

SKI & SNOWBOARD TOOLS & WAX



Tögnar Toolworks
2016-2017

WHY TUNE?

Your equipment, like a sportscar, needs to be tuned regularly. Otherwise you'll enjoy only a fraction of the performance you paid so dearly for...sorta like driving a Porsche with bald tires!

Basic tuning and waxing isn't rocket science. It doesn't take much time to learn. It can save bucks and make your day on the slopes a lot more enjoyable. Armed with some basic tools and information, you can learn to tune and wax achieving the same results that you'd expect from a shop...and enjoy yourself in the process too.

Here at Tognar we don't try to be all things to all skiers and riders...we simply stock all the tuning and waxing stuff you'll ever need along with great information and personal service to help you succeed and enjoy the process.

Thank you!

PROFI SKI VISE

Cap skis, slippery sidewalls, super fat skis, this vise handles them all. What makes it different from others on the market is the clever, fully-adjustable, faux boot sole which snaps into the ski binding securing the ski to the central mount. It also automatically retracts binding brakes and keeps them out of your way. The ski can be positioned base-up or at a 45° angle using the faux boot clamping method. The ski can also be positioned vertically utilizing included clamps which are attached to the tip and tail supports of the vise. The faux-boot fits Alpine Bindings and AT Tech Bindings. Includes a separate binding adapter for use with nordic skis with NNN bindings. The tip and tail supports, and central tower attach to the bench with adjustable clamps, but can also be permanently mounted with predrilled holes. Vise set includes tip and tail supports, central faux boot attachment, faux boot sole, NNN adaptor and 3-bench clamps. This is seriously a very cool vise, if you're tired of struggling to keep your boards still while you tune or wax look no further!



Item# MTK-3400 Profi Vise Set \$139.95

Item# MTK-3414 Spare Boot Dummy \$39.95

RECOMMENDED TUNING PRIORITIES

After each day on the snow, we recommend...

- 1) Check both your base and side edges for nicks and burrs...especially the inside front edges. Deburr these using a deburring stone in conjunction with your bevel device or guide, followed by a polishing stone.
- 2) Check your base for gouges. If they are shallow, you can either fill them now, or wait til your weekly tune-up. If they are deep, or you see fiberglass or core material exposed, fill them immediately. Remove excess repair material afterwards.
- 3) Check your base for dry or oxidized areas. This indicates that the base needs waxing. A hot wax is best, but rub-on liquid or paste wax will do in a pinch.
- 4) After hot waxing, let the base cool for 20-30 minutes. Then scrape off excess wax with a plastic scraper and brush all remaining wax out of the base structure with a nylon, bronze or combo brush.
- 5) Fasten skis together using strap or base protector that keeps bases from rubbing against each other.
- 6) Wipe off ski or snowboard top with clean dry rag.

Once a week, or after 3-5 days on the snow, we recommend...

- 1) All the above daily steps, plus...
- 2) Lightly file side edges using a steel mill file in conjunction with a side bevel device or guide. This resharpens 'em for better edgehold...especially on hardpack snow.
- 3) Hot scrape bases to clean them. This is the same as a hot wax, but you use a soft (warm temperature range) wax, and scrape it immediately after ironing...don't let the base cool first. This pulls dirt out of the base better than any other method. Follow this with a regular hot wax.
- 4) Check base for gouges...fill any and all gouges if possible.
- 5) Pull liners out of your ski or snowboard boots to let everything dry out before putting 'em back together.
- 6) Spray a little boot/binding lubricant on boots, bindings and ski or snowboard tops (but not bases)...this'll help prevent snow build-up.

Once a month, or after 15-18 days on the snow, we recommend...

- 1) All the above daily and weekly steps, plus...
- 2) Check your base with a true bar for flatness, and correct if necessary.
- 3) Check base structure for wear, and refresh or restructure if necessary.
- 4) Check binding mounting screws (but not release adjustments!) to make sure they're all snug.
- 5) Check poles for worn baskets, straps, etc., and repair as necessary. Ditto for your goggles.

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NEW TUNERS & WAXERS

Tuning and waxing your equipment is not all that difficult, and most folks that get into it find it a pretty rewarding activity. If you're just getting started, but aren't sure what's involved or which tools to order, here's what we suggest:

- 1) Take a look through this catalog and look for this star ☆ next to certain tools...it signifies a good basic tool for getting started. You'll also find tips and how-to's throughout the catalog.
- 2) Look over our Basic Tool Lists below for our recommendations.
- 3) Check out our Tuning and Waxing kits on the next page.
- 4) Visit tognar.com and peruse our growing D-I-Y Database...this will help guide you through basic tuning techniques and familiarize you with many basic tools.
- 5) Check out our blog for tuning tips and how-to videos at tognar.wordpress.com.
- 6) Give us a ring at 800-299-9904, or...
- 7) Buy one of every tool in our catalog. Heh, heh....just kidding...

