

Comparative Study of Cross-Country Skis

Final Report



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Glossary

Basket: The basket is the cup with the sharp tip at the bottom of the ski pole. The width of the basket varies according to the type of skiing the pole is used for. A narrow basket is for well-groomed trails, a medium-wide basket is for groomed or skied-in conditions, and a wide basket is for backcountry skiing. The basket's purpose is to hold the skiers weight above the snow.¹

Binding: A ski binding is attached to the ski. The ski boot clips into the binding thus holding the skis to your feet. Cross-Country bindings allow the heel to raise and lower – it is free-heel skiing.

Classic Ski Flex: If your classical skis are too stiff, your kick will constantly slip because your weight is not great enough to press the ski's kick zone against the snow. If they are too soft, the kick zone will constantly rub against the snow and make skiing more strenuous. A pair of skis that is neither too stiff nor too soft will maintain good kick and glide.

Crown Base/Fish Scales/Waxless Ski: A base for classical skiing that does not require kick wax. The crown pattern is milled or pressed into the ski forming a pattern, which is rough in one direction and smooth into the other allowing the ski to slide forward on the snow but not slide back.

Flex/Chamber/Weight: The flex or camber of a ski is how much weight it takes to flatten the ski against the snow. A stiff flex requires more weight, a soft flex requires less. The flex of a ski is the most important attribute. A ski should be flexed to a skier's weight to work well.

Glide Zone: On a classical ski this is the tip and tail portion of the ski. On a skate ski this is whole base section.

Handle: A Cross-Country ski handle is the part at the top of the pole. Unlike an alpine ski pole handle, you do not have to actively hold onto your Cross-Country pole handle because of the way your hand is held by the pole strap.

Kick Zone: The central portion of a classical ski's base – where one applies kick wax or where the crown base is.

¹ “About, Inc.” © 2004, *Cross-Country Skiing Glossary; Cross-Country Ski Equipment Buying Guide*, 19 July 2004 <<http://skiing.about.com/library/weekly/bIXCskiglossary.htm>>

Side cut: Some skis have a side cut. Side cut refers to the shape of the ski's edge. A straight cut ski has no side cut; it is straight all along both edges. A ski with side cut may have a slight or even extreme hourglass, or even double hourglass shape. Side cut grants many advantages including stability, ease of turning, more consistent ski flex and weight distribution over the whole ski base.

Skating Ski Flex: A skating ski that is too stiff will be unstable side to side. A skating ski that is too soft will flatten out completely under your weight and swivel under your foot. In both cases the result is a ski that is unstable and slow.

Ski Base: The base of the ski is its running surface. Ski bases are generally made of polyethylene. Black based skis generally have carbon or graphite mixed into the polyethylene.

Ski Boot: A Cross-Country ski boot ranges from something like a running shoe to a speed skating boot to mountaineering hiking boot. The kind of ski boot you need depends on the type of skiing you will do. Boots should be snug and supportive, but allow for good circulation so your feet stay warm.

Ski Poles: Ski poles are used to help you move forward (not just to hold you upright). Using ski poles engages the entire upper body thereby giving cross-country skiers great workout as all major muscle groups are put to use. There is a wide variety of ski poles to match the type of skiing one will be doing – racing, sports, adventure, backcountry, and like skis, the poles should fit the individual.

Ski Tail: Either the very tail of the ski, or the entire back section of the ski from the back-end of the binding to the very tail of the ski.

Ski Tip: Either the very forward up-lifted section of the ski, or the entire forward section of the ski, from the binding to the very tip.

Strap: A Cross-Country ski strap is entered from below. Simply hold the strap out with one hand and enter the loop from below with the other hand. Allow your hand to relax over the loop where both end enter the handle so that the two parts of the loop fall between your thumb and fore-finger and your hand is resting on the loop. Thus you don't have to hold the pole much at all as your hand is cradled over the strap.

Top Sheet: The whole top layer of ski.

Introduction

During a recent conversation you mentioned that it was time to buy new Cross-Country skis. When you purchased your first Cross-Country skis, you bought these without much hesitation, because you had no experience. The expert sales person suggested skis for beginners. You trusted the expert and the skis served you well for many years.

