

# V2-XL100 & 98... free style roller skis for paved surfaces

## V2... THE CHOICE OF CHAMPIONS

Revised October 12, 2008

**Just a few of the 2006 Olympic skiers that train on V2 Roller skis.**

*Kristina Smigun...Gold 15 K pursuit, Gold 10K classic, 8th 30K free.*

*Andrus Veerpalu... Gold 15K classic*

*Evgni Medvedeva... Gold relay, Bronze 15K pursuit*

*Natalia Baranova... Gold relay*

*Jay Hakkinen... 10th 20K, 13th 15K biathlon*

*Julija Tchepalova...Gold relay, Silver 30K free*

*Larissa Kurkina...Gold relay*

*Jack Mae...5th 15K classic*

*Sarah Konrad... top US distance skier at the Olympics*

*Chandra Crawford... Gold Sprint*



The XL 100 & XL98 incorporate the best design elements from previous V2 models combined with revolutionary new technology.



The latest composite shaft have a seamless carbon fibre structure which covers all sides of the core. This makes for a stronger, lighter shaft.



XL 98



100 mm XL100

The only difference between the XL100 and the XL98 is the size and profile of the tire. The XL98 is 98 mm and has a more rounded profile. This tire weighs approximately 25 grams less than the larger and flatter profile XL100 tire.

Since a pair of XL98 weigh about 100 grams less than the XL100, those who like very light roller skis might prefer the XL98. Since both skis use the same shafts, when using the XL98 tires you loose 1.25 mm of ground clearance.

**COMPOSITE SHAFT:** Most roller ski shafts are made of aluminum. It's a wonderful material and when using the shock absorbing pneumatic tires on the V2 Aero series the ride is smooth. However, aluminum has a low fatigue resistance so the shaft has to be very stiff.

When using solid tires the aluminum shaft can produce a stiff ride, especially for lighter skiers. If you make a flexible aluminum shaft it will fail prematurely due to fatigue. Composite shafts have good fatigue resistance and can be designed to flex so the shaft absorbs the road vibration. But, if you design a composite shaft for a person weighing 90 Kg., it will be too stiff for a person weighing 50 Kg. In order to get a smooth ride for different weight skiers we produce two shafts, a **Medium Flex** for skiers up to about 77Kg. (170 pounds) and a **Stiff Flex** for heavier skiers. ( **However, the weight of the skier is not the only factor in picking the shaft flex. A very strong light weight skier who has a very powerful push off might need a Stiff flex ski and a heavier skier who skis very smoothly might prefer a Medium flex shaft.** )

The XL100 XL98 use a true composite shaft made from 20 laminations. To reduce weight, the center of the core is hollow. The latest XL100 shafts have a seamless carbon fiber so the carbon completely encases the core. With this structure we can make the core much lighter as the carbon is now in both tension and compression.

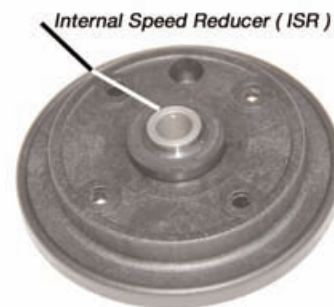
This is what Zach Caldwell, one of the most respected members in the X-C ski community, e mailed us about the XL100.

*"Bottom - line - these are clearly the best roller skis I have ever been on. These shafts are SO MUCH better than any previous shafts, it's not even worth comparing."*

**ISR & ROLLING RESISTANCE:** The rolling resistance of tires is dependent on the amount of energy absorption. A fast tire absorbs very little energy while a slow tire absorbs a lot of energy. Slow tires can become extremely hot, so hot that they rupture. Instead of using high energy absorbing rubber, V2 uses a patented kinematic damping system to increase rolling resistance.

But, with a split rim we cannot employ our standard kinematic system. In order to increase rolling resistance we added a 22 mm pocket on the inside of the split rim. In this pocket we press fit the ISR (Internal Speed Reducer). The ISR has two elastic sealing lips that rotate around a very precise hardened steel spindle. Between the two sealing wipers is a high viscosity lubricating fluid. This system increases the rolling resistance by about 15 to 20%. The heat generated is dissipated via the aluminum bearing tube and aluminum bolt fastened to the wheel forks.

So, with just one tire you can have a ski with three different speeds. Put an ISR into one wheel of the ski and you have a slower ski. Place the ISR into both wheels and you have the slowest combination.



The split rim shown with the internal speed reducer. The ISR weighs less than 10 grams and is very easy to install with the XL100 tool kit.



**SPLIT RIM & TIRE:** Shown above is the split rim wheel assembly. The two split rims are compressed by four small socket screws which engage threaded inserts in the rim.

