the FIS (Federation Internationale de Ski) whereby the cores have a maximum height of 35mm.

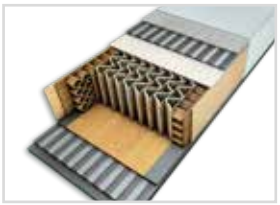
Fischer uses a wide range of partly patented ski cores:

AIR CORE HM CARBON



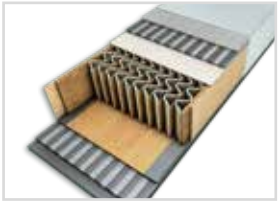
The latest innovation to be developed in recent years with top athletes which has also become established in the World Cup: proven Air Core material - the most successful ski core with over 80% air content for extremely light weight - combined with highly molecular carbon fibres. Thanks to the newely developed Cold Base Bondingprocess, this core technology gives you optimum performance and maximum Speed.

AIR CORE CARBONLITE



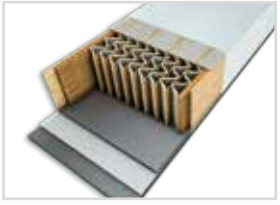
Especially developed bidirectional Air Core technology with multiaxial carbon fibre (Fischer Carbon Fibre) enables a weight of less than 500 g per ski. Improved performance through the use of high-tech materials from carbon and composite technology.

AIR CORE CARBON



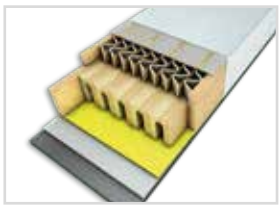
The most successful ski core in the history of Nordic skiing. This technology is based on far-reaching experience in the aerospace industry. With over 80 % air content the material is extremely light. The torsion-free and break-resistant technology with multiaxial carbon fibre (Fischer Carbon Fibre) gives you outstanding performance.

AIR CORE BASALITE PRO



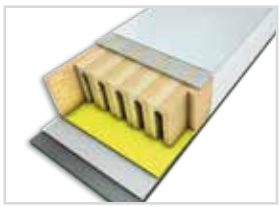
Extremely lightweight and torsion-free construction with highly stable sidewalls. Volcanic basalt fibres additionally reduce the weight and enable perfect flex characteristics in all temperature ranges.

AIR CORE BASALITE



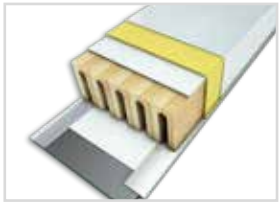
The combination of Air Core material with very light wood also features computeroptimised air channels. This enables a considerable reduction in weight of up to 70 g per pair compared to the Air Tec design. Volcanic basalt fibres enable perfect flex characteristics in all temperature ranges.

AIR TEC BASALITE



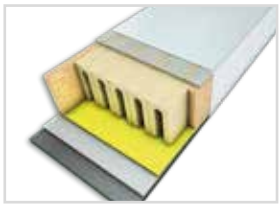
Specially computed air channels in the lightweight wood used mean a reduction in weight of 150 g per pair in comparison to the Air Channel construction. Volcanic basalt fibres reduce the weight and enable perfect flex characteristics in all temperature ranges.

AIR TEC STEEL EDGE



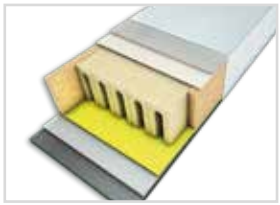
Specially computed air channels in the lightweight wood used mean a reduction in weight of 150 g per pair in comparison to the Air Channel construction. The weight optimisation of the core has been developed especially for the steel edge ski. The use of glass fibre laminates guarantees ultimate strength and ensures optimum surface pressure distribution.

AIR CHANNEL BASALITE



This technology mills air channels into the fibre glass wooden core. The additional use of volcanic basalt fibres means a reduction in weight of up to 290 g compared to pure wood cores.

AIR CHANNEL



This technology mills air channels into the fibre glass wooden core. In comparison to pure wood core construction, 250 g can be saved in weight yet the core is still highly resistant to breakage and offers optimal weight distribution.

6.1.4 SIDEWALLS

The sidewalls protect the ski sides from wear and tear, water and chemical substances such as wax remover etc. They also improve the flexural strength and reduce the side friction in the track. The materials used are man-made, such as synthetic resin sealing compound and cap foils.

6.1.5 BASE LAMINATE

The base laminate takes up any pressure that is caused by bending the bottom surface of the ski and plays an important role in increasing its flexural strength. Similar to the top surface laminate, the base laminate consists of fibre glass and carbon laminates.

6.1.6 BASE COATING

The base coating is the contact point between the ski and the snow. It has two basic functions – to allow the ski optimal gliding capabilities but also to offer resistance against wax-remover, solvents and snow-friction. Surface coatings are made of high-density polyethylene and are produced using two different methods:

6.1.6.1 PRODUCTION METHODS SURFACES

EXTRUDED SURFACE COATING

Polyethylene granules are melted in a heated extrusion screw, flattened into sheets and cut into strips. The coating strips are then rolled together. This type of coating does not take on much wax, does not glide as well or last nearly as long as sintered coatings. Due to their poorer quality, extruded surface coatings are not used by Fischer.

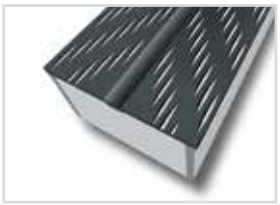
SINTERED SURFACE COATING

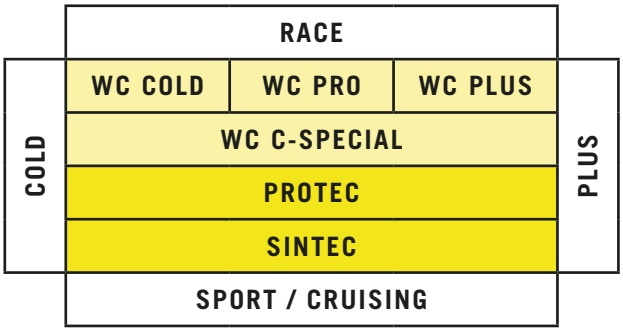
The sinter procedure involves slowly melting polyethylene powder in a heated steel mould and forming it into discs under high pressure. The coating strips are peeled from the discs with a very sharp knife. Sintered coating takes on a lot of wax and is extremely long-lasting. This is why Fischer only uses these coatings – even for the Junior Series.

In order for the ski to glide optimally in different snow conditions there are a variety of surface coatings and cuttings which can be used.

There are different bases for different temperature ranges. The same bases are used for classic and skating skis.

6.1.6.2 BASE TYPES





6.1.6.3 BASE INDEX

BASE	GRAPHITE-CONTENT IN %	TEMPERATURE RANGE	SINTERED
WORLDCUP PLUS	10,0	-5°C and above	X
WORLD CUP C-SPECIAL	0,0	coarse-grain-snow	X
WORLDCUP COLD	4,5	-2°C and below	X
WORLDCUP PRO	7,5	UNIVERSAL	X
PROTEC	7,5	UNIVERSAL	X
SINTEC	3,5	UNIVERSAL	X

6.1.6.4 BASE TECHNOLOGIES – BASE FINISH

The base finish/grinding is a major issue, especially in Nordic racing. As the topic is so extensive, the Technical Manual can look only at the main points.

Snow in general has many sides to it. Whether it‘s powder, virgin or sticky, snow has a variety of crystal structures and differing moisture levels. The interaction of many components is essential in finding the best ski for the respective snow conditions. First and foremost the optimum ski construction needs the ideal base finish for it. To minimise the number of different ski constructions as far as possible – even in racing – there are different base finishes for different snow conditions.

DRY SNOW CONDITIONS

In dry snow conditions the snow crystals have hardly any moisture but they are very aggressive. Fine and smooth base finishes are used here to prevent the sharp-edged snow crystals from snagging the base. These finishes mean there is less space for the snow crystals to attack the base and also prevent the braking effect that would be caused by the crystals snagging the base.

WET SNOW CONDITIONS

If the snow is wet a film of water develops between the snow and the underside (base) of the ski when gliding. If the base has little structure, there is a suction effect. This is what happens if you try to separate two panes of glass that have a film of water between them. The suction effect would lead to the ski braking.

In order to prevent this, the base has a coarse and deeper structure to enable the water to run off and also to let air in between the base and the snow, which prevents the suction effect that slows down the ski.

As a rule a diamond cuts into the grinding tool to begin with so it has the appropriate structure which is then cut into the base with the grinding tool.

It is only a couple of years ago that the base thickness of the ski could withstand merely a maximum of three grinding processes, due to the unsophisticated and harsh grinding technology. These days skis can be ground up to twenty times, depending on their state and the depth of the grinding.

Fischer includes these findings, gained in particular from the racing environment, continuously in its current lines. So every individual customer can benefit from the experience of the Nordic number one in racing. This is where Fischer‘s Finish First comes into its own (see next page).

FINISH FIRST

The term that unites the individual technological steps in the course of the final treatment of the base: starting with the basic grinding and then structural grinding to prewaxed. The fully optimised finishing process consists of many components which have a common goal: optimising the speed of the skis. This is achieved through the minimisation of the thermal stress on the base in the course of the different CNC controlled grinding and structure pro cesses. Finish First: everything that makes the ski fast!

Customer Benefits

- Smooth preparation enables maximum speed
- Higher speed from the start

DIAMOND TUNED GRINDING – DTG

DTG is the technology which uses diamonds to give the cutting stone the optimal structure. Different diamonds produce the optimum structure on the grinding stone. The base is then prepared to perfection using the grinding stone for the respective conditions of use.

DTG – WORLD CUP PLUS

Optimised Plus grinding finish from the World Cup with universal range of use. It is suitable for all types of snow and ensures the best speed in a wide range of temperature.

Customer Benefits

- Universal range of use
- For all types of snow

DTG – WORLD CUP COLD

Cold grinding finish from the World Cup. The very flat structure is best suited for very cold temperature and particularly fine snow conditions.

Customer Benefits

- Very flat structure
- For very cold temperature and particularly fine snow conditions

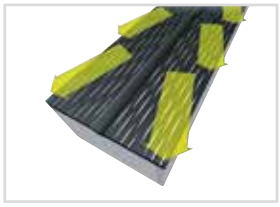
DTG – WORLD CUP PLUS COARSE

Special grinding finish from the World Cup. The deeper and coarser structure is perfectly suitable for coarse-grained and moist snow at temperatures of 0°C and warmer.

Customer Benefits

- Ideal for coarse-grained and moist snow
- For 0°C and warmer

SPEED GRINDING

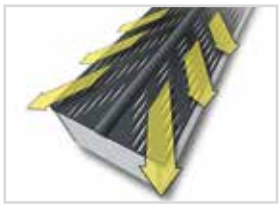


Universal stone grinding for perfect gliding properties in all snow conditions.

Customer Benefits

- Best gliding performance for all conditions

ULTRA TUNING



Offset base structure makes the ski fast and suitable for all uses.

Customer Benefits

- Fast and suitable for all uses

PREWAXED

To ensure that the skis are soaked ideally with wax directly after the initial grinding process and before being sent out to retailers, the top models at Fischer are waxed at the company. The preparation with fluoride content wax offers top gliding properties and protection against dirt and oxidation. In cooperation with Vauhti. Before the skis are used for the first time they have to be prepared as described on page 35 or via QR code.

Customer Benefits

- Best gliding properties right from the start
- Protection against oxidation and contamination

THERMOBOX

Commercially available Thermoboxes are being used more and more to enable perfect ski preparation after grinding or treating with wax or fluoride remover and enable the skis to soak up the wax.
To begin with, soft wax is ironed into the skis which are then heated inside the Thermobox up to a maximum of 65°C (see also manufacturer's recommendations) for around four hours. This way the heated and melted wax penetrates deep inside the pores of the skis and soaks the base for longer.
On the whole it is important that the melting point of the

wax is well below the 65°C mark and that the temperature is kept constant. Local overheating and mechanical strain must be avoided on all accounts. Please refer to the manufacturer's recommendations for further details.

SALES TIP
Sell your customer a ski service as well or offer him or her gliding wax to use at home. Many clients do not know that they may also need additional products.

6.1.7 BASE SURFACE

Identical surface coatings are used for both classic and skating skis. The difference lies in the function of the base underneath the central binding area.

COATING ZONES

A classic cross country ski has three zones – at the front and back gliding zones and in the middle the climbing zone (wax hole).

The gliding zones are necessary, as the name suggests, for gliding. The climbing zone establishes the contact with the snow in order to push off (climbing aid). This zone can have several different qualities.
A skating ski has only one gliding zone, which runs through the whole of the ski. A climbing zone is not necessary as the push off is produced by pressure on the edges.

SKATING AND WAX SKIS

The surface coatings of these skis are constantly flat and there are no mechanical climbing aids.
The propulsive force from classic skis can only be produced with climbing wax which varies according to the outside temperature and snow conditions.

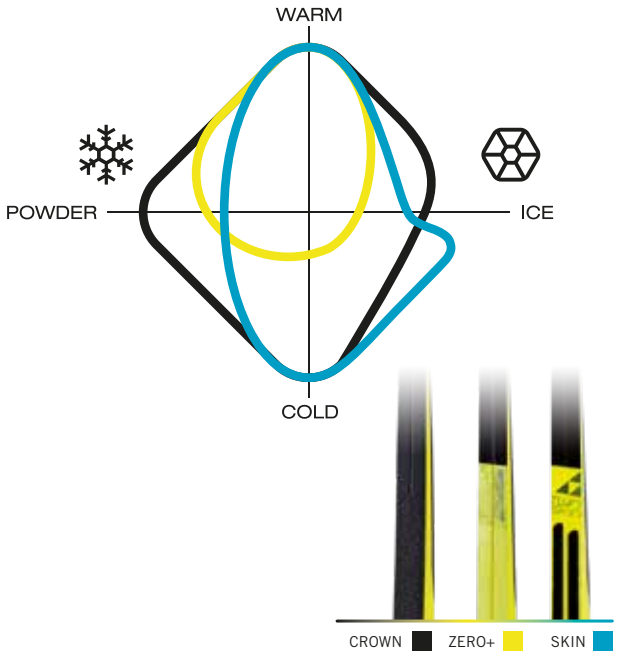
NO WAX SKIS

As mentioned before these skis have the same gliding zones as wax skis. The big difference lies in the climbing zone.
Various climbing structures feature in the mid-section of the base. Fischer has Zero+, Vario Crown and Twin Skin models.

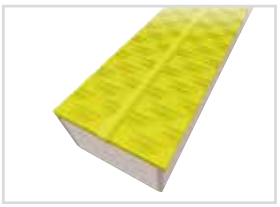
6.1.8 CLIMBING AIDS

CLIMBING AIDS - AREA OF APPLICATION

In order to have a better overview of the different climbing systems, the following graphic representation gives you a clear picture of when Zero+, Twin Skin and Vario Crown are used: Zero+ is a special ski for temperatures around the 0 degree mark and warmer. Twin Skin is particularly strong in icy conditions. Vario Crown is the most universal climbing aid.



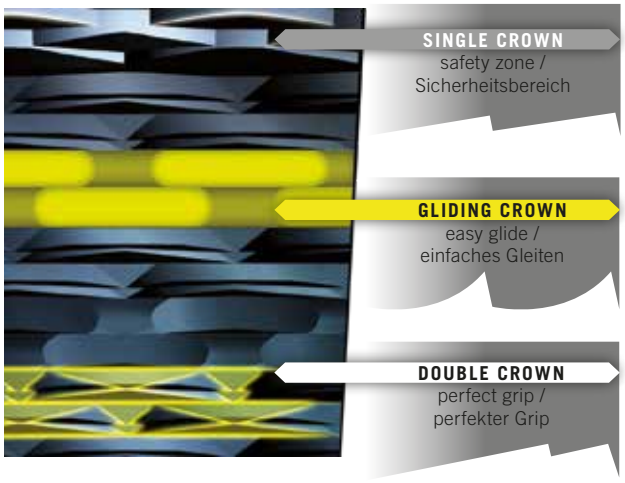
CROWN TEC



Crown Tec is the climbing system patented by Fischer. The sharp-edged, offset step pattern enables reliable climbing in all conditions. The steps which are cut into the base run along the entire width of it to the edge of the ski. Two different cutting patterns and combinations of them are used. Single Crown simply means a-single cut and Double Crown refers to a double-cut climbing system.