Because you used your first skis for many years you have now a better idea what you are looking for in a new pair of skis that should be suited for deep snow conditions. You want to use the skis on groomed trails and in the backcountry. You are a recreational skier and more experienced than when you bought your first skis. You want to enjoy the quiet off-road mountain trails, where no snowmobiles are allowed.

You prefer new skis, but you also would like to compare with used skis. You would consider buying these if they were in good condition. Your ski poles, bindings, and boots are still in excellent condition. You like to know, if your present bindings, boots, and poles can be used with your new skis. You would like to make an informed decision for this purchase.

I talked to a Cross-Country ski specialist about utilizing your present ski poles, bindings, and boots since you received the Progress Report. I found out that it is not possible to use these accessories with your new skis, because backcountry skis require different boots, bindings and poles.

A good time to buy skis and get up to 50 percent discounts is during spring sales, but not all brands and styles are available during sales. Since buying Cross-Country skis is not a large investment, purchasing them during the regular season will offer more styles and brands to choose from.

Based on these factors, I explored the latest Cross-Country ski equipment to recommend a pair of skis that will serve you better than your current skis. I researched the following ski brands and models:

- Atomic Sierra Backcountry Skis
- Fisher BC Country Crown
- Madshus Voss Multigrip E+ Skis
- Rossignol EVO Trail AR Skis
- Rossignol X-Tour Explorer AR Skis

We decided on the following criteria for selecting your Cross-Country skis:

- Cost
- Performance
- Construction
- Specifications
- Maintenance

This report presents the individual research data for each of the five Cross-Country ski brands and models followed by a data analysis. Next, in the conclusion section, the various brands and models are compared based on the data analysis.

The last section of the report is the recommendation section, which will identify the best Cross-Country skis, based on your selected criteria, and additional suggestions to consider before buying your Cross-Country skis.

Background Information on the Problem

Choosing a pair of Cross-Country skis depends on the style of skiing you intend to do. While I was locating information about Cross-Country skiing, I learned some about its history, which I would like to pass on to you. Cross-Country skiing dates back about 5,000 years. It originated in Norway, and then it became popular throughout Scandinavia and Russia. Not as a sport, but to move faster over distances during the long and hard winter season.

While we were discussing the purchase of the Cross-Country skis, you wanted to know what the difference was between Cross-Country and Nordic skiing. There is no difference. The name surfaced because of its origin in northern Europe. Alpine skiing, however, draws its name from the Alps in Southern Europe.

You have a cabin in the mountains near Lake Cle Elum. There is a lot of deep snow every winter. The area has become very popular over the years for motorized winter sport activities. You like to get off the beaten path using Cross-Country skis. There are special places where there are no motorized vehicles permitted. Your present Cross-Country skis are not made for off-track skiing, which means that you need a different style of ski.

There will be a choice between “**Skating**” and “**Classic**” gear. Most beginners start out with the classic motion. Here the skis stay parallel and you use “a gliding walk” motion. Classic gear ranges from “**Racing, Sports, Adventure, Touring and Backcountry**”. I know that you are not a beginner and not a competitive sports person. You like to use the skis for recreational skiing. You like to work your way up on mountain logging roads and then enjoy the downhill run, or just enjoy Park areas, or check out what’s around the next bend or over the next hill.

I will start comparing the brands and styles of Adventure, Touring and Backcountry skis for you. If you decide on Touring or Backcountry skis, your present bindings, boots and poles will not be the correct type. I remember that you used to get wet feet in your present boots going off-track, because they are made for groomed trails only. The poles have a wider basket and are sturdier for Touring or Backcountry skis. Steel edges will make the downhill run safer, hence better control in curves. You are looking for waxless skis, since speed is not one of your priorities.