We are happy to answer specific questions about tools, waxes or tuning techniques over the phone (800)299-9904 or by email info@tognar.com.

BASIC TOOL LISTS

The first and most important tool in the workshop is abundant light. You can't tune what you can't see. Keep in mind that these are basic lists, they represent what we think are the minimum tools needed to do a good job, and enjoy the process.

For Tuning:

1. Workbench (35 - 45" above the floor is best for most mechanics.) You may already have a suitable bench in your garage.
2. Vise - to hold skis or snowboard securely so you can perform precision work, essential!
3. True bar - to check base for flatness, determine base angles.
4. Edge angle guides (or multi-tool) - to insure accurate side and base edge angles.
5. Mill File - to shape edges to the correct angle.
6. Diamond Stones - a range from coarse to fine to remove burrs and polish edges.
7. Gummi Stone - To remove burrs, rust and tone back excessively sharp edges.
8. File card - to keep your files clean (they'll last longer!).
9. Brake Retainers - to keep ski brakes outta the way. Produce rubber bands work well.
10. Fiberlene paper - lint-free paper to wipe bases while tuning.

For Waxing:

1. A well ventilated workspace and/or respirator (especially if working with race (fluoro) waxes).
2. Workbench (35 - 45" above the floor is best for most mechanics.) You may already have a suitable bench in your garage.
3. Vise - to hold skis or snowboard securely so you can perform precision work, essential!
4. Wax Iron - for melting wax, use a ski-specific one, they're more accurate than household irons and last longer too.
5. Brass brush - for cleaning out base structure prior to waxing.
6. Plexiglass scraper - (not metal) for scraping wax off the base after ironing.
7. Stiff Nylon brush - to brush excess wax out of the base structure after scraping.
8. Wax - almost forgot, you'll need some wax. There are a lot of choices, don't panic, just get some Universal wax (pick a brand) to begin with and you'll be fine!

For Base Repair:

1. A well ventilated workspace and/or a respirator.
2. Surform tool - for removing excess base repair material.
3. Metal Scraper - for final removal of excess base repair material (use after Surform).
4. P-tex drip candles - the simplest to use, work best on minor gouges, good to have a few around.
5. Repair Pistol or Repair Iron - both tools work well, used for more serious repairs and core shots.
6. P-tex repair material - Rods, string, ribbons...choose according to repair severity!

TUNE & WAX KITS

These kits are a great way for someone to get started with ski or snowboard tuning. They each contain what we think are the essentials necessary to get the job done. There are other tools you may want to add later... such as a vise to securely hold your ski or board, additional wax brushes, extra wax, etc. Wax kits are also available with 230volt irons.

SKI HOT WAX KIT

Outfit yourself with the basics required to hot wax, scrape and brush your skis. Includes a wax iron, two brushes, a scraper and enough universal wax for 6-8 hot-wax applications. A great starter kit which you can add to as needed. 230v version is for folks outside North America.



Item#	Description	Qty.	Reg.Price
APG-SKI	Plastic Wax Scraper - 6"	1	\$5.95
APG-712	Brass Brush	1	\$19.95
APG-713W	Nylon Brush	1	\$14.95
TOK-T8/T8EU	Toko T8 Wax Iron	1	\$64.95
TOK-2006	Universal Wax-120g	1	<u>\$12.95</u>
Regular Price			\$118.75

Item #TOG-WAX 120v (US/CAN) \$89.95

Item #TOG-WAXEU 230v (EU,AU,NZ) \$89.95

SNOWBOARD

HOT WAX KIT

The basics required to hot wax, scrape and brush your board or super-wide skis. Includes a wax iron, nylon brush, scraper and enough universal wax for 5-7 applications. A solid foundation that you can add to as needed. 230v version is for folks outside North America.