VARIO CROWN - GRIP MEETS GLIDE

This cutting pattern which was developed in elaborate tests ensures previously unattained efficiency in motion. In what is perfect interaction with the successful and proven Single and Double Crown units for a direct, powerful kick action, the special developed Gliding Crown sections with their rounded profile guarantee maximum ease when gliding. The optimum tuning of the climbing and gliding system elements is the secret behind the versatility in use in all snow conditions. Icing up and waxing are a thing of the past for the Vario Crown-technology.



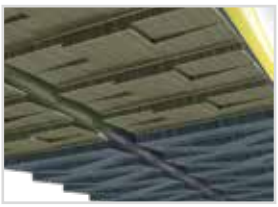
The Crown technology: a combination of Single, Double and Gliding Crown for efficient power transfer and optimum gliding properties.

For more information use the link via the QR code to go to the video Vario Crown.

Customer Benefits

- Efficient powertransfer
- Safe kick action in all temperatur- and snow conditions
- Improved gliding properties

PREMIUM CROWN

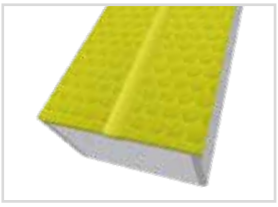


Combination of Single and Double Crown for greater climbing and better gliding in all snow conditions. Single Crown is found in the front and rear section of the climbing zone whereas Double Crown runs across the entire centre section.

Customer Benefits

- Excellent slide in
- Secure climb
- Excellent glide

OFFTRACK CROWN



With this climbing system for the steel edge models the kick action improves considerably in all terrain. As a result the ski is convincing especially away from the prepared tracks and also in difficult terrain conditions. Offtrack Crown was developed exclusively by Fischer.

Customer Benefits

- Improved kick for all terrain

FISCHER EASY SKIN

The easiest way to attach climbing skins: combination of adhesion and click-in-place for reliable grip and straightforward attachment and removal.
For more information use the links via the QR codes to go to the Fischer Easy Skin user's guide and video:

Customer Benefits

- Easy and fast skin fixation
- Homogenous glide
- Maximum ski control

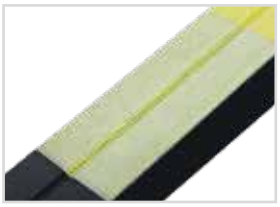
OFFTRACK CROWN & FISCHER EASY SKIN

Exclusive climbing system combination for steel edge skis. If Offtrack Crown no longer grips in steep terrain, it's time for Fischer Easy Skin. Like a switch-on all –wheel drive.

Customer Benefits

- Improved climbing for steep terrain thanks to Fischer Easy Skin
- Controlled downhill

ZERO+



When waxing experts despair, Zero+ with its special roughened base is the ideal solution. Its field of application: for temperatures around 0°C and much warmer. The three-piece construction with two different base types was developed in racing. Fast World Cup Pro base for perfect gliding in all temperature and snow conditions. The ideal second ski when pure classic wax models have to stay in the ski bag due to difficult wax conditions. Preparation see page 37.

Customer Benefits

- Alternative for difficult waxing conditions
- Safe kick action and optimum gliding for temperatures around 0 degrees C and warmer

TWIN SKIN

Two separate skin strips arranged in offset positions and with variable base-depth integration result in smooth and balanced gliding. 100% mohair or mohair mix (amount of mohair depends on model) skins ensure reliable kick performance, especially in hard or icy conditions. Thanks to the unique Teflon coating of the skins, moisture absorption and subsequent icing is completely minimised.

Customer Benefits

- Safe kick action in hard or icy conditions
- Harmonious gliding characteristics
- Icing up reduced to an absolute minimum

TWIN SKIN CARE

When using the skin ski it is quite normal for the skin strips to pick up particles of dirt or wax from the track and become soiled over time. This results in reduced gliding properties and the risk of snow sticking. A certain amount of skin ski care will help here and guarantees you more fun in the differing snow conditions.

01. To clean the skin strips we recommend applying EASY SKIN CLEANER and then cleaning the skin strips from the front to the rear with a cloth.

02. In order to improve gliding and prevent snow from sticking we recommend you use EASY ANTI ICE SKIN HF, which is likewise applied from the front to the rear.

Both products are free from hydrocarbon solvents which means that there is no negative impact on the adhesion of the skin glue. Be careful with products containing hydrocarbon solvents: excess amounts may lead to the skin glue coming undone.

TWIN SKIN LENGTH ADAPTATION

Proper care and preparation is necessary to achieve optimum performance and extend the service life of Twin Skin skis. However, depending on snow conditions and the strength of the kick action, the skins will show signs of natural wear after they have been in use for some time. The skins should be replaced by a dealer if their kick action deteriorates considerably.

01. Cut out the template from the cardboard for the required skin length along the printed line.

02. Place the template which has been cut out on the rear of the skin at the end and attach it there with adhesive tape.

03. Shorten the skin along the cardboard template using a sharp pair of scissors.

04. Remove the cardboard and adhesive tape from the skin and stick the skin into place as described in "Twin Skin Replacement".

TWIN SKIN REPLACEMENT

01. To remove the old skins, warm them a little with a hairdryer or iron (approx. 120-130°C).

02. Next, starting at the rear end, lift and remove the old skin carefully using a sharp implement.

03. Clean the skin groove with wax remover and remove any traces of adhesive which may be left behind. Let the groove dry completely.

04. Remove about 5cm of the protective film at the front of the new skin.

05. Make sure the hairs are in the right direction: when you run your finger over them from the front to the rear of the skin you should not feel any resistance.

06. Position the skin in the groove at the front end and press it down with your finger.

07. Next, press down the skin into the groove working from the front to the rear. Following this, remove the film from front to rear using one hand and while doing this gently press down the skin with the other hand likewise from front to rear. Important: do not stretch the skin at all because it should keep its original length and fit perfectly in the skin groove.

Finally, go over the skin again several times with your hand, press it down and make sure it is in place without any unevenness. If you do find any bumps, press them down to remove them.

TIP
For the new skins to hold better once they have been stuck in place, warm them again a little with a dryer or iron and then smooth/press them down into the groove.

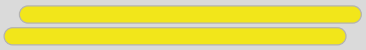
ADJUSTABILITY ON CLIMBING SYSTEM MODELS

As, on models with fixed climbing systems (Twin Skin, Crown and Zero+ models), the length of the climbing system cannot – unlike the wax on a wax ski – be adapted to the snow conditions, the individual binding setting is of particular importance. You can influence performance by adjusting the binding.

In principle the following applies: if you move it forward you have more „grip“ and easier climbing. If you move it to the back you have more „glide“ and better gliding properties.

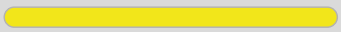
Detailed information on binding adjustability can be found on page 44.

TWIN SKIN REPLACEMENT

K52218 TWIN SKIN MOHAIR YELLOW WIDE 			37cm	41cm KIT	
Race	Twin Skin Speedmax		187 / 192	197 / 202 / 207	

K51217 TWIN SKIN WHITE MOHAIR 		33cm	33cm KIT	41cm KIT	45cm KIT
Race	Twin Skin Carbon		187 / 192	197 / 202 / 207	
	Twin Skin Race 17I18			187 / 192	197 / 202 / 207
	Twin Skin Superior			182 / 187 / 192	197 / 202 / 207
Jr	Twin Skin Carbon Jr	157 / 162 / 167	172 / 177 / 182 / 187		

K51116 TWIN SKIN YELLOW MOHAIR MIX 		33cm	33cm KIT	41cm KIT	45cm KIT
Race	Twin Skin Pro / Superior			182 / 187 / 192	197 / 202 / 207
	Twin Skin Performance			182 / 187 / 192	197 / 202 / 207
Fitness	Twin Skin Superlite EF			179 / 184 / 189	194 / 199 / 204
	Twin Skin Power EF			179 / 184 / 189	194 / 199 / 204
	Twin Skin Sport EF			179 / 184 / 189	194 / 199 / 204
Junior	Twin Skin Race Jr		127 / 137 / 147	157 / 167 / 177	
	Twin Skin Pro Jr		117 / 127 / 137 / 147	157 / 167	
	Twin Skin Sprint	100 / 110 / 120	130 / 140 / 150	160 / 170	

K51317 SKIN YELLOW MOHAIR MIX 		33cm	33cm KIT	41cm KIT	
Jr	Performance Skin Jr	97 / 107 / 117	127 / 137 / 147	157 / 167	

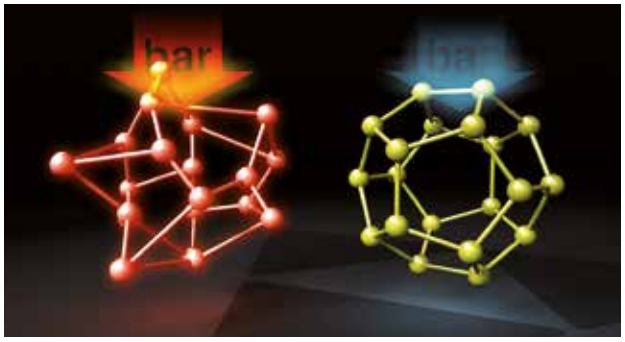
6.1.9 CONSTRUCTIONS

COLD BASE BONDING

The secret lies in the finest detail, or to be more precise, in the molecular structure of the base. High temperatures and pressure in conventional base application processes have a negative effect on this structure. Which is why Fischer has developed Cold Base Bonding: a unique process which retains the homogeneity of the original molecular structures by avoiding heat and pressure when the base is added. As a result, Fischer gives you exclusively unrivalled gliding properties and maximum speed!

Customer Benefits

- All-time wax absorption
- Greatly improved grindability
- Perfect dynamics and maximum speed



Conventional base application

Base application with Cold Base Bonding

Positive side effect: thanks to the homogeneity of the structures the individual pores of the base also remain intact in their original form. The previously unattainable wax absorption and considerably improved grindability of the base lead additionally to the best conditions for maximum speeds.

In the past skis had different characteristics at different temperatures. The reason for this lies in the different reactions of the materials used for the ski body and base to changes in temperature. This is not good for the ski as the performance changes and becomes incalculable.

Thanks to Cold Base Bonding the newly developed special connecting level acts as an intermediate layer which efficiently absorbs the thermal changes of the various material The result: consistent and perfect ski performance in all temperature conditions.

NORDIC HOLE SKI

Small cause, big effect. With the hole ski construction Fischer reduces the mass inertia on skating skis considerably:

The problem: every skating stride results inevitably in a more or less strongly defined pendulum motion. The heavier the ski tip, the more energy you need to bring the ski back again to the optimum initial and kick position.

The solution: with its hole ski construction Fischer reduces the mass in the ski tip, consisting of a special configuration of HM carbon laminates, by 5 grams. The effect: less energy exertion and loss when balancing out the pendulum motion. This enables greater precision in skating strides and higher stride frequency.

Fischer uses the law of mass inertia in its hole ski technology. This law states that the further the weight is from the centre of rotation (binding axis), the greater the effect it has on the mass inertia of the system. The hole ski construction reduces the mass in the ski tip and, therefore, also the pendulum motion of the ski in the skating stride.

Customer Benefits

- weight reduction
- less energy exertion and loss
- greater precision in skating strides and higher stride frequency

CARBON PRO TIP & TAIL

3D Classic ski tip and tail made of real carbon. Optimum swing behaviour through weight reduction. Can be felt in every Classic stride.

Customer Benefits

- Maximum weight reduction in tip and tail
- New dimension in swingweight classic
- Saves energy
- Excellent handling

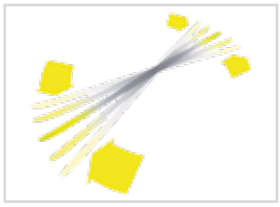
SPEED TIP & TAIL

Special designed ultralight laminates in ski tip and tail mean even less ski weight. The advantage: less inertia and optimised swing weight.

Customer Benefits

- Maximum weight reduction in tip and tail
- New dimension in swingweight
- Extremely flat and lightweight 3D ski tip

SWINGWEIGHT SKATING

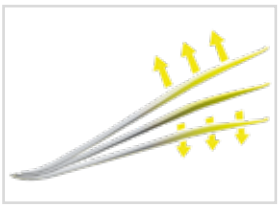


The reduction of the pendulum motion ensures a smooth tracking pattern. This means that the angle of the two skating skis to each other is virtually exactly the same size in every stride. The advantage: optimum push in every stride.

Customer Benefits

- Optimal swingweight
- Less energy exertion
- Best handling

SWINGWEIGHT CLASSIC



Thanks to the long lever the weight reduction in the ski tail in particular means you can feel the clear lightness with every stride you take.Optimum swing behaviour and, therefore, energy-saving skiing are the result. The benefits from the minimised weight in the ski tip can also be seen in changing tracks and in turn technique so you can feel the easier handling and optimum performance.

Customer Benefits

- Minimized weight
- Easy handling and optimal performance

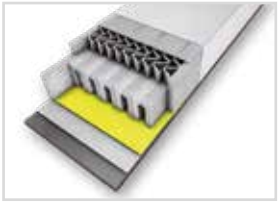
FISCHER CARBON FIBRE - FCF

Fischer‘s multi-axial T300 1K carbon fibre enables ski core technology to be optimised in a new dimension. Implemented in ski tips, tails and as Air Core Carbonlite laminate guarantees the greatest strength and weight reduction.

Customer Benefits

- New weight dimension: below 1.000g / pair

POWER LAYER

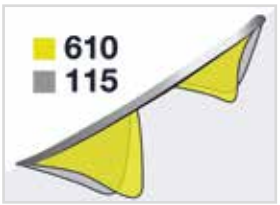


0.2mm thin, extremely lightweight, full-surface high-pressure laminate comprising natural fibres and resin for noticeable ski weight reduction.

Customer Benefits

- Enormous weight reduction
- Homogenous pressure distribution

SKATING 610

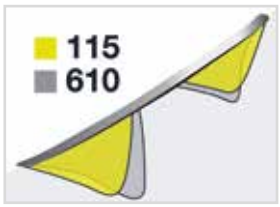


Skating race ski construction for maximum speed through pressure relief at the ski tip and tail. Perfect on compact to soft snow.

Customer Benefits

- Excellent dynamics and gliding for compact to wet conditions

SKATING 115

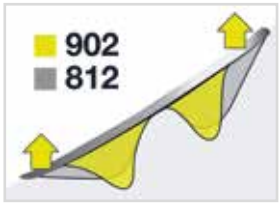


Special camber and snow contactpoints further apart from each other mean increased stability and a more powerful kick action on hard snow.

Customer Benefits

- Maximum stability on hard snow
- Secure hold for a powerful kick action

CLASSIC 902

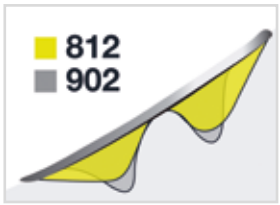


Race ski construction with noticeable pressure relief at the ski tip and tail for a direct, quick and safe kick phase. Ideal for: universal to wet conditions, klister.