Presentation of Data



Atomic Sierra Backcountry Skis

Purchase Price

The suggested purchase price for this brand and style is **\$169.00**. On sale the same skis may be purchased for up to 49% reduced in price, which will be **\$84.83**.²

Bindings that work well with these skis are separate items:³

- Voile Telemark 3-Pin Bindings price per Pair **\$24.93**
- Rottefella NNN-3 BC Auto Bindings price per Pair **\$59.50**

Performance

The skis are recommended for gliding over rolling terrain. They have a waxless grip pattern, which makes them steady and secure.⁴

Construction

The skis weigh 1,950 grams per pair at a length of 180cm. Durable top surface design gives the skis stiffness for stability and steering control. Wood core with air channels decreases the skis weight. The skis are waxless with 3-D grip design, which allows the skis to slide forward but not back, while on a hill. The skis have a minimal sidecut and full-length steel edges which makes skiing safer in curves and icy conditions.⁵

Sidecut refers to the shape of the ski edges. A ski with no sidecut has straight edges; a ski with sidecut has hourglass-shaped edges. Sidecut adds stability, ease for turning, more ski flex, and distributes a person's weight evenly over the entire ski base.⁶

The flex of a ski is an important factor. A ski has to be flexed according to the skier's weight for it to work well. The flex refers to the weight it takes to flatten a ski against the snow.⁷

² "Recreational Equipment, Inc.," REI, © 1996-2004, *Snow Sports; Nordic Ski Gear*, 18 July 2004, <<http://www.rei.com/rei/gearshop>>

³ REI

⁴ REI

⁵ REI

⁶ About, Inc

Specifications

The following table provides ski brand specific information.⁸

Table 1: Atomic Sierra Backcountry Ski Specification

Specification	Description
Suggested use	Backcountry Touring
Weight per pair	1,950 grams (180cm)
Core	Wood with air channels
Base	Waxless 3-D grip
Metal edge	Yes
Top sheet	Cap
Side cut	70/60/65
Length (cm)	170, 180, 190

Maintenance

The skis have a waxless 3-D grip base. The term waxless refers to the crown pattern, also called fish scales, located at the center of the ski base. This part of the ski stays wax-free. Recreational skiers do not have to wax the glide zone of their skis often, since they are not skiing on a daily bases. The glide zone of the ski is the entire base excluding the crown pattern area.⁹

Applying Glide Wax to new skis prior to skiing will improve performance. One should clean and wax the ski base before storage to extend the life of the skis. Most recreational skiers need not worry about waxing, or have it done at a specialty ski shop.¹⁰

Store the skis in a cool place to preserve the ski base and the glue that holds the binding plate down. To prevent the camber of the ski to soften, store the skis with the ski-ties loosely fastened.¹¹

The camber, also called flex, refers to the weight it takes to flatten a ski against the snow.¹²

⁷ About, Inc

⁸ REI

⁹ “Ski Post – Cross Country Ski Source”, *Cross-Country Knowledge*,. 6 July 2004 <<http://skipost.com>>

¹⁰ Ski Post

¹¹ Ski Post

¹² About, Inc



Fisher BC Country Crown Skis

Purchase Price

The suggested purchase price for this brand and style is **\$129.00**. On sale the same skis may be purchased for up to 49% reduced in price, which will be **\$64.83**.¹³

Bindings that work well with these skis are separate items:¹⁴

- Rottefella NNN-3 BC Auto Touring Bindings - Unisex price per Pair **\$59.50**

Performance

These skis are recommended for skiers that like to ski in untracked snow, but also like to ski on groomed trails. The skis have a double crown waxless base.¹⁵

Construction

The skis weigh 1,850 grams per pair at a length of 200cm. Special design of ski top surface guards against damage during skiing, transporting and storage. Air channel interior make these skis 250 grams lighter than common skis. The skis have a double crown waxless base with ridges cut into the base, which allow the skis to slide forward but not back, while on a hill. The skis have a moderate sidecut and have no steel edges.¹⁶

Sidecut refers to the shape of the ski edges. A ski with no sidecut has straight edges; a ski with sidecut has hourglass-shaped edges. Sidecut adds stability, ease for turning, more ski flex, and distributes a person's weight evenly over the entire ski base.¹⁷

The flex of a ski is an important factor. A ski has to be flexed according to the skier's weight for it to work well. The flex refers to the weight it takes to flatten a ski against the snow.¹⁸