The tire is made of solid rubber and is captured by the split rim. Since you only replace the tire it is much less expensive than replacing tires molded to a plastic or aluminum hub. The tires are available in two profiles. The flatter of the two profiles is shown in all photos in this catalog.



Hello!  
 Thank you for  
 your help for  
 my success in  
 V2 roller skis -  
 Best!  
 Kristina

Kristina Smigun, double Gold medalist at the 2006 Olympics. Kristina has used V2 roller skis since the '90's.



**SPEED REDUCERS:** The patented Speed Reducers have been praised by skiers from around the world. In some locations it would be impossible to roller ski safely without using Speed Reducers. The new XL100 Speed Reducer has a neutral position and four resistance positions.

Former Olympic Biathlete, Dr. Robert "Duncan" Douglas is a ski tester for V2 Jenex. He called to let us know how the new XL100 tires were performing.

*"Have skied about 150 kilometers on the new tires. Found a long steep downhill, almost 3 miles long. With the Speed Reducers engaged and tapping my brake I made it down in control."*



*It only took me two or three practice stops to become proficient. And do they have stopping power! Not quite like a bike, but not far from it.*  
Lee Borowski, Coach

**BRAKE:** The patent pending brake has been an outstanding success. The new XL version mounts directly to the rear wheel fork and is 30% lighter than the original brake. When not in use the brake is folded over the ski binding.

*This finally puts every roller skier in control of his or her destiny. Before this, you couldn't actually stop yourself on down hill, at stop signs and in dangerous situations. The brake is mounted on one ski, is very light weight, not too costly and is easy to attach. I can attest to that. There is a learning curve, of course, so be sure to proceed cautiously in your beginning kilometers of use. Just as 100% of roller skiers should be wearing helmets, the same number should be using the brake.* Marty Hall, former US Olympic Coach and both Coach & Nordic Director for Team Canada.

*"The Jenex website does not do it justice!*

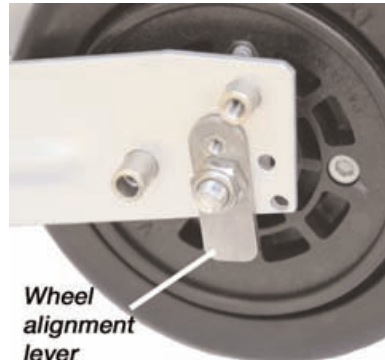
*First of all it's lightweight and totally unobtrusive.*

*I am thrilled with the results! I can readily climb hills that my training partners avoid because of the scary descents. The ability to modulate the speed is great. I can't wait until my training partners upgrade to the brake. It has really opened up some new roller ski venues and has put a little spark in my fall training."*

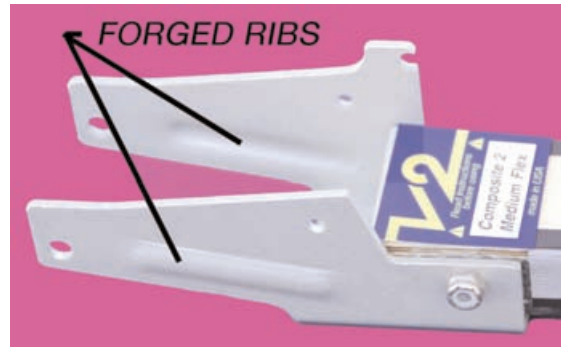
*J.M.*

**WHEEL ALIGNMENT:** Most of us are not anatomically balanced, so even though the wheels and bindings are perfectly aligned the ski might pull in one direction.

This alignment lever makes it very easy to align the wheel. Simply draw a pencil line along the side of the lever, loosen the nut slightly and then move the lever forward if the ski pulls to the right and backward if it pulls to the left. It's simple and it works.



**Wheel alignment lever**



**FORGED RIBS:** To increase the strength of the wheel forks we cold forge a rib into the fork as shown above. The forks are finished in a clear anodize. It is this attention to details that makes V2 different.

**HARDWARE:** We use only the finest hardware available. The wheel bolts are custom made in 7075T6 aluminum with an anodic coating. The bolts are strong and they are 60% lighter than steel. All other hardware is made from stainless steel.



In the 2006 Olympics Jay Hakkinen had the 2nd fastest ski time in the 20K. After 3 penalty shots he finished 10th, the best ever for a US biathlete in the Olympics. Jay has been using V2 roller skis since the 90's.

On the right is Dr. Robert "Duncan" Douglas winning a roller ski race in Lake Placid. Duncan was a biathlete in the 1992 Olympics. Duncan has been using V2 roller skis since 1990.

**CAUTION!** Roller skiing can be dangerous. Always wear protective gear and ski in safe places. Use common sense when roller skiing.