Customer Benefits

- Direct, quick and safe kick phase for universal to wet conditions
- Minimum wax loss through friction

CLASSIC 812

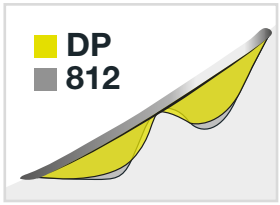


Race ski construction with long, dynamic wax pocket pattern for minimum wax loss through friction. Ideal for: cold conditions and dry wax conditions.

Customer Benefits

- Special construction for cold conditions and dry wax conditions
- Minimum wax loss through friction

CLASSIC DP



Special construction which observes the requirements of double poling. It unites the benefits of the skate design with those of the classic design. The forward thrust power of the arms is transferred efficiently into the direction of motion.

Customer Benefits

- For more power when double poling
- Greatly improved wax absorption and base grindability

EFFICIENT FORWARD >>

PRACTICING WAS YESTERDAY, ENJOYMENT IS NOW.

Practice makes perfect – but most of the time it isn't fun. The good feeling of smooth motion is something quite different: this is what makes your time on the track an unforgettable experience! And to make sure this not only happens sooner but also lasts longer, Fischer gives you Efficient Forward. Thanks to the revolutionary composition of proven materials, the elasticity of the body of the ski is increased remarkably. It fills beginners and advanced recreational skiers with enthusiasm, thanks to a forgiving kick action and a new, carefree skiing experience. If you would rather glide with ease than practice hard, then a Fischer Sport model with Efficient Forward is the right choice for you!

EFFICIENT KICK

Full concentration on the snow-covered winter landscape instead of the kick action! Because Efficient Forward technology compensates any errors and flaws in the kick action effectively. The new elasticity of the ski supports the interaction of the climbing zone and the snow beneath it in a previously unknown form. The result: the timing of the kick action does not have to be so exact, leaving you more time for the contact in the kick phase. This ensures that power is transferred to the track in impressive style, even if your own skiing style is not world championship level. This positive feedback from the equipment is a great motivator when it comes to having fun with healthy exercise while enjoying the great outdoors!

EASY-GOING

Enjoying the perfect skiing experience has never been as easy as it is today: which comes as no surprise, seeing as the weight saved by the new construction compared to the previous model is up to 200 grams. The combination of this light weight and the elasticity of the ski culminates in the whole new, forgiving kick action and carefree cross country skiing experience. This will be appreciated above all by skiers who are not so technically accomplished.

BECAUSE NOT EVERYONE HAS THE KICK ACTION OF A RACER:

Customer Benefits

- Extremely light
- Top performance
- Efficient kick and

NORDIC ROCKER CHAMBER

The special construction achieves a smooth in the shovel with slightly open ski tips. As a result the ski can be turned more easily, more quickly and with less effort. In addition to this it gives you perfect gliding properties in soft conditions in unprepared terrain.

The construction is characterised by two numbers. In the case of the 5/10 Nordic Rocker construction, for example, the 5 refers to the height difference in millimetres of the ski tip with/without pressure on it. The 10 shows how many centimetres the contact point of the ski moves back when pressure is placed on it compared to when there is no pressure on it.

Example: 5/10 Nordic Rocker

Customer Benefits

- Easy and fast to turn
- Smooth glide in soft conditions

HYBRID®

The special combination of two different technologies offers surface and sidewall protection against mechanical influences and enormously improved design possibilities.

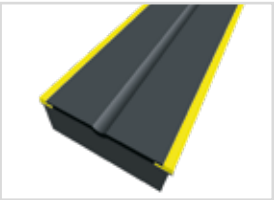
Customer Benefits

- Surface and sidewall protection
- Enourmously improved design possibilities

6.1.10 THE EDGE

The edges are not usually a separate component, except when the ski has a steel edge. The narrow steel edge offers optimal grip in downhills in all conditions.

STEEL EDGE



Narrow, continuous steel edge over the whole length of the ski allows the Backcountry skier maximum control and a constant grip.

Customer Benefits

- Additional security in hard and icy conditions

6.2 FEATURES INFLUENCING THE SKI PERFORMANCE

6.2.1 SKI LENGTH AND STRENGTH

A certain length and strength of ski is necessary in order to achieve good stability. Skiing ability and body weight are the two main factors when deciding on the length and stiffness of the ski.

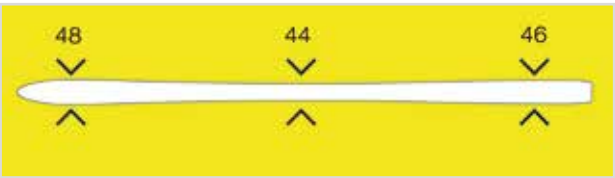
A longer ski has the advantage of better tracking; it is possible to take longer strides without lifting the tip, especially in the classic style. Shorter skis are, however, easier to handle and turn. They are lighter and are more manoeuvrable in tight, winding terrain.

Details on the right length of ski can be found on pages 28 to 32.

6.2.2 SKI WIDTH AND SIDECUT

The side cut is the shape of the ski when looking at it from above. The three figures define the relationship of the ski width at the shovel, the waist and the tail of the ski.

Sidecut example:
47-43-45 Sport Model Superlite Crown

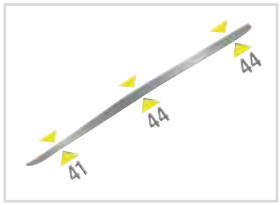


The various sidecuts have different effects on the behaviour of the ski.

• Strongly tapered:	The ski turns more easily
• Less tapered:	The ski glides and tracks better
• Wider ski:	More stability
	Firmer stance
	Ideal for beginners
• Narrower ski:	Less weight
	Sporty behaviour

There are several different sidecuts:

ARROW SHAPE



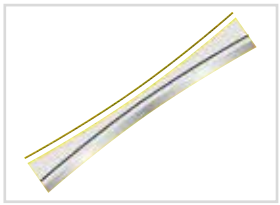
Classic: less contact between edge and track due to narrow construction at the forebody of the ski. The forward motion of the leg in the kick phase becomes more dynamic.

Skating: Improved skiing performance and dynamics especially for the 1:1 skating technique.

Customer Benefits

- Fast skis on World Cup level
- Skating: Improved dynamics for the 1:1 technique
- Classic: Less contact between edge and track

TAPERED



The sidecut used on the Classic models in the Sport target group. The broader shovel and wider tail section make the ski easy to control. Changes in direction and fast stopping are easier as a result.

Customer Benefits

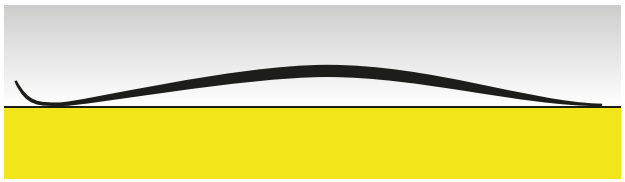
- Easy to control in decents and when braking

6.2.3 SKI PARAMETERS

Every cross country ski has a certain degree of tension. Generally, skating skis have more tension than classic skis. The simple reason is that the classic ski requires contact friction under the ball of the foot when pushing off but the skating ski must not have any snow contact in the middle at all.

The ski tension must always be suited to the weight and skill level of the cross country skier.

PRE-TENSION



Cross-country skis always have a certain amount of tension. The pre-tension is the distance between the ski itself (without any pressure on it) and the flat surface on which it rests.

RESIDUAL TENSION

The residual tension describes the small gap that is left underneath the binding area, when the skier stands evenly on both feet.

CAMBER PRESSURE

This is the power that is necessary to press the ski down on a flat surface until only a 0.2 mm gap in the binding area can be measured. The 0.2 mm is necessary for the layers of wax which will then be applied. It is also possible to describe this as the force that is necessary to connect the ski with the snow.

CONSEQUENCES OF TOO MUCH TENSION

Skating: there is a feeling that the ski is digging into the surface, especially on soft snow. The ski tip and end sink in and slow the skier down.

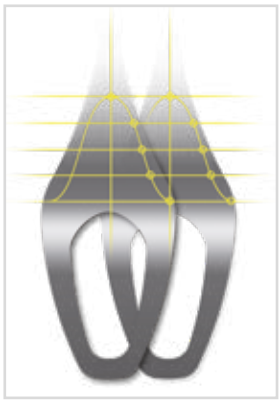
Classic: pushing off becomes almost impossible as the skier cannot make any contact between the wax/climbing aid and the snow.

CONSEQUENCES OF TOO LITTLE TENSION

Skating: the ski loses its dynamics and begins to „swim“. It no longer has the necessary tracking qualities, especially on harder snow.

Classic: the ski is slow due to the permanent wax/climbing aid contact with the snow. Skiers call this a „blunt“ ski.

PRECISION PAIRING SYSTEM



The next generation in ski pairing: fully automatic dynamic measuring of a multitude of pairing criteria means that ski properties are documented with even greater precision. This exact technical data means optimum, computer-controlled pairing. The new Precision Pairing System thus ensures accurate ski pairing and consequently optimum ski choice.

Customer Benefits

- dynamic fully automatic ski measurements
- even more minimised tolerances within a pair
- optimised computer-controlled ski selection
- precise ski pairing

TORSIONAL STIFFNESS

This refers to the stiffness of the ski which enables it to resist turning/twisting forces. Too little resistance causes poorer stability. As well as this, energy may be lost sideways which is a problem, especially with skating skis.

SKI WEIGHT

Weight plays a crucial role for racing skiers. The use of stable yet light materials such as Air Core and carbon laminates allow for weight reduction. Lighter skis are less tiring, especially over long distances, and are easier to manoeuvre. It is also possible to go faster.

A priority is also the weight in motion and the mass inertia, which is why Fischer has attached great importance to weight reduction at the ski tip and tail over many years. (See Nordic Hole Ski and Carbon Pro Tip & Tail page 23).

7. SKI SELECTION

7.1 LENGTH RECOMMENDATION

(See next page.)

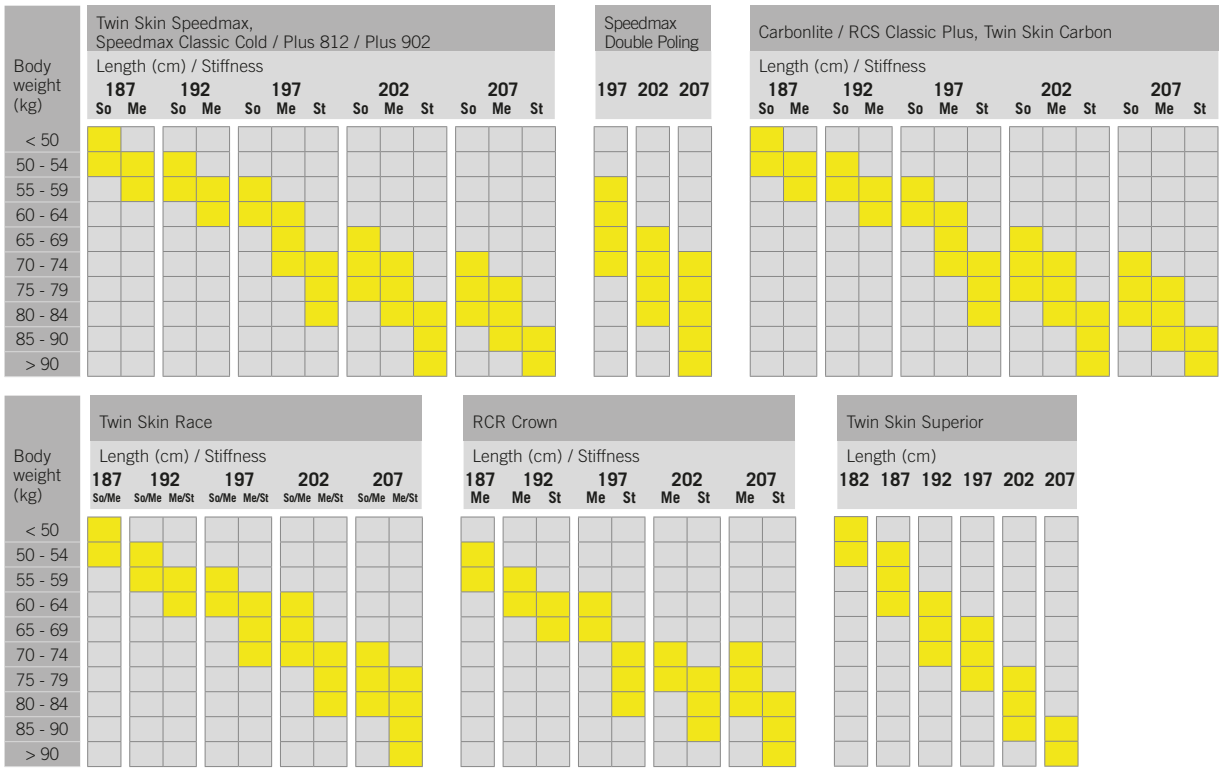
SKI SELECTION

Not all models are available in the specified lengths and hardnesses. See line-up for details.

LENGTHS RECOMMENDATION RACE SKATING

Stiffness:
So = soft
Me = medium
St = stiff

LENGTHS RECOMMENDATION RACE CLASSIC



LENGTHS RECOMMENDATION JUNIOR

Body weight (kg)	Speedmax, Carbonlite, RCS Skate Jr Length (cm)							
	141	146	151	156	161	166	171	176
< 24								
25 - 29								
30 - 34								
35 - 39								
40 - 44								
45 - 49								
50 - 54								
> 55								

Body weight (kg)	RCR Skate Length (cm)					
	121	131	141	151	161	171
< 24						
25 - 29						
30 - 34						
35 - 39						
40 - 44						
45 - 49						
50 - 54						
> 55						

Body weight (kg)	SCS Skate Length (cm)				
	121	131	141	151	161
< 24					
25 - 29					
30 - 34					
35 - 39					
40 - 44					
45 - 49					
50 - 54					
> 55					

Body weight (kg)	Speedmax, Carbonlite, RCS Classic Jr Twin Skin Carbon Jr Length (cm)							
	152	157	162	167	172	177	182	187
< 24								
25 - 29								
30 - 34								
35 - 39								
40 - 44								
45 - 49								
50 - 54								
> 55								

Body weight (kg)	RCR Universal Length (cm)									
	127	137	147	152	157	162	167	172	177	182
< 24										
25 - 29										
30 - 34										
35 - 39										
40 - 44										
45 - 49										
50 - 54										
> 55										

Body weight (kg)	Twin Skin Race Jr Length (cm)					
	127	137	147	157	167	177
< 24						
25 - 29						
30 - 34						
35 - 39						
40 - 44						
45 - 49						
50 - 54						
> 55						

Body weight (kg)	Twin Skin Pro Jr Length (cm)					
	117	127	137	147	157	167
< 24						
25 - 29						
30 - 34						
35 - 39						
40 - 44						
45 - 49						
50 - 54						
> 55						

Body weight (kg)	SCS Race Length (cm)						
	127	137	147	157	162	167	172
< 24							
25 - 29							
30 - 34							
35 - 39							
40 - 44							
45 - 49							
50 - 54							
> 55							

Body weight (kg)	Sprint, Sprint Crown, Twin Skin Sprint Length (cm)								
	90	100	110	120	130	140	150	160	170
< 24									
25 - 29									
30 - 34									
35 - 39									
40 - 44									
45 - 49									
50 - 54									
> 55									

Body weight (kg)	Twin Skin Snowstar Length (cm)				
	100	110	120	130	140
< 24					
25 - 29					
30 - 34					
35 - 39					
40 - 44					
45 - 49					
50 - 54					
> 55					

FITNESS / SPORT

Body weight (kg)	Length (cm) / Stiffness						
	179	184	189	194	199	204	204 X-St
< 50							
50 - 54							
55 - 59							
60 - 64							
65 - 69							
70 - 74							
75 - 79							
80 - 84							
85 - 90							
> 90							
100 - 130							

Stiffness: X-St = Xtra Stiff

Twin Skin Superlite Stiff

Body weight (kg)	Length (cm) / Stiffness					
	179 St	184 St	189 St	194 St	199 St	204 St
55 - 59						
60 - 64						
65 - 69						
70 - 74						
75 - 79						
80 - 84						
85 - 89						
90 - 94						
95 - 99						
100 - 104						
105 - 109						
110 - 114						

FITNESS / CRUISING

Orbiter EF, Twin Skin Cruiser EF, Cruiser EF, & Apollo EF

Body weight (kg)	Length (cm)			
	S	M	L	XL
< 55				
55 - 79				
80 - 95				
> 95				

FITNESS / CRUISING

Inspire My Style EF & Mystique My Style EF

Body weight (kg)	Length (cm)		
	XS	S	M
< 55			
55 - 70			
> 70			

ADVENTURE / BACKCOUNTRY

Body weight (kg)	Country, E89, E99 Length (cm)							
	170	180	185	190	195	200	205	210
< 49								
50 - 54								
55 - 59								
60 - 64								
65 - 69								
70 - 74								
75 - 79								
80 - 84								
85 - 89								
> 90								

Body weight (kg)	E109 Length (cm)				
	170	180	190	200	205
< 49					
50 - 54					
55 - 59					
60 - 64					
65 - 69					
70 - 74					
75 - 79					
80 - 84					
85 - 89					
> 90					

** Model starts from 157cm

ADVENTURE / OFFTRACK

Body weight (kg)	Length (cm)			
	169	179	189	199
< 65				
65 - 89				
80 - 105				
> 100				

ADVENTURE / S-BOUND

Body weight (kg)	Length (cm)			
	159	169	179	189
< 55				
50 - 70				
66 - 86				
> 84				

7.2 TEST BOARD

Using the test board is generally the best way of selecting classic and skating skis. This method is indispensable for choosing classic skis with a waxed base. The advantage is that you can choose the ski that ideally matches the customer‘s weight. You are then also able to see the length of the waxed zone and mark it on the ski. With skating skis it is extremely important to find the ski with the right tension for the customer‘s body weight.