¹³ REI

¹⁴ REI

¹⁵ REI

¹⁶ REI

¹⁷ About, Inc

¹⁸ About, Inc

Specifications

The following table provides ski brand specific information.¹⁹

Table 2: Fisher BC Country Crown Ski Specification

Specification	Description
Suggested use	Touring
Weight per pair	1,850 grams (200cm)
Core	Air channel
Base	Waxless
Metal edge	No
Top sheet	Cap
Side cut (millimeters)	60/52/57
Length (cm)	180, 185, 190, 195, 200, 205, 210, 215

Maintenance

The skis have a double crown waxless base. The term waxless refers to the crown pattern, also called fish scales, located at the center of the ski base. This part of the ski stays wax-free. Recreational skiers do not have to wax the glide zone of the skis often, since they are not skiing on a daily bases. The glide zone of the ski is the entire base excluding the crown pattern area.²⁰

Applying Glide Wax to new skis prior to skiing will improve performance. One should clean and wax the ski base before storage to extend the life of the skis. Most recreational skiers need not worry about waxing, or have it done at a specialty ski shop.²¹

Store the skis in a cool place to preserve the ski base and the glue that holds the binding plate down. To prevent the camber of the ski to soften, store the skis with the ski-ties loosely fastened.²²

The camber, also called flex, refers to the weight it takes to flatten a ski against the snow.²³

¹⁹ REI

²⁰ Ski Post

²¹ Ski Post

²² Ski Post

²³ About, Inc



Madshus Voss Multigrip E+ Skis

Purchase Price

The suggested purchase price for this brand and style is **\$165.00**. On sale the same skis may be purchased for up to 51% reduced in price, which will be **\$79.83**.²⁴

Bindings that work well with these skis are separate items:²⁵

- Rottfella NNN-3 BC Auto Bindings price per Pair **\$59.50**.

Performance

These multipurpose skis are for the true backcountry skier that still likes to use groomed trails occasionally. The skis are wider to stay on top of deep snow, and have added sidecut for extra control. The base of the skis does not require waxing.²⁶

Construction

The skis weigh 1,820 grams per pair at a length of 190cm. The ski top surface is designed to resist damage. The skis have a Multigrip E+ wax-free base, for easy grip and glide motion and sidecut for skiing control. The skis have three-quarter length steel edges for added control in curves and icy conditions.²⁷

Sidecut refers to the shape of the ski edges. A ski with no sidecut has straight edges; a ski with sidecut has hourglass-shaped edges. Sidecut adds stability, ease for turning, more ski flex, and distributes a person's weight evenly over the entire ski base.²⁸

The flex of a ski is an important factor. A ski has to be flexed according to the skier's weight for it to work well. The flex refers to the weight it takes to flatten a ski against the snow.²⁹

²⁴ REI

²⁵ REI

²⁶ REI

²⁷ REI

²⁸ About, Inc

²⁹ About, Inc

Specifications

The following table provides ski brand specific information.³⁰

Table 3: Madshus Voss Multigrip E+ Ski Specification

Specification	Description
Suggested use	Backcountry Touring
Weight per pair	1,820 grams (190cm)
Core	Wood with air channels
Base	Waxless
Metal edge	Yes, 3/4 length
Top sheet	PE cap
Side cut (millimeters)	60/50/55
Length (cm)	180, 190, 195, 200, 205, 210

Maintenance

These skis come with a Multigrip E+ waxless base. The term waxless refers to the crown pattern, also called fish scales, located at the center of the ski base. This part of the ski stays wax-free. Recreational skiers do not have to wax the glide zone of the skis often, since they are not skiing on a daily bases. The glide zone of the ski is the entire base excluding the crown pattern area.³¹

Applying Glide Wax to new skis prior to skiing will improve performance. One should clean and wax the ski base before storage to extend the life of the skis. Most recreational skiers need not worry about waxing, or have it done at a specialty ski shop.³²

Store the skis in a cool place to preserve the ski base and the glue that holds the binding plate down. To prevent the camber of the ski to soften, store the skis with the ski-ties loosely fastened.³³