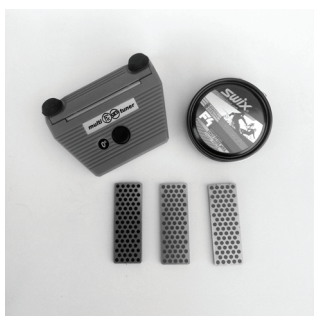
Item#	Description	Qty.	Reg.Price
APG-SNBS	Plastic Wax Scraper - 12"	1	\$9.95
TOK-T8/T8EU	Toko T8 Wax Iron	1	\$64.95
APG-BO723W	Nylon Brush Oval	1	\$24.95
TOK-2006	Universal Wax-120g	1	<u>\$12.95</u>
Regular Price			\$112.80

Item #TOG-WAXBD 120v (US/CAN) \$89.95

Item #TOG-WAXBEU 230v (EU,AU,NZ) \$89.95

BASIC TUNING KIT

Our most basic, compact and portable kit. It's a good choice for skiers or boarders who are just getting started, or anyone requiring a minimal travel kit containing the basic tools necessary for edge maintenance and waxing.



Item#	Description	Qty.	Reg.Price
DMT-WS7K	Diamond Stone Set (3)	1	\$25.95
MTK-701	Edge Bevel Tool w/file	1	\$49.95
SWX-F440	Swix F4 Paste Wax 40ml	1	<u>\$12.95</u>
Regular Price			\$88.85

Item #TOG-TRK Kit Price \$74.95

ALPHA SKI TUNING KIT

This collection of ski tuning tools is ideal for someone ready to go beyond the basics. Identical to the Basic Kit with the addition of p-tex drip candles, steel scraper, true bar, gummi stone and brake retainers.



Item#	Description	Qty.	Reg.Price
DMT-WS7K	Diamond Stone Set (3)	1	\$25.95
MTK-701	Edge Bevel Tool w/file	1	\$49.95
SAN-474	Steel Scraper	1	\$8.95
SHP-187071	Clear Base Repair Candles	2	\$1.00
MTK-3333	Brake Retainers	2	\$5.00
SPK-TB6	True Bar 6"	1	\$19.95
SWX-T177B	Swix Brass File Brush	1	\$5.95
KLG-SF	Gummi Stone	1	<u>\$5.95</u>
Regular Price			\$122.70

Item #TOG-ATK Kit Price \$99.95

PRIMA SKI TUNING KIT

The Prima Kit is based around separate file guides for the base and side edges. These guides offer greater versatility than a multi tuning tool (found in the kits above), just about any stone or file can be used in these guides. The diamond stones included in this kit are 100mm long and include a nylon storage roll, the true bar is also upgraded. The Prima Kit is a good choice for racers or folks looking for a tuning kit that enables them to tune with great precision and allows them to branch out if other stones or files catch their fancy. Choose the desired degree of the side edge guide and base bevel guide during checkout, this allows you to customize the kit to your needs.



Item#	Description	Qty.	Reg.Price
ACE-3201	Spring Clamp for Bevel Guide	1	\$5.95
BTS-BASE	Base Edge Bevel Guide	1	\$19.95
BTS-TRUE	True Bar	1	\$29.95
DMT-A4SET	Diamond Stone Set (4)	1	\$79.95
MTK-3333	Ski Brake Retainers	2	\$5.00
SAN-474	Steel Scraper	1	\$8.95
SHP-187071	Clear Base Repair Candles	2	\$1.00
SPK-HC08	8" Chrome Mill File	1	\$10.95
SWX-T177B	Swix Brass File Brush	1	\$5.95
SVT-PEB	Side Edge Bevel Guide	1	\$27.95
KLG-SF	Gummi Stone	1	<u>\$5.95</u>
Regular Price			\$201.55

Item #TOG-PTK Kit Price \$159.95

Keep Up-to-date

We print our catalog once a year, during the 12-month interim things can change a bit, usually prices remain where they are, but new items are added and some disappear. Visit our website www.tognar.com for our most current list of gadgets and gizmos.

VICES

JOIN THE VISE SQUAD

Have you ever tried to file a ski or snowboard by leaning it against the wall or stabilizing it with your knees? Not much fun. Unless your gear is held solidly in place, it's nearly impossible to produce precision work. We offer a wide variety of vises to fit any need or budget. Do yourself a favor and pick one up!

TOKO SKI VISE RACE

This compact and sturdy 3-piece metal vise is a good choice for tuners seeking simplicity and economy. The central clamp adjusts from 40mm to 90mm wide. The clamp pads are 30mm long which allows them to clamp to binding riser plates if the skis are wider than 90mm underfoot. Tip and tail supports are a fixed height and hold the ski in a base-up position for waxing or at 90° or 60° for side edge work. The vise pieces clamp to workbenches up to 2.25" thick. Made in Italy.