Find out more about the technology behind the test board in section 6.2.3 (see pages 26 and 27) on ski parameters.

The use of the Fischer Sports test board is also shown in detail on a video. Use the link via the QR code to watch it.

HOW TO USE THE TEST BOARD

WHAT?	HOW?	WAXSKI	CROWNSKI	SKATINGSKI
Residual tension	Stand with both legs on both skis (full heel and sole contact).	Mark the front and back ends of the gap on the sidewalls (= wax zone). These marks serve as wax marks, i.e. the wax should be applied within them. Note: a) The harder the wax, the longer you can use it. b) The safer and stronger the kick-off, the shorter the waxing. c) The rear wax mark is always near the end of the heel.	Mark the front and back ends of the gap on the sidewalls. Note: a) The more athletic or skilled the skier is, the more exact the marks should match the Crown cut. b) If the skier is weaker or less confident, the Crown cut zone should reach out further over the marks.	1. Place the ski on the test board according to its length and stiffness. 2. Stand with both legs on both skis (full heel contact) where the marks are. 3. Move the slider backwards and forwards and mark the front and back ends of the gap. 4. The ski hardness is perfect when the measuring plate can be slid forward up to plus 40 and backward to around minus 30. 5. Stand on one leg on one ski. 6. The gap is now shorter. Ideally it should reach as far as plus 33 at the front and minus 20 at the back. If the gap closes, the ski is too soft.
				
Secondary tension	Stand with one leg on one ski (full heel and sole contact).	Mark the front and back ends of the gap on the sidewall. This distance is the shortest wax zone. If the wax area is too short then the ski will slip and the kick-off will be difficult. Note: a) Short wax zone for klister or very soft, dry wax. b) The wax length can be varied between the shortest and longest zone.	Mark the front and back ends of the gap on the sidewalls. Note: a) The more insecure the skier is or the weaker the kick action, the shorter the distance should be between the front and back marks; in the case of ski hikers the slider should not be able to move any more. b) If the skier handles the classic style well, i.e. strong kick action, the space between the front and back marks can be larger.	
				
Camber pressure	Stand on one ski with one foot and simulate the kick-off action (= standing on ball of foot).	Slider must not move. If it does move, the ski is too hard and pushing off will be difficult. If the ski is too hard you have to stop the measuring test and start again with a softer one.	Slider must not move. If it does move, the ski is too hard and pushing off will be difficult. If the ski is too hard you have to stop and start again with a softer one.	
				

TIPS ON SETTING UP THE TEST BOARD

- Place the test board on the floor or on a raised surface to make it easier to use. Base Frame is the ideal addition.
- Make sure that the floor surface is absolutely flat.
- The slider should be approximately in the middle to start with.
- Give the customer poles so that they can easily stand on one leg.
- Mark the sidewalls of the ski.

7.3 XC-SELECTION BOARD

With the help of the new XC Selection Board you can determine the wax pocket length and position on classic wax skis without the skier having to stand on the skis. Measuring gauges with different thicknesses can be used to make measuring even more precise for different types of wax.

APPLICATION POSSIBILITIES

There are three different ways of using the XC Selection Board. Picutre A: the lying down option. Picture B: the upright option (wall mounting) or also as seen in picture C: the free-standing option (with the help of the stand, available separately).

INSTRUCTIONS

STEP 1:

The ski is clamped in place 12cm (up to boot size 40) or 14cm (from boot size 40.5) behind the balance point and stressed with 50 % of the skier's weight.

STEP 2:

Measure the wax pocket at the front and at the rear using a measuring gauge to mark the points at 0.1, 0.2 and 0.3mm space between the surface it is resting on and the underside of the ski at the front and the points 0.2 and 0.3mm at the rear.

WAX POCKET LENGTH

The resulting markings show the position/length of the wax pocket as a function of the wax types to be applied as follows:

HARD DRY WAX
Front: 0.1mm; rear: 0.2mm

SOFT DRY WAX; HARD KLISTER (VIOLET)
Front: 0,2mm; rear: 0,2mm

SOFT KLISTER (E.G. RED)
Front: 0.3mm; rear: 0.3mm (maximum heel)

For more information use the link via the QR code to go to the XC-Selection Board video.

TWIN SKIN MODELS ON THE XC SELECTION BOARD

Our recommendation when measuring our Twin Skin models is as follows: You should be able to move the 0.3 mm gauge in the area of the skin. You have to make sure, however, that the gauge is moved from the front to the rear, otherwise the skin will rise and you will not be able to measure properly.
Front: 0.3mm; rear: 0.3mm

7.4 CRUISING/OFFTRACK/SHORTCUT SCALE

These scales are used only for the Offtrack Cruising, Nordic Cruising and Sport (ShortCut) target groups. Ask the customer to stand on the scales if they have decided to buy one of these models. The scale shows the lengths for Offtrack Cruising, Nordic Cruising and Sport skis. The advantage of this form of length calculation is that the customer does not have to reveal his or her weight. The system is also easy to use and doesn‘t take up much time.

You can adjust the starting position of the needle between Beginner and Advanced. Setting the needle to Beginner will result in a shorter ski length being displayed. The customer will be able to control the skis better. The loss in gliding properties is not critical at entry level. It is more important that the customer is able to learn how to ski quickly and easily.

Set the needle to Advanced for top level skiers. The skis are longer, glide better and have better tracking.

11.4.4 XC-SILENT SELLER LENTH RECOMMENDATION

This system helps you select the best ski in all model groups.

Again, there are usually several length/hardness recommendations on each line. Note that the longer (stiffer) recommendation is for skiers who are technically skilled while the shorter (softer) skis are easier to use.

8. SKI CARE & PREPARATION

This chapter deals with each working step required to prepare skis properly. It is impossible to go into detail here because this subject would fill a whole book.

Extensive care and preparation is necessary to achieve ideal gliding properties and extend the service life of the cross country skis.

8.1 EASY CARE & WAX LINE

EQUIPMENT CARE MADE EASY

With the new Fischer Easy Care & Wax collection everyone will enjoy waxing skis from time to time. The care products are used from recreational skiing to racing as a hobby.
In the development process special attention was paid to easy use: no separate rooms, special equipment or knowledge are required to use the products.

The care products can be used from recreational skiing to light racing. Thanks to their effects, the equipment can deliver full performance. This is the only way to ensure lasting fun in the snow. In the development process special attention was paid to easy use: no separate rooms, special equipment or knowledge are required to use the products. The wipes, which fit in any pocket and are unnoticeable, make the job even easier and add to the skiing experience!

STEP 1: CLEANING THE SKI BASE WITH EASY CLEAN & GLIDE LF

Cleaning the base of the ski is the most important step in ski preparation: Dirt, dust & wax remains are removed from the base with the all-in-one solution Easy Clean & Glide LF. Gliding performance is also improved through the fluorine content.

USE: Shake the bottle thoroughly before use, put the product on an absorbent cloth and use it to clean the base.

STEP 2: PREPARING THE BASE WITH EASY BASE WAX LF

In the second step we recommend applying the liquid base wax with fluorine (Base Wax LF) to create a dirt-resistant coating and therefore a lasting basis for fast gliding waxes on top (see next step).

USE: Shake the liquid wax thoroughly before use and apply it evenly on the base. For perfect performance we recommend brushing out the base from tip to tail with a nylon brush once it is completely dry (10-15 mins).

STEP 3: FINISHING WITH EASY WAX COLD LF / EASY WAX PLUS LF

Next, the temperature-specific Easy Wax Plus LF and Easy Wax Cold LF, as well as Easy Wax Wet and Easy Wax Cold ensure a perfect finish and stand out through good durability and high speed. These all-rounders are ideal for recreational use and up to amateur racing.

USE: Shake the liquid wax thoroughly before use and then apply an even coating to the base. For perfect performance

we recommend brushing out the base from tip to tail with a nylon brush once it is completely dry (10-15 mins). For the best possible gliding results, the structure of the base must be brushed out thoroughly to remove any residual wax.

IMPORTANT
The base must be dry and clean before you can apply the liquid wax. The liquid wax must be completely dried (in) before brushing out and skiing! The drying time depends on the respective ambient temperature. Room temperature is recommended when using the products.

8.2. SKI PREPARATION WITH HOT WAXES

8.2.1 BASIC PRINCIPLES AND PREPARATION

These vary according to the specific demands placed upon the ski. An ambitious skier and an athlete who orientates his performance through racing will expect the highest standards to be fulfilled. The ski must be well-prepared and cared for. In order to achieve this a basic kit is necessary. The wax case should always include:

- Fibertex
- An iron
- Structure planer
- Sandpaper
- Wax cork
- Various climbing waxes klister & dry waxes)
- Various gliding waxes
- Plexiglass and steel blades
- Base brushes
- Snow thermometer
- Wax remover

When preparing the skis you should ensure there is enough light and that the ski is fixed securely in a clamping device (trestle). The room in which you prepare the skis should be normal room temperature and well ventilated.

8.2.2. PREPARATION OF THE GLIDING ZONE

8.2.2.1 GENERAL INFORMATION

Make sure that the ski to be treated is at room temperature, as a cold ski cannot absorb so much wax.

01. To achieve the best results, good light and a stable trestle are essential.

02. Pre-treatment of the base coating: repeated peeling with Fibertex material removes the base hairs (from the stone cut) and facilitates the wax absorption.

03. Cleaning the base. Dirt, dust and wax remnants can be removed with cleaning agents from a good sport shop. Take care – the ski must now air outdoors for at least 15 minutes. An alternative is hot waxing (apply and immediately remove soft gliding wax).

04. Application of the gliding wax with a wax iron.

05. Ironing the wax. The temperature should lie between 110° and 130° C, depending on the wax hardness. The iron travels evenly over the surface in the direction of travel. Caution: Do not iron backwards and forwards or stay in one place for too long (danger of overheating!). Classic and Crown skis must not have any wax in the climbing zone.

06. After cooling (5 to 10 minutes) the wax in the middle channel should be removed: for example with a channel planer or a wax scraper.

07. The gliding wax should now be peeled off with a plexiglass blade in the direction of travel under even, light pressure. The steps 04 to 08 should be repeated to ensure an optimal base saturation; for a Plus Ski with soft wax and a Cold Ski with hard wax between 3 and 6 times.

08. Brush the base with a Nylon or Combi brush in the direction of travel. The base structure must be completely clean for optimal gliding quality. Repeat at least 3 times.

Once the ski has been prepared, let it cool at room temperature, ideally overnight but at least for 45 minutes. If the warm ski cools too quickly the wax leaks from the base and all the work will have been for nothing.

8.2.2.2 PREWAXED SKIS

The top models of Fischer's Racing Line are supplied „prewaxed" (see page 15). Before the skis are used for the first time they have to be prepared:

Basic version:
Steps 06 to 08 are to be carried out after removing the „Prewaxed" sticker and before the skis are used for the first time.

Pro version:
After removing the „Prewaxed" sticker and before using the skis for the first time, hard wax (for Cold models) or soft wax (for all other models) is applied once again, as described above in steps 04 and 05. Leave the skis to cool for 15 minutes after.

The ironing process (step 05) is then repeated (without applying any additional wax) to improve base saturation. Following this, leave the ski to cool down again for 15 minutes and then continue to prepare it as described for the basic version with steps 06 to 08.

8.2.3 PREPARING OF CLIMBING ZONE

8.2.3.1 WAX SKI

09. Preparation of Classic ski for the application of dry or klister wax by roughening the surface of the climbing zone: the zone which was measured in the sports shop should be roughened using sandpaper (Grain 100) in the direction of travel in order to achieve a long-lasting, optimal wax adhesion.

10. + 11. The dry wax can be applied to the climbing zone in 4 to 6 layers and corked between each layer.

12. + 13. When using klister it should be applied in a fishbone pattern to the left and right of the middle channel and then evenly spread using the ball of the hand or a Wax cork.

8.2.3.2 SKIS WITH CLIMBING SYSTEM

The climbing zone of a ski with a machined climbing system should never be treated with climbing wax. It is important to make sure that the climbing zone is always kept clean and treated accordingly.

14. Stubborn dirt can be removed with a wax remover available from sports retailers.

15. In the interest of ski care and to protect the structure from icing up, it should be treated with a silicon spray, also available from good retailers.

8.2.3.3 TWIN SKIN SKI

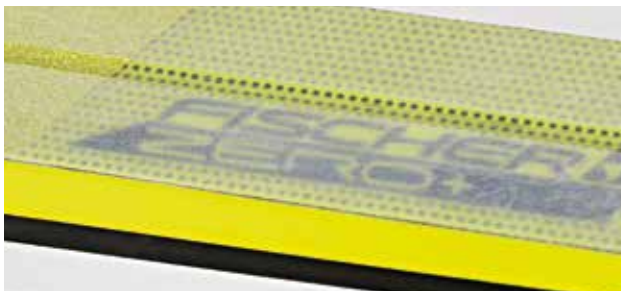
See page 18.

8.2.3.4 ZERO+ SKIS

The Zero+ ski is especially designed for zero degrees conditions and fresh snow. It can be used in temperatures well above zero degrees. It is also important here that you do not apply climbing wax to the climbing system. Use standard wax remover to clean any dirt away from the base (including the climbing system zone).

PREPARATION ZERO+ SKIS

The climbing zone of the Zero+ skis is already ready for use when shipped. Performance is perfect if the yellow zone of the ski base feels velvety. The fine hair structure must be clearly visible. These hairs are for the contact with snow crystals and enable the kick.



These hairs have to be reactivated as follows, depending on wear and use.

16. The yellow zone of the base should be roughened using even, circular movements with middle to light pressure so that a velvety impression develops. Use standard sanding paper (Grain 100) which is available in most shops. The proper function of the Classic Zero+ models is dependent on the correct sanding treatment.