The camber, also called flex, refers to the weight it takes to flatten a ski against the snow.³⁴

³⁰ REI

³¹ Ski Post

³² Ski Post

³³ Ski Post

³⁴ About, Inc



Rossignol EVO Trail AR Skis

Purchase Price

The suggested purchase price for this brand and style is **\$119.00**. On sale the same skis may be purchased for up to 49% reduced in price, which will be **\$59.83**.³⁵

Bindings that work well with these skis are separate items:³⁶

- Voile Telemark 3-Pin Bindings price per Pair **\$24.93**
- Rottefella NNN-3 BC Auto Bindings price per Pair **\$59.50**

Performance

On these skis you can leave the groomed trail far behind. These skis are designed to be used 80% out of tracks and 20% in, and they are wider to stay on top of deep snow. The skis are shorter than other skis, therefore are easier to control in untracked terrain. The base of the skis does not require waxing.³⁷

Construction

The skis weigh 1,800 grams per pair at a length of 178cm. Special design of ski top surface guards against easy damage. Wood core with air channels make these skis lighter than common Cross-Country skis. The skis have a waxless low-maintenance Positrac base with recessed gripping teeth that will not hinder kick or glide motion. These skis have sidecut for improved skiing control, but have no steel edges.³⁸

Sidecut refers to the shape of the ski edges. A ski with no sidecut has straight edges; a ski with sidecut has hourglass-shaped edges. Sidecut adds stability, ease for turning, more ski flex, and distributes a person's weight evenly over the entire ski base.³⁹

The flex of a ski is an important factor. A ski has to be flexed according to the skier's weight for it to work well. The flex refers to the weight it takes to flatten a ski against the snow.⁴⁰

³⁵ REI

³⁶ REI

³⁷ REI

³⁸ REI

³⁹ About, Inc

Specifications

The following table provides ski brand specific information.⁴¹

Table 4: Rossignol EVO Trail AR Ski Specification

Specification	Description
Suggested use	On- and off-trail Touring
Weight per pair	1,800 grams (178cm)
Core	Wood air channel
Base	Waxless
Metal edge	No
Top sheet	ABS cap
Side cut (millimeters)	67/57/62
Length (cm)	168, 178, 188, 198

Maintenance

The skis have a low-maintenance Positrack AR waxless base. The term waxless refers to the crown pattern, also called fish scales, located at the center of the ski base. This part of the ski stays wax-free. Recreational skiers do not have to wax the glide zone of the skis often, since they are not skiing on a daily bases. The glide zone of the ski is the entire base excluding the crown pattern area.⁴²

Applying Glide Wax to new skis prior to skiing will improve performance. One should clean and wax the ski base before storage to extend the life of the skis. Most recreational skiers need not worry about waxing, or have it done at a specialty ski shop.⁴³

Store the skis in a cool place to preserve the ski base and the glue that holds the binding plate down. To prevent the camber of the ski to soften, store the skis with the ski-ties loosely fastened.⁴⁴

The camber, also called flex, refers to the weight it takes to flatten a ski against the snow.⁴⁵

⁴⁰ About, Inc

⁴¹ REI

⁴² Ski Post

⁴³ Ski Post

⁴⁴ Ski Post

⁴⁵ About, Inc



Rossignol X-Tour Explorer AR Skis

Purchase Price

The suggested purchase price for this brand and style is **\$169.00**. On sale the same skis may be purchased for up to 49% reduced in price, which will be **\$84.83**.⁴⁶

Bindings that work well with these skis are separate items:⁴⁷

- Voile Telemark 3-Pin Bindings price per Pair **\$24.93**
- Rottefella NNN-3 BC Auto Bindings price per Pair **\$59.50**

Performance

These skis can be used on groomed and rough trails. The base of the skis does not require waxing.⁴⁸

Construction

The skis weigh 840 grams per pair at a length of 198cm. Wood core with air channels make these skis lighter than common Cross-Country skis. The skis have a heat-shaped AR waxless base with excellent grip and glide performance and added sidecut for improved skiing control. These skis have no steel edges.⁴⁹