Item #TOK-0047

\$139.95

TOKO WORLD CUP SKI VISE

This is an updated version of our most popular and versatile vise. It's a metal midpoint vise featuring deep jaws that securely grip ski sidewalls from 40mm to 100mm wide. It clamps to workbenches up to 2.25" thick, and includes spring-loaded tip and tail supports that adjust from 5.5" to 6.75" in height and can pivot from 90° to 60°. The supports feature independent clamps that are adjustable to grip skis or snowboards "edge up" for side filing, beveling or deburring...a clever and time-saving feature. Optional clamp-on platforms fit atop tip and tail supports...12"-long snowboard platforms (TOG-SNOB) feature a grippy surface to support snowboards placed face-up (for binding work) or base-up (for waxing, gouge repair and base tuning) ...nordic platforms (TOK-0034) provide greater under-ski support for flexible nordic race ski tips and tails.



Item #TOK-0035

\$154.95

BRAKE RETAINERS

It is essential to keep ski brakes out of the way when tuning, these retainers are long-lasting, easy to use, non-finger-pinching works of genius.



Item #MTK-3333

\$2.50 ea.

TOKO FREERIDE VISE

An all-metal vise featuring a robust central clamp that opens to an amazing 155mm to accept very wide skis. Tip and tail supports are identical to those used on the Toko Ski Vise Free, they are a fixed height and have slots which allow positioning of skis in a vertical or 60° angle for side edge work. Clamps to nearly any workbench (up to 2.25" thick). Great all-metal wide vise for a good price.



Item #TOK-0037

\$189.95

SWIX POWER SKI VISE

This all-metal vise features the same robust central clamp as the Toko Freeride Vise, which opens to 155mm. But the tip and tail supports are different, these supports are spring-loaded and adjust in height (from 5.5" to 6.75") they can pivot from 90° to 60°. The supports feature independent clamps that are adjustable to grip skis or snowboards "edge up" for side filing, beveling or deburring...a clever and time-saving feature. Optional clamp-on platforms fit atop tip and tail supports...12"-long snowboard platforms (TOG-SNOB) feature a grippy surface to support snowboards placed face-up (for binding work) or base-up (for waxing, gouge repair and base tuning) ...nordic platforms (TOK-0034) provide greater under-ski support for flexible nordic race ski tips and tails.



Item #SWX-T149W

\$249.95

TOGNAR SNOWBOARD PLATFORMS

These custom made platforms are milled out of thick aluminum stock and topped with super grippy rubber pads to keep snowboards in place while waxing or working base edges. They also work well for waxing pairs of fat skis, monoboards, etc. Designed to fit perpendicular on the tip and tail supports of the Toko World Cup or Swix Power vises. They will fit other brands of vises so long as the tip and tail supports have adjustable clamps. Supports are 12" long and are sold as a pair.



Item #TOG-SNOB

\$39.95pr

TOKO PRO SNOWBOARD VISE 2.0

This is a sturdy, two-tower metal snowboard vise designed to provide superior strength, stability and durability which makes it a good choice for use in home or pro workshops. It features grippy rubber pads atop each support to provide good cushioning and incredible friction. Support width is adjustable from 8.5" to 10.75", narrow for storage - wide for base work and waxing. Adjustable-width center slots secure the snowboard vertically on edge for side-edge filing, beveling or deburring. They attach to workbenches or tables (up to 2.25" thick) with built-in adjustable clamps, so you can use 'em at home or take 'em with you on the road.



Item #TOK-4273 \$119.95

SWIX 3-PIECE NORDIC VISE

This is a dependable workshop or handy travel nordic (x-c) ski vise. The towers are made of aluminum...which is more rigid and durable than plastic vises...but not significantly heavier.



It's also compact enough to easily pack along for races. It features two composite tip and tail supports, and an aluminum center clamp that securely attaches to nordic ski bindings. All three components quickly clamp to any workbench or table.

Item #SWX-T785 \$89.95

TOKO UNIVERSAL ADAPTERS

This pair of platforms attach to the tip and tail supports on 3-piece alpine vises enabling the vise to accept snowboards or Nordic skis. When attached perpendicular to the vise they provide extra width for snowboards, while parallel they provide increased support for the flexible tips and tails of Nordic skis. If you have a garage full of snow sliding tools you'll appreciate the versatility these platforms provide, beats buying multiple vises...though we won't mind if you do. The vise used must have a clamp on the tip & tail supports to accept the platforms (i.e., Toko World Cup, Swix Power Vise). Constructed of thick-durable plastic topped with rubber pads. Length 8.25" width 1.5". Sold as pair.