17. The Fischer Easy Anti Ice LF can then be spread on to protect against icing and to prevent the base from becoming dirty too quickly. The fluorinated liquid wax effectively reduces icing in the climbing zone in moist new snow and in changing conditions between moist and dry snow. Just spread it on and let it settle for 5 minutes before using the ski. This ensures the kick function of the hairs.

The preparation of the Zero+ models is also shown in detail on a video (link via the QR).

8.2.3.5 SUMMER STORAGE

To protect the base from oxidation, dirt and damage in the summer months the ski should be thoroughly cleaned (see steps 03) and then sealed with soft gliding wax (see steps 04+05 iron on without removing). Keep the skis in a horizontal position and at a constant temperature over the summer. This treatment is also advisable during longer winter breaks and when transporting the ski so that the base is protected.

Milestones in the past 20 years of boot development at Fischer.

9. THE BOOT

The cross country ski boot is a very important element in the ski/binding/boot system as it provides the link between the skier and the ski. The ski is controlled via the boot.

9.1 FITTING

The best possible fitting of the cross country boot is essential for function and comfort. Fischer uses a wide variety of technologies to enable an optimum fit for all target groups and requirements. While racers insist on a narrow last with a close fit, skiers in the categories Sport or Nordic Cruising, for example, appreciate a good heel fit and comfortable space in the toe area. The essential fitting technologies are described in the following section.

9.1.1 LAST (INSTANT FIT)

BOOT FIT CONCEPT

The right fit for all requirements. Whether it's shaped for the female foot with the comfort or race version, customised for the feet of young skiers, meeting the comfort requirements of all-rounders or for direct power transfer in racing: the Boot Fit Concept with special lasts is the answer to all the different needs and morphologies of the various consumer groups.

9.1.2 ADAPTABLE FITTING (QUICK FIT)

FISCHER SPEED LOCK SYSTEM

With this new, revolutionary quick lock system Fischer makes its lacing absolutely secure, without having to tie shoelaces. Simply pull the laces tight and that's it – the system works safely and reliably despite its minimum size and weight.

For more information use the link via the QR code to go to the short Fischer Speed Lock System video.

Customer Benefits

- Quick lacing system
- Secure clamping
- Easy handling

INSTEP STRAP

Additional outer fastener where the instep is (either with Velcro or ratchet strap). Makes the foot even more secure and enables better power transfer.

Customer Benefits

- Better power transfer and enhanceable fit

RATCHET LOCK BUCKLE

Fastening element for cuffs and instep straps featuring fine ratchet adjustment and stretch-free power transfer.

Customer Benefits

- Individual and fast adjustment
- Microstep adjustable

9.1.2 OPTIONAL ADJUSTMENTS (CUSTOM FIT)

EXTENDED FIT SYSTEM

The dual insole system can be used to adapt the volume of the boot. If a more tight fit is required, just add the spacer underneath your insole.

Customer Benefits

- Creates more space for growing feet

THERMO FIT

Thermally malleable boot liner, which perfectly adapts to the anatomic shape of the foot.

Customer Benefits

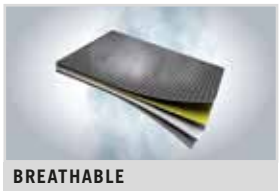
- Additional adaptation possibilities through thermofoam

9.2 COMFORT, HEAT AND PROTECTION

FISCHER CLIMATE COMFORT, BECAUSE FEET DESERVE COMFORT

Feet play a key role in power transfer in the dynamic motion sequences in cross country skiing. And this means that it is all the more important that they have the best possible conditions for this, besides a perfect fit and performance: keeping dry, optimum warmth and a comfortable in-boot climate. And this is precisely what the Fischer development department gives you with its innovative technologies.

FISCHER TRIPLE-F MEMBRANE - FEET CAN TAKE A BREATHER.



Sport and exercise generate body heat, and this includes your feet. Feet are more likely to become damp this way than through external moisture. This is why Fischer concentrates on efficient moisture transport from the inside to the outside: the boot liner is made of technical mesh material and permeable to air and moisture so that any moisture can be absorbed by the fleece lying on it and wicked away. It is transported to the outside via the breathable outer skin of the boot. The Triple-F membrane keeps out any unwanted effects of the weather. Feet stay warm and dry as a result.

Customer Benefits

- For a warm, dry and breathable in-boot climate

FISCHER FRESH

Fischer Fresh puts an end to unpleasant odours, giving you lasting freshness inside the cross country skiing boot with a pleasant smell and feeling inside.

Customer Benefits

- Long-lasting freshness
- Reduced odours

WATERPROOF

Waterproof boot design in which the breathable membrane is connected to the lining to ensure a long-lasting, perfect in-boot climate.

Customer Benefits

- Breathable membrane

EASY ENTRY LOOPS

Practical entry loops and wide-opening designs guarantee that boots can be put on/taken off comfortably.

Customer Benefits

- Makes putting on boots easy

INTEGRATED GAITER

Integrated, easily adjustable gaiter for optimum protection in deep snow. Waterproof lightweight material and sealed zip for maximum cross country skiing enjoyment even in untracked terrain.

Customer Benefits

- Optimum protection in deep snow

SEALED ZIPPER

The sealed zipper system ensures that any moisture is kept out.

Customer Benefits

- Enhanced moisture protection

COMFORT GUARD

Warming lining material with wool for feet that are sensitive to the cold. Ensures feet also stay warm without feeling moist on longer outings.

Customer Benefits

- Warm toe area

9.3 STABILITY AND POWER TRANSFER

9.3.1 STABILISING ELEMENTS

We distinguish between heel caps and cuffs. Heel caps improve boot stability in the heel and midfoot section and optimise heel grip. They also make it possible to add cuffs. The function of cuffs, on the other hand, is ankle support and they give you added side stability with as much forward/backward motion as possible.

WORLD CUP CARBON CUFF 2.0

Thanks to its design the ultralight cuff made of high-strength carbon fibres unites all the benefits you need for victory in Nordic racing: extremely light weight, excellent side stability and best forward freedom of movement.

Customer Benefits

- Low weight
- Premium torsional stability and power transfer
- Freedom in forward and backward movement

WORLD CUP CARBON CUFF

Outstanding side stability with full freedom of longitudinal movement: the World Cup Carbon Cuff matches the shape of the foot and is embedded in a soft EVA layer. The high-quality material ensures that weight is kept remarkably low.

Customer Benefits

- Perfect stability and full freedom in movement at low weight

HINGED POLYMER CUFF

Ergonomic molded cuff for remarkable side hold with good freedom of movement to the front and back. Easy to adjust with Velcro fastener. Canting and EVA padding depending on model.

Customer Benefits

- Ergonomic formed cuff
- Perfect lateral torsional stability and high freedom in forward and backward movement

ANKLE SUPPORT CUFF ASC3

Stable at the side, movable forwards: newly developed ankle support with pivot joint for optimum power transfer, individually adjustable thanks to Powerstrap.

Customer Benefits

- Stable at the side and movable forwards

EXTERNAL ANKLE SUPPORT EAS

Anatomical ankle support for a stable hold and power transfer for either skiing technique. Individually adjustable through Powerstrap.

Customer Benefits

- Improved stable at the side, individually adjustable through Powerstrap

INTEGRAL CARBON CHASSIS

The heart of our Speedmax models is a three-dimensional carbon shell. Outer sole, insole and side stabilisation elements are manufactured from the same sheet of carbon. The perfectly tuned integration of all elements in a chassis offers decisive benefits: previously unattained light weight with optimum stability and power transfer.

Customer Benefits

- Distinguished lightweight
- Optimum lateral stability and power transfer

CARBON HEEL COUNTER

Heel counter made of high-quality carbon fibres. It holds the World Cup Carbon Cuff on the one hand and gives you an optimum heel fit and robust protection on the other.

Customer Benefits

- Direct power transfer
- Lightweight

POLYMER CROSSLINK

External stabilisation element made of lightweight polymer for the cuff. Ensures high torsional resistance thanks to it being particularly robust.

Customer Benefits

- High torsional resistance
- Direct power transfer

INJECTED EXTERIOR HEEL CAP

Good heel cradling and robust protection all in one: exterior heel cap for even better power transfer.

Customer Benefits

- Excellent heel hold and protection

INTERNAL MOLDED HEEL CAP

Internal anatomically shaped heel cap. Very light and individually thermoformable.

Customer Benefits

- Thermo-moldable heel cap for excellent heel hold

9.4 TECHNOLOGIES SOLES

The sole is the link between the boot and the binding. As a result, it enables direct power transfer to the ski. Soles are also important for the walking function of the boot. Good rolling performance, anti-slide and anti-wear are the defining characteristics here.

COMPATIBILITY

Fischer cross country ski boots can be used with the following cross country binding systems:

- TURNAMIC®
- NNN®
- Prolink®

TURNAMIC® RACE SKATE

Extremely sporty skating sole made from Pebax® or Desmopan®. Chassis made of hard material for better power transfer. Arch support for stability and extra torsional stiffness.

Customer Benefits

- Lightweight
- Direct power transfer
- Optimum stability

TURNAMIC® RACE CLASSIC

Extremely sporty classic sole made from Pebax® or Desmopan® gives you a lower stand height for more stability. Flex grooves and soft sole flex support the smooth kick.

Customer Benefits

- Lightweight

TURNAMIC® PERFORMANCE

The robust and flat construction for sporty, classic style skiing enables a longer gliding phase through easier balance. 2K-Desmopan® material mix for improved performance.

Customer Benefits

- Optimum flex area

TURNAMIC® TOURING

The flat construction enables a safe walk and good balance on the skis. The profile is non-slip and self-cleaning. The wear-resistant 1K-Desmopan® material mix is long-lasting and acts against the cold.

Customer Benefits

- Antislip material
- Good stability and ski control

TURNAMIC® JUNIOR

The flat, robust construction enables a good stance and easier balance. The profile is non-slip, self-cleaning and Desmopan® acts as an insulation layer against the cold.

Customer Benefits

- Lightweight & good stability

SNOW GRIP / XL

Non-slip rubber sole with good thermal insulation for use on winter boots.
XL: particularly broad.

ROTTEFELLA® BC

Optimum support in difficult terrain. Reliable walking thanks to non-slip profile.

Customer Benefits

- High power transfer

VIBRAM® 75 MM

Standard Vibram® 75 sole. Excellent support in difficult terrain. Non-slip profile with specially developed rubber mixture.

Customer Benefits

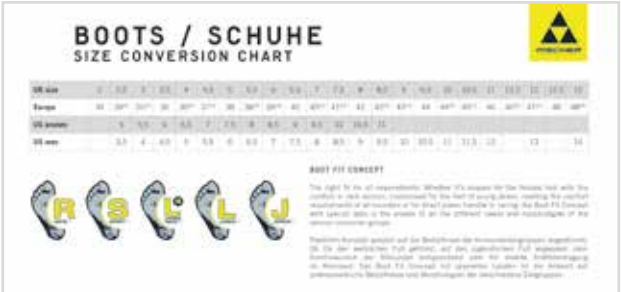
- Compatible to N75 binding

9.5 BOOT CARE

Cross country boots are made of synthetic materials, so no creams or other shoe care products are necessary. However, there are some measures that should be taken to ensure you get the maximum benefit for as long as possible from the product you have purchased.
The cross country boots should be dried out thoroughly after they have been used. They should not be placed directly on radiators or other sources of heat as the boots contain thermoformable materials which would lose their shape when heated. We recommend using commercially available shoe/boot driers that are gentle on the material but still dry out the boots effectively.

9.6 BOOT SELECTION

The length recommendation fan, which shows the boot sizes in various size systems, is also very useful here.



TURNAMIC®— GET CONNECTED

10. THE BINDING

The cross country binding is the heart of the entire Nordic setup. Transferring the skier's power and dynamic action from the boot to the ski means a better experience on snow. Fischer is proud to introduce a new range of bindings, binding plates and boot soles under the TURNAMIC® brand that delivers a higher level of performance. The market leader in Nordic skiing fulfils its role as a result. The TURNAMIC® bindings and soles are based on existing standards as they are compatible with the worldwide established NNN® profile*.

The new products with their ground-breaking technologies are made for the requirements of cross country skiers of all age groups and ability levels. Intuitive and easy to use. An important step in convincing able skiers and growing the appeal to new customers of the immensely attractive sport of cross country skiing.

EASY

What makes the new TURNAMIC® setup so compelling is its easy use. The bindings quickly slide onto the plate without the use of tools. When it's time to ski, the Turn Lock mechanism can be operated even with a gloved hand making entry and exit easier than ever before.

TUNABLE

Throughout the entire model range, tool free adjustment is available and easy to use. Technique, temperature and snow composition all have an influence on ski performance: With all TURNAMIC® models, this completely tool free adjustment allows skiers to better match their individual needs. Sliding the system forward provides more grip, while sliding it back will noticeably improve glide. From the novice to the World Cup skier - everyone benefits.

DYNAMIC

Thanks to the optimised setup of the boot-binding-plate-ski components, TURNAMIC® gives you dynamic skiing performance like never before. FLOWFLEX® technology enables the ski to flex freely. Whereas optimum power transfer is the decisive argument for the racer, the more easy-going skier appreciates perfect control. This is where all of Fischer's product development expertise is available for everyone to experience.

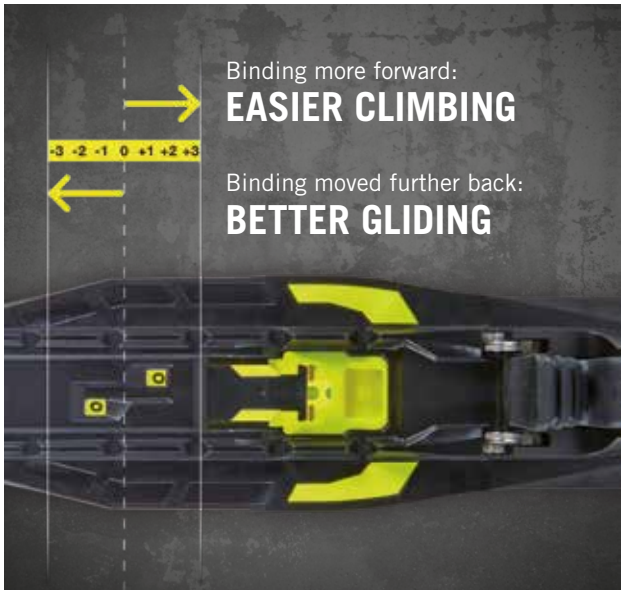
10.1 TOOL-FREE ADJUSTMENT

Ski performance hinges on the position of the binding. The position of the binding has a considerable impact on ski performance according to the individual skiing style and snow and terrain conditions. All TURNAMIC® bindings enable individual adjustment so you can react flexibly to these effects. The whole binding can be slid onto the Integrated Fixation Plate (IFP) – quickly, anywhere and without tools.

*NNN® is a registered trademark of the company Rottefella AS, Norway

BEST EQUIPPED WITH INDIVIDUAL TUNING

This tuning feature gives you an unbeatable edge especially with classic style skis. Not only in the World Cup, above all for recreational skiers, too. As the length of the skins, Vario Crown or Zero+ climbing system cannot – unlike the wax on a wax ski – be adapted to the snow conditions, the individual position of the binding is decisive for the cross country experience. With TURNAMIC® bindings you can influence performance without tools: moving them forward gives you more grip and easier climbing. Moving them to the rear gives you better gliding performance. So you are best equipped for all conditions.



10.2 TECHNOLOGIES BINDINGS

INTEGRATED FIXATION PLATE (IFP)

Modern interface for screw-free binding mounting on the ski. The two-part "Integrated Fixation Plate" is weight-optimised and enables you to adjust ski performance without tools in 7 click-in settings. The IFP also enables individual fine-tuning by sliding the binding backwards and forwards. This means it is possible to influence ski performance any time and any place according to skiing style and snow and track conditions.