Sidecut refers to the shape of the ski edges. A ski with no sidecut has straight edges; a ski with sidecut has hourglass-shaped edges. Sidecut adds stability, ease for turning, more ski flex, and distributes a person's weight evenly over the entire ski base.⁵⁰

The flex of a ski is an important factor. A ski has to be flexed according to the skier's weight for it to work well. The flex refers to the weight it takes to flatten a ski against the snow.⁵¹

⁴⁶ REI

⁴⁷ REI

⁴⁸ REI

⁴⁹ REI

⁵⁰ About, Inc

Specifications

The following table provides ski brand specific information.⁵²

Table 5: Rossignol X-Tour Explorer AR Ski Specification

Specification	Description
Suggested use	On- and off-trail touring
Weight per pair	840 grams (198cm)
Core	Wood with air channels
Base	Waxless
Metal edge	No
Top sheet	Activ'Cap multidirectional fiberglass
Side cut (millimeters)	60/50/55
Length (cm)	178, 188, 198, 203, 208

Maintenance

The skis have a low-maintenance Positrack AR waxless base. The term waxless refers to the crown pattern, also called fish scales, located at the center of the ski base. This part of the ski stays wax-free. Recreational skiers do not have to wax the glide zone of the skis often, since they are not skiing on a daily bases. The glide zone of the ski is the entire base excluding the crown pattern area.⁵³

Applying Glide Wax to new skis prior to skiing will improve performance. One should clean and wax the ski base before storage to extend the life of the skis. Most recreational skiers need not worry about waxing, or have it done at a specialty ski shop.⁵⁴

Store the skis in a cool place to preserve the ski base and the glue that holds the binding plate down. To prevent the camber of the ski to soften, store the skis with the ski-ties loosely fastened.⁵⁵

The camber, also called flex, refers to the weight it takes to flatten a ski against the snow.⁵⁶

⁵¹ About, Inc

⁵² REI

⁵³ Ski Post

⁵⁴ Ski Post

⁵⁵ Ski Post

⁵⁶ About, Inc

Analysis of Data

Cost

Rossignol EVO Trail AR Skis are the first choice in the cost criterion with a suggested retail price of \$119.00.

Fisher BC Country Skis are the second choice with a suggested retail price of \$129.00.

Madshus Voss Multigrip E+ Skis are the third choice with a suggested retail price of \$165.00.

Atomic Sierra Backcountry Skis and **Rossignol X-Tour Explorer AR Skis** are at a tie for fourth place with a retail price of \$169.00.

Table 6 shows the retail price and price differences listed in order of ranking from first place to the fourth place tie. There is only a small price difference between the ski brands, ranking from \$10.00 to \$50.00.

Table 6: Retail Price Comparison

Ranking	Ski Brand	Retail Price	Price Difference
1.	Rossignol EVO Trail AR Skis	\$119.00	-
2.	Fisher BC Country Crown Skis	\$129.00	\$10.00
3.	Madshus Voss Multigrip E+ Skis	\$165.00	\$46.00
4.	Atomic Sierra Backcountry Skis	\$169.00	\$50.00
4.	Rossignol X-Tour Explorer AR Skis	\$169.00	\$50.00

Performance

Atomic Sierra Backcountry Skis are the first choice in the performance criterion, based on full length metal edges combined with the widest ski base. The skis are well made for Backcountry Touring, for staying on top of deep snow and providing extra control because of full-length metal edges.

Madshus Voss Multigrip E+ Skis are the second choice based on three-quarter-length metal edges. The skis have less floatation in deep snow conditions, because they are not as wide as the first choice skis. These skis serve well for Backcountry Touring and groomed trail skiing.

Rossignol EVO Trail AR Skis are the third choice. These skis are nearly as wide as the first choice skis, therefore they have good floatation in deep snow conditions, but have no metal edges, hence less control in icy conditions. These skis serve well in untracked terrain and on groomed trails without ice and sharp curves.

Rossignol X-Tour Explorer AR Skis are the fourth choice. These skis are narrower; therefore floating on top of deep snow is limited. The skis have no metal edges, hence less control in icy conditions. These skis are good for groomed trails and rough trails.

Fisher BC Country Crown Skis are the fifth choice. These skis are narrower; therefore floating on top of deep snow is limited. These skis have no metal edges and less side cut (60 minus 52 = 8mm vs. 10mm), compared to the other ski brands.

Table 7 shows Performance of the ski brands rated by design difference in ski width and ski edge.

Table 7: Performance Comparison

Ranking	Ski Brand	Best Use	Metal Edges	Ski Width & Side cut
1.	Atomic Sierra Backcountry Skis	Backcountry Touring	Full Length	70/60/65
2.	Madshus Voss Multigrip E+ Skis	Backcountry Touring	Three-Quarter Length	60/50/55
3.	Rossignol EVO Trail AR Skis	On- and off-trail Touring	No	67/57/62
4.	Rossignol X-Tour Explorer AR Skis	On- and off-trail Touring	No	60/50/55
5.	Fisher BC Country Crown Skis	Touring	No	60/52/57

Construction

Rossignol X-Tour Explorer AR Skis are the first choice in the construction criterion when ranking the skis by their weight.

Fisher BC Country Crown Skis are the second choice ranked by their weight.

Madshus Voss Multigrip E+ Skis are the third choice ranked by their weight.

Rossignol EVO Trail AR Skis are the fourth choice ranked by their weight.

Atomic Sierra Backcountry Skis are the fifth choice ranked by their weight.

Table 8 compares the construction of the ski brands by weight, which is an important factor when skiing extended periods of time.

Table 8: Construction Comparison

Ranking	Ski Brand	Weight per Pair in grams	Weight in g/cm
1.	Rossignol X-Tour Explorer AR Skis	198cm = 1850 grams	4.24
2.	Fisher BC Country Crown Skis	200cm = 1850 grams	9.25
3.	Madshus Voss Multigrip E+ Skis	190cm = 1820 grams	9.57
4.	Rossignol EVO Trail AR Skis	178cm = 1800 grams	10.11
5.	Atomic Sierra Backcountry Skis	180cm = 1950 grams	10.83

Specifications

Atomic Sierra Backcountry Skis are the first choice in the Specification criterion based on full-length metal edges for added skiing control combined with the widest ski base for staying on top of deep snow. The skis serve well for Backcountry Touring.

Madshus Voss Multigrip E+ Skis are the second choice based on three-quarter length metal edges for added skiing control. These skis are not as wide as the first choice skis. The skis serve well for Backcountry Touring

Rossignol EVO Trail AR Skis are the third choice because the skis have no metal edges, but the skis are nearly as wide as the first ranking skis and therefore have good floating control in deep snow. The skis are good for on- and off-trail Touring.

Rossignol X-Tour Explorer AR Skis are the fourth choice. The skis are narrower; therefore floating on top of deep snow is limited. These skis have no metal edges for extra skiing control. The skis are good for on- and off-trail Touring.

Fisher BC Country Crown Skis are the fifth choice. The skis are narrower; therefore floating on top of deep snow is limited. The skis have no metal edges for extra skiing control. These skis have less side cut than the other four ski brands (60 minus 52 = 8mm vs. 10mm). The skis are good for on- and off-trail Touring.

Table 9 shows the Specifications ranked on three of the eight specification features, since the others features are the same or similar, they are not included in this table.

Table 9: Specification Comparison

Ranking	Ski Brand	Best use	Metal Edges	Ski Width & Side cut
1.	Atomic Sierra Backcountry Skis	Backcountry Touring	Full Length	70/60/65
2.	Madshus Voss Multigrip E+ Skis	Backcountry Touring	Three-Quarter Length	60/50/55
3.	Rossignol EVO Trail AR Skis	On- and off-trail Touring	No	67/57/62
4.	Rossignol X-Tour Explorer AR Skis	On- and off-trail Touring	No	60/50/55
5.	Fisher BC Country Crown Skis	Touring	No	60/52/57

Maintenance

Maintenance for each of the ski brands is the same since they all have a waxless base, thus cleaning and waxing the ski base will be the same process.