Customer Benefits

- Lightweight
- Individual fine-tuning

TURN LOCK

The ergonomic design of the lever with secure-grip soft components enables intuitive handling when stepping in and out of the binding. Haptic and acoustic response when opening and closing. Protected against unwanted opening.

Customer Benefits

- Safe fixation
- Easy entry
- Comfortable and intuitive handling

TOOL FREE

No tools are required for mounting and assembly and this is optimised for easy handling even in difficult conditions on the track. A clearly visible display in the windows next to the setting unit and the click-in presetting make positioning even easier.

Customer Benefits

- Easy operation
- Visible adjustment support
- Tool free change of binding position

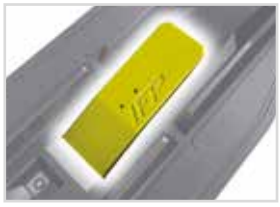
DOUBLE LOCK SLIDER

Double locking clip for easy and safe fixation and adjustment of the binding on the IFP (Integrated Fixation Plate).

Customer Benefits

- Stablity / safety
- Easy handling
- Intuitive handling

CLIP LOCK



Clip for easy fixation and adjustment of the binding on the IFP (Integrated Fixation Plate).

Customer Benefits

- Easy and intuitive

FLOWFLEX®

The two-part plate and click-in setting with two closely arranged pins not only guarantees double the safety but also that the binding is fixed on one point. The rest of the binding housing has a floating bearing design along the entire length which has no negative effect on ski performance.

Customer Benefits

- Lightweight ski
- Better performance
- Security / robustness

TORSION-PROOFED BODY

The well-thought-out (in all details) housing construction with broad contact surface and torsionally stiff geometry is the basis for direct power transfer. Previously unattained ski control and forward thrust go hand in hand with low weight.

Customer Benefits

- Direct power Transfer
- Unattained ski control
- Great stability

STABILIZER

The shape of the Race Pro Skate housing keeps the ski balanced horizontally after every kick. Perfect ski control – even when the ski is in the air.

Customer Benefits

- Perfect ski control

HEEL PRE-ADJUST

Adjustable heel section where the boot size is preselected using snap hooks on the heel rails. The heel is automatically positioned with it when the position is adjusted so no separate adjustments are necessary later.

Customer Benefits

- Easy handling
- Permanent, optimized heel contact after change of position

LOW PROFILE

The minimalistic design height ensures a low stand position and maximum stability as a result. This means a more stable gliding phase and a direct feel or the snow at the same time.

Customer Benefits

- Maximum stability
- Optimized ski control
- Direct power transfer

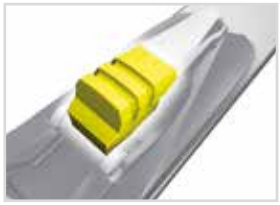
STEP-IN

The Step-In mechanism makes it extremely easy to step into the binding. You can hear a clear ‘click’ when the binding is closed properly.

Customer Benefits

- Simple step-in
- Comfort

SKATING FLEXOR



Flexor developed for skating style with flex grade 11.0 and progressive power flow. Pre-load technology ensures the best ski control from the beginning of the motion. 40° working angle (amplitude), tool-free changeover, secure fit inside binding housing and low-wear material are what make this high-performance absorber stand out.

Customer Benefits

- Easy handling
- Perfect ski control

CLASSIC FLEXOR

Flexor developed for classic style with flex grade 7.0 and slightly progressive power flow. Pre-load technology ensures the best ski control from the beginning of the motion. 45° working angle (amplitude), tool-free changeover, secure fit inside binding housing and low-wear material are what make this high-performance absorber stand out.

Customer Benefits

- Easy handling
- Optimal snow touch

10.3 TECHNICAL OVERVIEW

1. Integrated Fixation Plate (IFP)
2. Numeric Positioning Indicator
3. Index Plate
4. Guide Rails

MODEL WITH DOUBLE LOCK SLIDER

1. Connecting Pieces
2. Positioning Windows
3. Clip
4. Fixing Pins
5. Double Lock Slider
6. Flexor
7. Turn Lock

MODEL WITH CLIP LOCK

1. Connecting Pieces
2. Positioning Windows
3. Fixing Pins
4. Clip Lock
5. Flexor
6. Turn Lock
7. Step-In Arrows

1. Nordic Integrated System (NIS) Plate
2. Snap-Fit Mechanism
3. Numeric Positioning Indicator
4. Index Plate

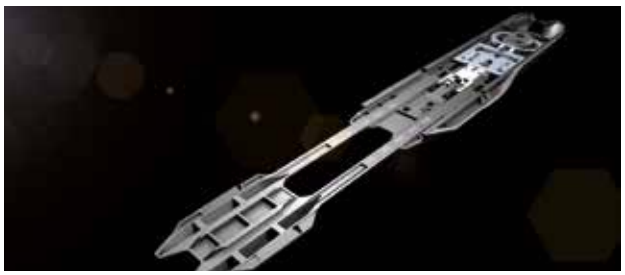
RACE PRO NIS

1. Heel Plate
2. Snap Hook
3. Positioning Windows
4. Clip
5. Fixing Pins
6. Double Lock Slider
7. Flexor
8. Turn Lock

10.4 MOUNTING BINDINGS

10.4.1 FIXING THE HEEL PIECE / PRE-ADJUSTING BOOT SIZE

01. Turn the binding over so it is upside down.



02. & 03. Pull out the connecting pieces of the heel section by pressing them together.

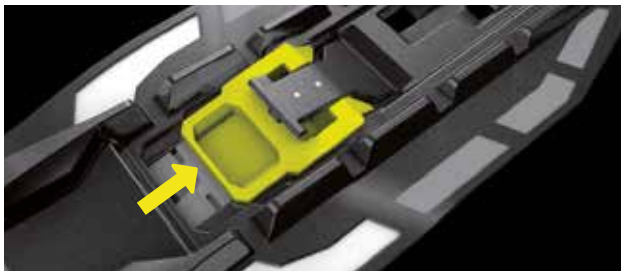
04. Select the desired boot size with the boot size marking reaching the rear edge of the front section of the binding.

05. Insert the heel piece into the matching snap-fit hooks on the side by gently turning the connecting pieces.

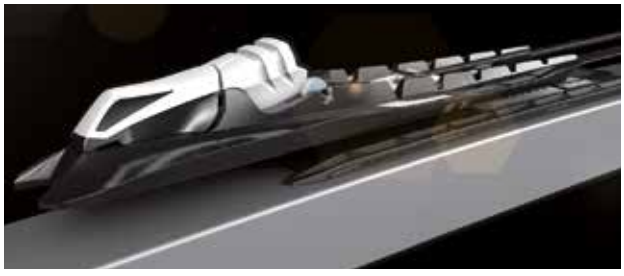
06. Turn the binding over so it is the right way up.

10.4.2 SLIDING ON THE BINDING - MODELS WITH DOUBLE LOCK SLIDER

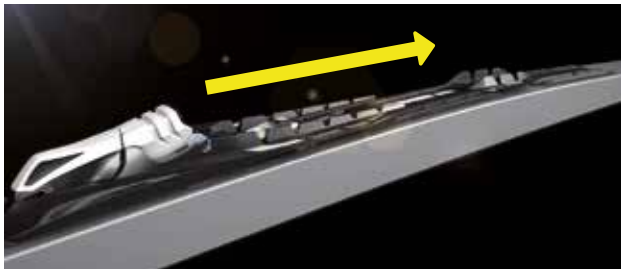
01. Open the Double Lock Slider by pushing it back as far as the stop point.



02. Place the end of the front section of the binding at the beginning of the IFP front plate.



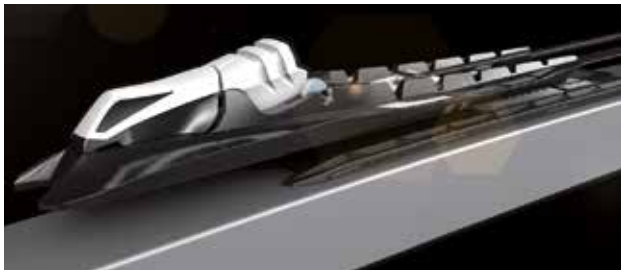
03. Slide the binding onto the IFP plate from the front to the back until 0 appears in the positioning window. Make sure that the heel part of the binding is also pushed onto the guide rails of the IFP heel section.



04. Close the Double Lock Slider by pushing it forward.

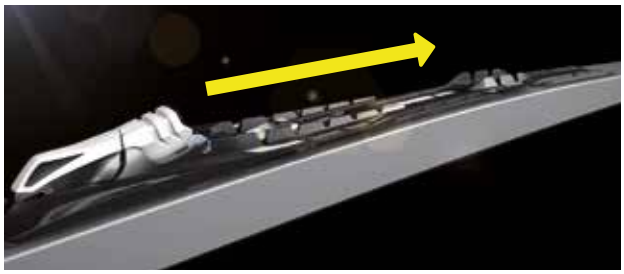
10.4.3 SLIDING ON THE BINDING - MODELS WITH CLIP LOCK

01. Place the end of the front section of the binding at the beginning of the IFP front plate.



02. Lift the Clip Lock.

03. With the Clip Lock raised, slide the binding from the front to the back onto the IFP plate until 0 appears in the positioning window. Make sure that the heel part of the binding is also pushed onto the guide rails of the IFP heel section.

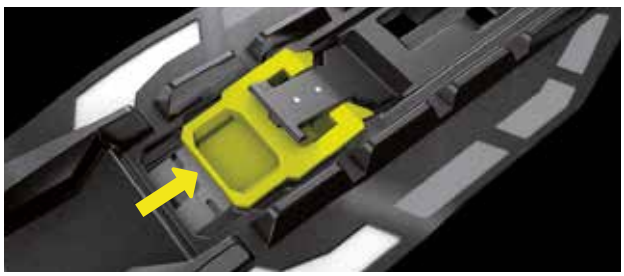


04. Release the Clip Lock. Make sure the Clip Lock snaps into place properly.

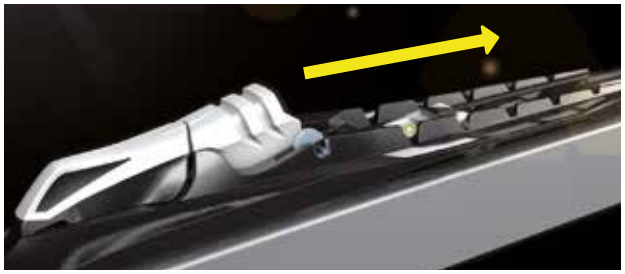
10.4.4 SLIDING ON THE BINDING - RACE PRO NIS MODELS

01. Hook the index plate with the wide end into the front cross groove of the NIS plate This is the only position in which the index plate can be placed flat into the NIS plate.

02. Open the Double Lock Slider by pushing it back as far as the stop point.

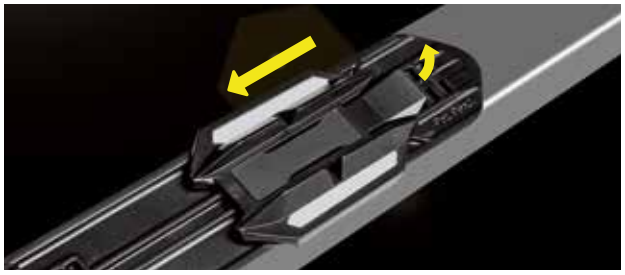


03. Slide the front part of the binding onto the NIS plate from the front to the back until 0 appears in the positioning window.



04. Close the Double Lock Slider by pushing it forward.

05. Slide the heel plate of the binding (with the snap hook towards the tail of the ski) from the back onto the NIS plate. Next, lift up the rest hook and position the heel plate so the end of the heel plate ends with the end of the sole.



10.5. ENTRY / EXIT

10.5.1 MANUAL MODELS

01. To enter the binding, open the Turn Lock mechanism by turning it 90° to the left or the right.

02. Position the boot over the binding so the boot axis comes into contact with the lock opening of the binding. Raise your heel slightly at the same time and press down with your toes.

03. Close the Turn Lock mechanism by turning it until it snaps into place.

04. To exit the binding, open the Turn Lock mechanism by turning it 90° to the left or the right.

05. Step out of the binding with the boot.

06. Close the Turn Lock mechanism by turning it until it snaps into place.

10.5.2 STEP-IN MODELS

01. To step into the binding position the boot over the binding so the boot axis comes into contact with the lock opening (Step-In Arrows) of the binding. Step into the slot with the boot. Raise your heel slightly at the same time and press down with your toes until you hear the boot click into place.

02. To exit the binding, open the Turn Lock mechanism by turning it 90° to the left or the right.

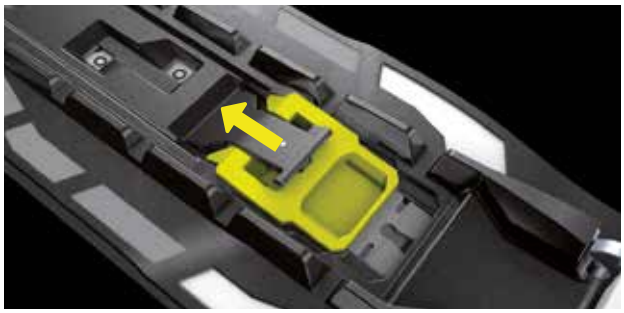
03. Step out of the binding with the boot.

04. Close the Turn Lock mechanism by turning it until it snaps into place.

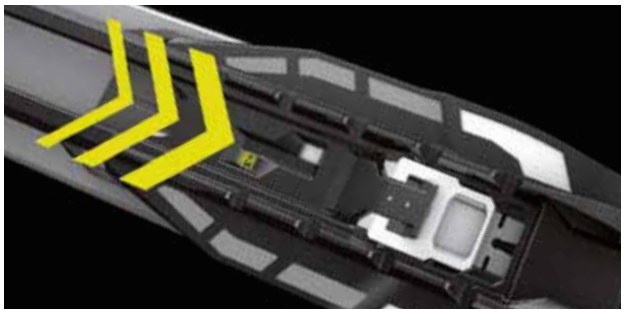
10.6 MOVING / SLIDING THE BINDING

10.6.1 MODELS WITH DOUBLE LOCK SLIDER

01. Open the Double Lock Slider by pushing it back as far as the stop point.

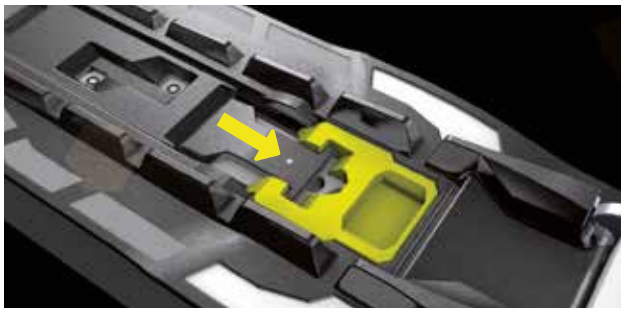


02. Slide the binding to the front for easier climbing, or



03. slide the binding to the rear for better gliding.

04. Close the Double Lock Slider by pushing it forward.



NB:
The 0 position in the positioning window shows that the binding is mounted on the balance point of the ski. A number must always be visible in the positioning window.

10.6.2 MODELS WITH CLIP LOCK

01. Lift the Clip Lock.

02. With the Clip Lock raised, slide the binding to the front for easier climbing, or

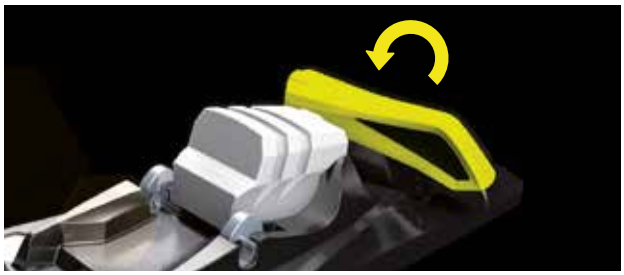
03. with the Clip Lock raised, slide the binding to the rear for better gliding.

04. Release the Clip Lock. Make sure the Clip Lock snaps into place properly.

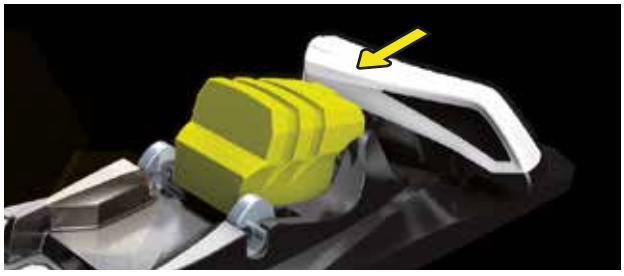
NB:
The 0 position in the positioning window shows that the binding is mounted on the balance point of the ski. A number must always be visible in the positioning window.

10.7 FLEXOR CHANGE

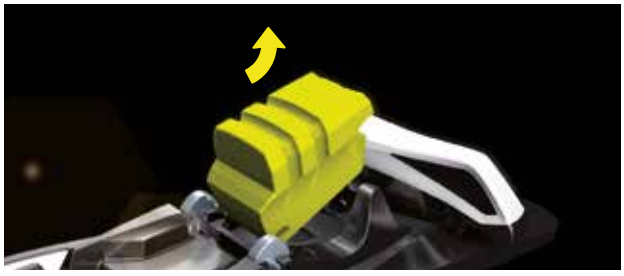
01. Open the Turn Lock mechanism by turning it 90° to the left or the right.



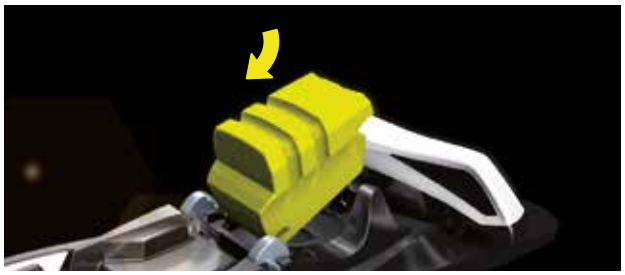
02. Press the flexor on the front, narrow side down and to the rear until you hear a click.



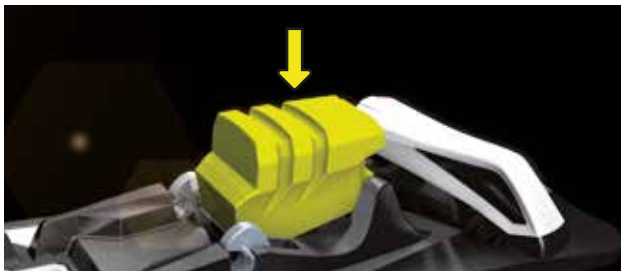
03. Pull the flexor up and out.



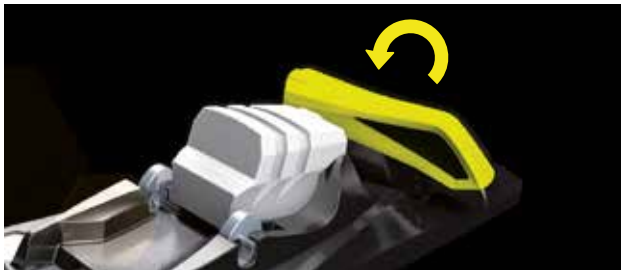
04. Hook in the new flexor at the back first.



05. Press the flexor down at the front until you hear a click.



06. Close the Turn Lock mechanism by turning it until it snaps into place.



COMPATIBILITY

Fischer cross country ski bindings can be used with the following cross country soles: TURNAMIC®, NNN®, Prolink®

SERVICING & CARE

Clean the bindings and soles after use with a soft brush or a cloth and water. Do not use solvents for cleaning and keep the bindings free from wax.

Allow the bindings to dry and keep them in an aired, cool, dry and dark place. Store and transport the bindings with closed lock (Turn Lock) and adjusting mechanism (Double Lock Slider, Clip Lock).

Protect your cross country ski bindings during transport, e.g. by using a ski bag.

10.2.3 MOUNTING/ASSEMBLY NNN

FINDING AND MARKING BALANCE POINTS

Take the ski and balance it on a straight edge. Take care that the edge is at a right angle to the longitudinal axis of the ski.

Mark the point of balance. Do the same with the other ski. If the points on the skis are at a different height, use the front point for skating skis and the back point for classic. (Careful: always mount the bindings at the same height on both skis!)

The reference lines for the drill jigs are taken from these points:

- For classic skis:
  Point of balance to maximum 1 cm backwards

- For skating skis:
  In generell: point of balance
  Nordic Hole Ski: 0.5 cm in front of point of balance

S-Bound models have a „binding mounting zone“ within which the binding is fitted. If the customer has very big boots, the fixing point must be moved further forwards so that the skier is not standing too far back. The further forward the binding is fitted, the easier the ski turns.

01. Place the drill jig exactly on the mark.

02. Drill the holes with the recommended length and diameter and fix the sole length.

03. Place the binding on the ski and tighten the binding screws so that they sit well but are not over-tightened. To secure the screws we recommend to use commercially available binding glue.

04. Insert the binding rubber.

05. Add the covers for the binding screws.

10.3 ADDITIONAL TIPS

- There is no difference between left and right with system bindings. Exception: 75mm bindings are marked with arrows which should point outwards.
- In order to remount a binding, use binding glue. If the holes are damaged you can use plastic inserts for repairs.
- If the binding was assembled with glue or resin, reheat it (hairdryer) before removing the binding.
- If there is still snow on the binding, use a silicon spray.

The performance chart assists as decision-making aid.

11. THE POLE

Cross country skiing poles are available in a large variety of forms, materials and sizes in order to find the optimal pole for the customer. Four parts are important for the customer buying poles: pole shaft, pole grip, pole strap and pole basket.

Swingweight:
Inertia influences swing behaviour and thus has a fundamental effect on handling and power exertion when skiing. Optimum pole weight distribution ensures top performance.

Lightweight:
Aluminium or carbon with varying quality grades – the material is a considerable factor in determining the weight of the pole. Every gram counts, as always. Especially for pros who want a convincing performance in ski marathons and races.

Stiffness:
This factor determines the efficiency of the power transfer in the kick action. The higher the value, the more power you feel in the form of enormous forward thrust.

Breaking Strenght:
Essential mechanical value which represents the breaking resistance of the shaft in the event of unforeseeable external impact.

11.1 POLE SHAFT

The requirements placed on a good cross country pole are top stability and the lowest possible weight.
Cross country poles are made of either carbon, fibre glass or aluminium. The top-grade material is carbon, which is mixed with varying degrees of fibre glass. Fibre glass or aluminium is used as the material for the lower price categories.

There are basically four parameters that are essential for the perfect pole: swingweight, lightweight, stiffness and breaking strength. And this is why Fischer presents these four influencing factors together with an evaluation in a clear form to help you in making your decision. This way you can find the optimum pole for every area of use.

The following shaft types are used in the Fischer range:

AIR CARBON UHM SHAFT

Even lighter and more stable: the new shaft of the top RACE CODE product. The processing of special, even stronger UHM carbon fibres in the proven 16:9 geometry are responsible for the maximum stiffness and minimised weight.

Customer Benefits

- Maximum stiffness
- Minimised weight
- Very less swingweight
- High breaking strength

AIR CARBON SHAFT

Air Carbon HM with 16:9 profile. Optimum stiffness with minimum weight and swing weight.

Customer Benefits

- High stiffness
- Less weight
- Very less swingweight
- High breaking strength

ALUMINIUM SHAFT

Shaft made of extremely robust aluminium for a perfect balance between breaking strength and weight. Enables a wide area of use in all pole categories.

Customer Benefits

- Increased breaking strength
- Less weight

11.2 POLE GRIP

When skiers use the proper technique they actually let go of the pole at the end of the push, leaving the hand open. The pole is held by its strap alone. The grip and strap must therefore operate as a system, enabling the skier to use the correct technique.

Pole grips are available with the following designs:

CORK LITE AERO GRIP

The new Cork Lite Aero Grip is an even lighter grip made of natural cork. Ergonomically shaped and developed with top athletes. Enables a smooth pole action.

Customer Benefits

- Perfect pole control
- Ultralight
- Ergonomically shaped
- Maximum acceleration thanks prevented torque

ERGO WEDGE

This ergonomic constructed safety wedge to fix the strap in place prevents the skin between the thumb and index finger from becoming caught. This means that the pole is also ideal for use without gloves. The Ergo Wedge also guarantees the optimum power initiation point is central over the longitudinal axis of the pole.

Customer Benefits

- No trapping of skin between thumb and pointer finger

DIRECT POWER IMPACT

The power is transfered from the hand direct to the pole - thanks to Ergo Wedge, centrally along the middle axis, which prevents undesired bending torque. This rules out any loss of power and transforms the energy into maximum forward trust.

RACECORK GRIP

Particularly pleasant pole handling thanks to ergonomic grip shape. Grip area extended downwards in high-quality cork.

Customer Benefits

- Extended grip area
- Ergonomic head shape
- Smooth swing movement

MULTIGRIP

Special backcountry design. Unique construction for extreme lightness. The shape of the handle allows different holding positions.

Customer Benefits

- Multible grip positions
- Extremely lightweight
- Durable

TPR GRIP

Rubber-coated, very hard-wearing 2-component grip. Non-slip TPR grip surface.

11.3 STRAP

The pole strap should be lightweight and easy to adjust. The length adjustment is perfect when the arm is stretched out to the back, hand open, and the pole continues along the line of the arm. Pole straps are likewise available in different designs.

For optimum control and power transfer the hand strap has to fit perfectly. You invariably have to open it in certain situations, such as when crossing a road or using a mobile phone, for example. Conventional straps have to be readjusted accordingly when you insert your hand again.

SPEED STRAP

Completely reduced hand strap with minimum weight and direct power transfer for perfect pole guidance. New with integrated rubber band for an optimum fit.

Customer Benefits

- High-end race strap
- Direct power transfer
- Perfect fit
- Minimised weight

QUICK FIT STRAP 2.0

The Quick Fit Strap 2.0 enables you to insert / remove your hand as quickly as possible without affecting the perfect fit of the strap! Simply open the zipper to slip out your hand – thanks to the memory effect the closure is just as simple as it is time-saving. The zipper stays firmly closed through the lock function. If the zipper is pushed forward it cannot open! While conventional straps have to be readjusted once they have been opened, the Quick Fit Strap 2.0 returns to its previous form automatically once the zipper is closed. Additionally, the improved fit optimises power transfer.

Customer Benefits

- Easy insert/remove
- Memory effect for individual adjustment
- Perfect power transfer and pole control

QUICK CLICK STRAP

With the new Quick Click strap system the hand stays in the strap which detaches from the pole using a release button. Compared to existing systems the Quick Click system locks itself into place through its flexible hook connection when it is reaffixed. Without any readjusting at all.

Customer Benefits

- Fast connect/disconnect of strap from handle
- Fixation of strap through automatic lock of strap
- Easy disjoin of strap through pressing the release buttons

RACE STRAP

This air-permeable and breathable strap offers a pleasant mixture of comfort, fit and sportiness. For good power transfer and pole control.

Customer Benefits

- Light and comfortable
- Perfect power transfer
- Perfect pole control

BC / COMFORT STRAP

Shape-retaining strap made of EVA. Adapts to the shape of the hand and, thanks to the memory function, stays wide open for comfortable hand insertion / removal.

Customer Benefits

- Easy insert/remove
- Memory fit function
- Perfect performance and comfort

LOOP 10 / 20 / 30

Comfortable sweat-absorbing strap with towel lining. Available in different widths.

11.4 POLE BASKET

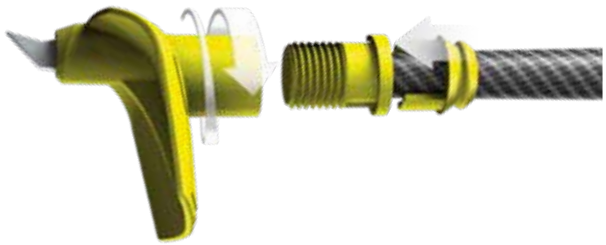
With pole baskets it is important that size and shape are right for the use. Small baskets are taken for poles that are mostly used on harder surfaces. Large baskets are used in the Backcountry sector as they do not sink in to the snow as much.

MULTI TIP SYSTEM - TUNING IN YOUR HANDS

Different snow conditions call for different pole baskets. The softer the ground, the larger the basket should be to enable perfect kick action.

Use with roller skis in summer, on the other hand, has different requirements. In the past the solution was either to own several pairs of poles or the time-consuming removal and reaffixing of the baskets together with the respective tips.

The new Multi Tip System, however, enables you to simply screw on the basket you require and thanks to a professional and ingenious locking mechanism it is securely locked in place and cannot turn. This procedure is so easy, you can even change baskets out on the trails if you need to!



MULTI TIP AERO L

MULTI TIP AERO S

MULTI TIP ROLLER

For more information use the link via the QR code to go to the short video: Multi Tip System.

Pole baskets are also available with the following designs:

RACE LITE AERO BASKET

Extremely lightweight basket with aerodynamic profile for even better power transfer and impressive lightness when using the pole.

Customer Benefits

- Extremely light weight
- Aerodynamic shape
- Perfect force transmission
- Improved pull-out

OFFTRACK BASKET

Sporty, large-surface backcountry basket. Ultralight (only 17g) and swing-optimised. Tip moved forward for efficient motion support.

Customer Benefits

- Direction orientated
- Low weight and swingweigh
- Big surface for deep snow
- Optimized roll motion

FLEXLITE BASKET

Unique deep snow basket with flex construction. Extremely adaptable and light (only 19 g). With inner teeth for more grip.

Customer Benefits

- Flexible - centerring on every slope angle
- Low weight and swingweight
- Big surface for deep snow

11.5 SPECIALS

AIR LOCK SYSTEM

New developed, ultralight and easy to operate locking system with excellent holding strength.

Customer Benefits

- Easy to operate locking system
- Ultralight
- High holding force

KIT SYSTEM

The Fischer Speedmax pole is one of the models available in kit form. The pole is supplied without the grip mounted. The length of the pole shaft can be adjusted with millimetre precision using a scale. The grip is then put on and glued in place using the adhesive supplied.

11.6 CHANGING GRIPS & BASKETS

The grip and basket are connected to the shaft with hotmelt adhesive. If it is necessary to remove one or the other in order to shorten the shaft or because of damage, then they should be evenly warmed using hot wateror a hair-dryer.

WHAT DO I NEED?

Hacksaw, adhesive tape, hot air gun, hot-melt gun.

Find personal pole length on the table:

Body height	Skating	Classic	Nordic / Offtrack Cruising
200	180	170	160
197,5	177,5	167,5	157,5
195	175	165	155
192,5	172,5	162,5	152,5
190	170	160	150
187,5	167,5	157,5	147,5
185	167,5	157,5	147,5
182,5	165	155	145
180	162,5	152,5	142,5
177,5	160	150	142,5
175	157,5	147,5	140
172,5	155	145	137,5
170	152,5	145	137,5
167,5	150	142,5	135
165	147,5	140	132,5
162,5	145	137,5	130
160	145	137,5	130
157,5	142,5	135	127,5
155	140	132,5	125
152,5	137,5	130	122,5
150	135	127,5	120
147,5	132,5	125	117,5
145	130	122,5	117,5
142,5	127,5	120	115
140	125	120	115
137,5	122,5	117,5	112,5
135	120	115	110
132,5	120	115	110
130	117,5	112,5	107,5
127,5	115	110	105
125	112,5	107,5	102,5

Cover the appropriate point on the length sticker with adhesive tape. Next, cut off carefully with the hacksaw to prevent delaminating.