Storing Cross-Country skis for the season does not change, regardless of what ski brand is selected.

The ranking for all the analyzed ski brands is the same, so there is no best choice for the Maintenance criterion.

Summary of Analysis

The individual ski brands are analyzed within each criterion by a point system. The highest ranking ski brand receives 5 points, the next highest receives 1 point less, thus the ranking is from the highest ranking of 5 points to the lowest of 1 point; if there is a tie between brands within their criterion they receive equal points.

Table 10 shows the overall total of the criteria for the five ski brands within the assigned point system. The Maintenance criterion is not included in the table since the information is the same for all of the brands.

Table 10: Summary of Analysis by Criteria

Ranking	Ski Brand	Criteria				Total Points
		Cost	Performance	Construction	Specifications	
1.	Madshus Voss Multigrip E+ Skis	3	4	3	4	14
2.	Atomic Sierra Backcountry Skis	2	5	1	5	13
2.	Rossignol EVO Trail AR Skis	5	3	2	3	13
3.	Rossignol X-Tour Explorer AR Skis	2	2	5	2	11
4.	Fisher BC Country Crown Skis	4	1	4	1	10

Conclusions

Madshus Voss Multigrip E+Skis take **first place** within the point system of the chosen criteria based on Analysis of Data and Summary of Analysis. The skis rank second in Performance and Specifications criterion, third in Cost and Construction criterion. The overall point total makes this brand the winner.

Atomic Sierra Backcountry Skis and **Rossignol EVO Trail AR Skis** have a tie for **second place** with the point total applied.

Atomic Sierra Backcountry skis rank first in the Performance and Specification criterion, fourth in Cost, and fifth in Construction criterion.

Rossignol EVO Trail AR Skis rank first in the Cost criterion, third in the Performance and Specifications criterion, and fourth in Construction criterion.

Rossignol X-Tour Explorer AR Skis take **third place** when applying the point total. The skis rank first in Construction criterion, fourth in Cost, Performance and Specifications criterion.

Fisher BC Country Crown Skis take **fourth place** when applying the point total. The skis rank second in Cost and Construction criterion, fifth in Performance and Specifications criterion.

Recommendations

Madshus Voss Multigrip E+ Skis are the best Cross-Country skis according to the analyzed criteria and the total points of the Summary of Analysis. They did not rank first in any of the criteria but gained extra points in the construction criterion because they weigh less.

I recommend **Atomic Sierra Backcountry Skis**; they are a close second place, but ranked first in two criterions, Performance and Specifications. They scored lower in the Construction criterion, because they weigh more. The other ski brands either scored only one first place or none. I prefer these skis over the other brands because of the extra wide ski base and the full-length metal edges. I also think that they are built for rugged backcountry skiing.

Rossignol EVO Trail AR Skis are a tie for second place. They ranked first in the price criterion. The ski base is almost as wide as the Atomic Sierra Backcountry Skis base, but the drawback is that they do not have metal edges.

Rossignol X-Tour Explorer AR Skis are the lightweights. They scored first place in the Construction criterion. These skis would not be my choice for backcountry skiing, but they are fine for on- and off trail touring, because the ski base is narrower and has no steel edges.

Fisher BC Country Crown Skis did not score first place in any of the criterion. Even so it says that they are backcountry (BC) skis, I believe they are good on groomed trails only.

Considering the evaluated data in this report, I recommended the Atomic Sierra Backcountry Skis; however, I suggest that you visit local ski shops, look at the different brands for your skiing style. Selecting skis to your liking can be very personal choice. Because there are only a small number of companies that make Cross-Country skis, you do not have to worry about buying from the wrong Manufacturer; they all make good, high-quality skis. You need to worry about buying the wrong skis for the type of skiing you have in mind.

It is always a good idea to try out or rent the skis and boots before you buy them. I also recommend that you don't just look at the price of the skis, rather pay attention to the width of the skis, their side cut and if they have metal edges.

This report will make it easier for you to make a decision for purchasing your next pair of Cross-Country skis. Have fun selecting your skis and enjoy the crisp winter air.

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