Remove the tape and clean the cut end from any debris. Heat the glue stick (hot air gun or hot-melt gun) and apply liquid glue to the inside of the handle Tip! Also heat the end of the pole for better bonding.

Care should be taken when using a hair-dryer not to warm one area for too long and to keep enough distance.

Additionally carbon poles should not be over-heated as the carbon texture may disintegrate and the pole would be ruined.

Heat the handle with the glue on and the end of the shaft briefly once again and put the handle onto the shaft immediately as far as it will go.

The seam on the rear of the handle must be in line with the centreline on the length sticker.

The visible length sticker can be removed.

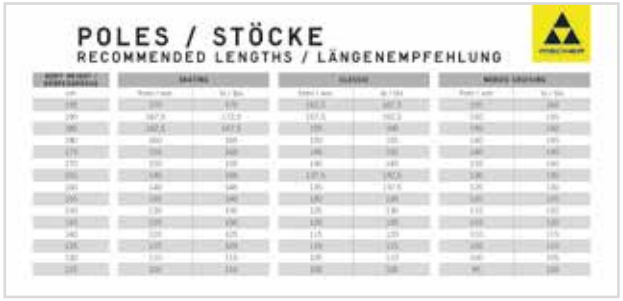
You can make adjustments by reheating the handle and the pole. Apply heat right below the handle. Before using the pole, let the glue cool and harden!

SALES TIP
Give the customer a pole to hold. The customer should hold it with the grip and then use wrist action to swing it backwards and forwards. He or she will soon notice the differences in swing patterns between the different poles.

11.7 CHOOSING POLES

The pole length is extremely important for good technique and varies according to the height of the skier. The length recommendation table (see on left side) shows the right pole lengths for the various heights. Pole lengths also vary according to skiing style (skating, classic, Nordic Cruising).

Pole lengths are different for classic and skating techniques. Classic Poles are shorter than skating poles. Even shorter poles are used for Nordic Cruising and Offtrack Cruising.
To find the best length for your customer either use the table on the right, or our XC silent seller length finder:


POLES / STÖCKE
RECOMMENDED LENGTHS / LÄNGENEMPFEHLUNG

Choosing the right pole length is very important. Economy in movement will suffer if the poles are too short. The negative effects of poles that are too short will be particularly noticeable when double-poling at higher speeds. Poles that are too long also restrict economy of movement. The change in lever effect requires much more effort than with poles the right length.

THE RULE OF THUMB IS:
Skating: customer‘s height minus 10 %
Classic: customer‘s height minus 15 %
Cruising: customer‘s height minus 20 %

If the calculated result does not match the pole lengths offered (mostly 5cm stages) then the shorter length should be recommended.

For the new skins to hold better once they have been stuck in place, warm them again a little with a dryer or iron and then smooth/press them down into the groove.

12. THE ROLLERSKI

One thing is for sure – winter will be with us again before we know it. And if you want to be fully prepared for it, you will want to be training with ski-like sessions as far as possible in summer, too. And who but the leading brand in Nordic skiing can give you everything you need for this in terms of equipment? Fischer is the only ski manufacturer to offer a comprehensive rollerski line, and has been since the 2015 summer season. The many years of experience and proven materials from ski production go into the development of the rollerskis, together with sound expertise in the production of the appropriate boots and poles. The result: a top-level ski-like feeling which is as close as possible to winter skiing. With a complete line of products ranging from rollerskis and the appropriate boots and poles to matching accessories, cross country enthusiasts have ideal training equipment in summer as well for optimum preparation for the winter season.

12.1 ROLLERSKI SELECTION

As with cross country skiing, you also have the choice between skate and classic models with rollerskis. These differ above all in terms of the frame geometry and wheel dimensions.

SKATE

The frame on skate models is considerably shorter than on classic models. The diameter of the wheels (100mm) is larger and they are relatively narrow (24mm). These are the optimum characteristics for the generally higher speeds which are reached when skating. The narrow wheels are designed for a safe kick action when using the skate technique.

CLASSIC

The frame on skate models is considerably shorter than on classic models. Compared to skating, the diameter of the wheels is smaller and they are relatively wide. This shape ensures stable tracking and a safe position on the rollerskis. Another difference is the backstop which is featured on the classic models. This locks the rear axle on Fischer rollerskis which enables a safe kick action when skiing classic style.

12.2 FRAME

As mentioned above, the length of the frame is different on skate and classic models. The frame of the classic models is considerably longer, which means that the centre distance (axle to axle) is larger. This ensures constant ground contact of the front wheel for clean and stable tracking of the rollerski.

AIR CORE COMPOSITE

The optimised Air Core Composite frame is used for both Carbonlite models. Thanks to the high-class materials and special processes as used in ski making, the Air Core Composite frame offers a unique, ski-like feel. The frame construction optimally absorbs the vibrations which occur while in use, giving you smooth performance every time.

Customer Benefits

- Smooth performance and optimum absorption of vibrations
- Top-class ski-like feel

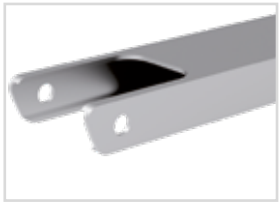
RAZOR SHAPE BASE

The unique frame geometry found on all Carbonlite models maximizes ground clearance especially for the extreme push-off angles of skate skiers.

Customer Benefits

- Sufficient space above the ground
- Lowered balance point for stable and safe rollerskiing

ALUMINIUM FRAME



Very robust and torsionally stiff aluminium frame which also delivers optimum weight performance at the same time. The overall package runs very smoothly as a result and offers optimum stability when rollerskiing.

Customer Benefits

- Torsionally stiff frame
- Very robust frame with good weight performance

12.3 ROLLERSKI BRAKE

For your own safety we recommend using a brake when rollerskiing. The Fischer Rollerski Brake is a universal brake that can be used in connection with Fischer rollerskis and rollerski boots. The brake works completely detached from the rollerski, because it is directly attached to the boot. Due to the very low weight the brake remains virtually unnoticed during the running performance. The perfect accessory for increased safety and optimal control on rollerskis.

12.4 WHEELS

Speed is controlled by the rubber compound of the wheels. The harder the rubber compound, the faster the speed. This means: the slower the wheels, the higher the training effect.

Different types of Fischer wheels are available:

	SKATE	CLASSIC
SLOW		x
MEDIUM	x	x
FAST	x	x

LOW PROFILE WHEEL

The all-rubber wheel with aluminium (ø 100mm) rim offers optimum grip on surfaces for a powerful kick action. The wheel also has perfect damping characteristics with very good weight performance.

Customer Benefits

- Optimum grip
- Perfect vibration damping
- Lightweight

FULL RUBBER WHEEL

Solid rubber wheel offers durability for classic or skating, especially on rough surfaces. Better cushioning and less vibration help ride quality.

Customer Benefits

- Durability especially on rough surfaces
- Better cushioning and less vibration

SPLASH GUARD 80 / 100

New splash guard developed for all wheels with 80 or 100mm diameter. The very light and robust plastic part can easily be mounted and removed with only one screw.

Customer Benefits

- Lightweight and durable
- Easy to mount

12.5 BEARINGS

The precision of the bearings determines the performance and smoothness of the skiing. The more precise the bearings, the smoother the rollerski performs and the longer the service life of the bearings.

PRECISION DRIVE

All components used for the suspension of the wheels are made with minimised tolerances. The provided precision is the basis for smooth running wheels with high durability. The bearings are double-sealed and maintenance free.

Customer Benefits

- Smooth running
- High durability
- Maintenance free

BEARING CLASSIFICATION ISO492 VS ABEC

The quality of a bearing is defined primarily by the precision of the manufacturing tolerances. There are various standards for the classification of the bearings. The bearings in Fischer‘s rollerskis are manufactured in tolerance class 3 in accordance with ISO 492.
If you compare the bearing classification to the ABEC scale – a standard which is often used for sports equipment – the bearing tolerances are to be classed as between ABEC 7 and ABEC 9.

ISO492	Class 6	Class 5	Class 4	Class 2	Class 1
ABEC	ABEC 3	ABEC 5	ABEC 7	ABEC 9	ABEC 11

12.6 MOUNTING BINDINGS

In the case of rollerskis without premounted TURNAMIC® bindings the appropriate holes have to be predrilled using a suitable drill / bit and the mounting gauge provided for this purpose. Care should be taken here that the sizing is in line with the boot size.

12.6.1 MOUNTING THE CARBONLITE MODELS

Positioning the mounting gauge: there are small marks on the frame which act as indicators for the positioning of the mounting gauge.

Position the drill sleeves according to the preselected size over the marks. The starting point is the rearmost mark.

This gives you the optimum stand position on the rollerski and the right distance to the rear wheel.

Drill the holes using a 3.5mm diameter x 15mm deep bit. If you do not have a mounting gauge available the marks on the frame can also be used for drilling without the gauge.

As the design is similar to that of skis, the drill holes have to be sealed to prevent water from entering the frame. Use a standard binding glue before tightening screws on the Carbonlite models.

Tighten the binding screws by hand to avoid over-tightening the screws.

To ensure that the glue hardens properly, do not use the rollerskis for 24 hours.

12.6.1 MOUNTING THE ALUMINIUM MODELS

Positioning the mounting gauge: the rear end of the mounting gauge is shaped so that it exactly matches the shape of the spray protection and exactly represents the shape of the heel plate of the TURNAMIC® binding. Position the mounting gauge so a 2mm gap remains between the mounting gauge and the spray protection. This is also the exact position of the heel plate.

Drill the holes using a 3.5mm diameter x 15mm deep bit.

No glue is required when screwing on the binding. Turn the binding screws by hand to avoid over-tightening the screws. The aluminium models are ready for use immediately after mounting.

12.6.2 WHEEL MOUNTING/REPLACEMENT

The wheels have to be replaced from time to time. This may be due to wear and tear or because the user has decided in favour of a different wheel hardness. Changing/mounting wheels is described in the following steps.

01. Use two wrenches to undo the bolts. One is used to secure, the other to loosen the first bolt. Do the same with the second bolt. Once both have been loosened you can remove the bolts.

02. When both bolts have been loosened and removed you can remove the wheels. With skate models you simply pull off the wheels. With classic models the forks can be bent outwards slightly to make it easier to remove the wheel.

03. Select the new wheels with the desired wheel speed (see table on page 61). Make sure that you only use wheels from the Fischer Sports spare parts range. With skate models you use four identical wheels. With classic models you use two different wheel types. The two rear wheels have an integrated backstop. The two front wheels turn freely in both directions.

04. In the case of wheels with the backstop feature you must observe the direction of rotation. To find out the direction of rotation simply put the wheel on the bolts between two fingers and turn it. If you turn it in the wrong direction it will stop.

05. Now mount the new wheels. To do so, put the wheel in the wheel holder. With classic models the forks may have to be opened a little again with a slotted screwdriver to insert the wheel. Make sure that the wheel clicks into place – you will hear a quiet click when the axle is in the right position.

06. The new bolts which come with the wheel set must be used in order to ensure safety when using the rollerskis. Apply some threadlocker to the thread before fastening the bolts. Bear in mind that the adhesive has to dry for 24 hours before the rollerskis can be used.

07. Now turn both wheels into the axle. Tighten them by hand first and then use two wrenches to secure them firmly. Once again, use one of the wrenches to hold on one side while the other bolt is tightened. Once the first bolt is securely in place, tighten the other.

13. ACCESSORIES

Don‘t forget to offer your customer clothes and accessories. Many do not know that they may need functional clothing in order to fully enjoy the cross country skiing experience.

13.1 APPAREL

TOP LAYER - WEATHER PROTECTION

The top layer of clothing guards against conditions such as damp, cold and wind It prevents water and wind penetrating inside but is breathable for temperature management.

GLOVES

Cross country skiing gloves have two basic functions. They should protect against the cold and against manual stress (blisters, grazing from falling). Gloves should be tight and comfortable so that they do not slip or crease which would cause blisters. They should not be too thick so that the pole can still be easily controlled.

HEADWEAR

Some 30 % of all body heat is lost via the head and therefore protecting the head with a hat or a headband plays a major role in cross country skiing. They guard against damp, cold and wind yet must be breathable in order to allow the sweat to be wicked away to the outside.

13.2 EYEWEAR

Sunglasses protect against wind and the sun‘s ray. They should also be worn in overcast conditions to ensure eye protection.

13.3 SOFTGOODS

Drinkbelt:

In order to take on enough fluid during training it is a good idea to wear a drink belt around your hips. Special thermo drink belts also make sure that drinks stay warm and there is enough room for keys.

Backpack:

Backpacks offer sufficient space to carry assorted useful items, clothing, etc. They are made of durable material and water repellent so that no moisture can get inside when they are placed on snow.

Skicase:

We recommend you use a ski bag to transport your skis. The skis are packed safely inside and it is also possible to transport several pairs when you travel. Ski bags are available in a range of sizes and designs.

Skibootbag:

Keeping and carrying cross country skiing boots in bags protects them from wear and tear and also enables you to transport them more easily. Boot bags also come in a wide range of designs according to requirements.

Pole Case:

We recommend you use a ski pole transport tube especially when transport one or several pairs of poles by car or aeroplane. The poles are protected and safe inside the tubes and they also save space.

14. FISCHER WEBSITE

Go to the website www.fischersports.com for full details of the Alpine and Nordic products in more than 10 languages. You will also find a whole host of videos and explanations of the innovative technologies so you can see exactly what the products are capable of.

The updated individual Product Finder makes it easy to find the right equipment for the user.

Simply click where necessary to find out which boots are the right ones for you, the length your dream skis should be and which poles are best for you.

The fully redesigned Dealer Locator shows the user where he can find these products at a place nearby.

14.1 MEDIA DATABASE

If you need any photographs to design your catalogue or for promoting events the images can be downloaded and also used free of charge from the image database in the media section of the Fischer website at www.fischersports.com/mediadb.

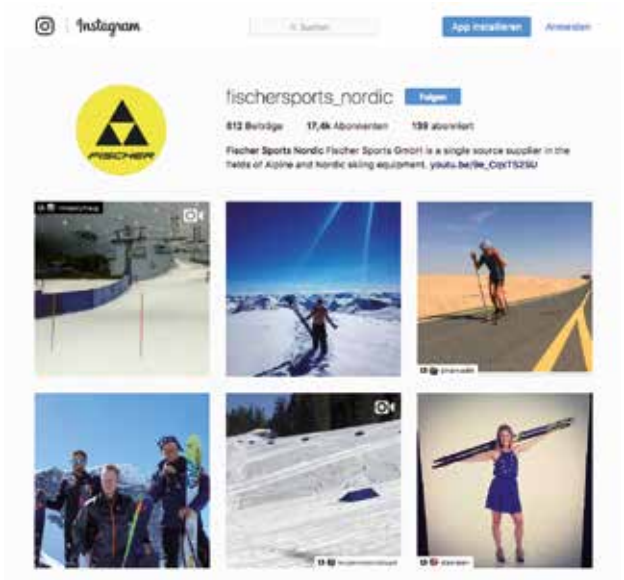
Low resolution action pictures and product photographs are available without password.
You must be logged in to access high-end photos. If you have not yet done so you can register free of charge at any time (www.fischersports.com/en_en/customer/account/create/) and you will receive a personal password.

Please note: the graphical material contained in this image database is made available free of charge by Fischer. Any processing of the pictures whatsoever is strictly prohibited. Picture credits obligatory.

14.2 SOCIAL MEDIA

As an innovative company Fischer is, as you would expect, also represented on the social media channels. Any user can make sure they stay up to speed easily and quickly and make sure they have all the latest on what is happening in the world of Fischer through additional background information.

facebook.com/fischernordic
twitter.com/fischersports
youtube.com/fischersports
instagram.com/fischersports_nordic



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