Item #TOK-0034 \$39.95 pr

SWIX ALUMINUM NORDIC PROFILE



Top level aluminum nordic waxing profile that provides excellent stability and support for tuning and waxing Nordic classic, skating and touring skis. Tip and tail supports slide independently along tracks in the rigid aluminum body accommodating skis from 140 to 210cm. The ski binding clamps onto a repositionable holder to secure the ski. A new feature this year is identical tip and tail profiles, allowing skis to be positioned facing right or left without moving the profile. Optional accessories include a pair of specially designed metal clamps to securely attach the profile to an existing tuning table or bench; a pair of detachable folding legs to use the profile in a freestanding position (especially handy at races and other on-site events), plus a handy wire basket that easily attaches to hold waxes, tools or other accessories.

Item #SWX-T7932 Profile \$229.95 ● 8#

Item #SWX-T790K Steel clamps \$29.95 pr

Item #SWX-T791 Bench legs \$79.95 pr

SWIX ECONOMY ALUMINUM NORDIC PROFILE



A great travel profile that is stable and easy to adjust. The main body is comprised of two parts that slide together allowing for quick length adjustment to accommodate skis from 150 to 210cm. Each piece is approx. 110cm long. When taken apart the profile is easily transported in two pieces. Skis are secured in the same manner as the T7932, tip and tail profiles are identical. It will accept all optional accessories listed for the T7932. A great profile for junior racers.

Item #SWX-T7672 \$159.95 set ● 8#

SWIX NORDIC PROFILE FOR TABLES

This clever two-piece profile is designed to slip into the metal framework of Swix tuning and waxing tables. The included binding holder screws into the central hole on the tables to secure the ski to the profile. Profile adjusts in length by sliding the pieces in or out of the table, accommodating skis from 170 to 210cm. Identical profile shape at each end. Swix tables will accept up to two sets of these puppies (one each side) for increased productivity.



Item #SWX-T766 \$99.95 set ● 8#

TABLES

SWIX WORLD CUP WAXING TABLE

Swix now offers their top-of-the-line T76 tuning and waxing bench with a metal topsheet, making it the stoutest, longest lasting Swix table yet! The table is constructed with a bomber steel frame and fold-up legs to handle any ski or snowboard tuning needs. It measures 47" long, 18" wide, and height is adjustable to 33.5" or 35.5". Replacement feet for all four table legs are available, which are adjustable in length to compensate for uneven ground. It will also accept one or two sets of Swix steel profile set (SWX-T766), which slide into the square tubing that runs along either edge of the table. An optional set of vertical racks that clamp to this table to store two pair of alpine skis or four pair of nordic skis while waxing or tuning. A sturdy nylon travel bag is also available.



Item #SWX-T762 Table \$349.95 ● 35#
 Item #SWX-T76B Travel bag \$79.95

SWIX SNOWBOARD TUNING PLATFORM

This clever device provides a stable, adjustable platform for tuning and waxing snowboards. It works, and looks a bit like the legs on an ironing board. To use simply scissor the legs apart, set your board on top and away you go. Sticky pads hold the board by friction when set base-up to wax or tune the base edges; slip the board into the vertical grooves and screw in the clamps to secure the board for side edge tuning. Height is adjustable from 71-98cm (28-39inches). Works with all boards, Compact folding design for easy storage and travel.



Item #SWX-T758 \$119.95 ● 10#

SKIS GONE WILD

Tuning or waxing without a proper vise can be a frustrating experience. Skis and snowboards quickly turn feral without proper restraint and you'll spend half your time chasing them around the bench. Clamp them down! The speed, quality and accuracy of your work will improve vastly as will your enjoyment of the process.

SWIX T75W WAXING TABLE

This table is slightly narrower than the T76, but still plenty wide enough for skis and boards alike. It measures 13.75" wide, 47" long and 35" high. The frame is steel, the platform is wood covered with a durable composite topsheet. The legs fold up underneath for easy transport, and the foot of one leg is adjustable in length to help stabilize the table on uneven terrain. An optional set of vertical ski racks clamp to this table to store two pair of alpine skis or four pair of nordic skis while waxing or tuning. It will also accept one or two sets of Swix steel profile set (SWX-T766), which slide into the square tubing that runs along either edge of the table. Also available is a sturdy nylon travel bag.



Item #SWX-T75W Table \$129.95 ● 24#
 Item #SWX-T76B Travel bag \$79.95

SWIX NORDIC BINDING CLAMPS

These clamps are designed to secure nordic skis to Swix profiles or Swix waxing benches by giving the binding something to clamp to. The 60mm fits T793 and T768 profiles prior to 2010, 75mm fits later than 2010. The 60 or 75mm measurement indicates the length of the threads. The T796T fits the T7672 profile, it has a plate at the base that fits into the track. Some folks incorporate these into their home-made profiles.



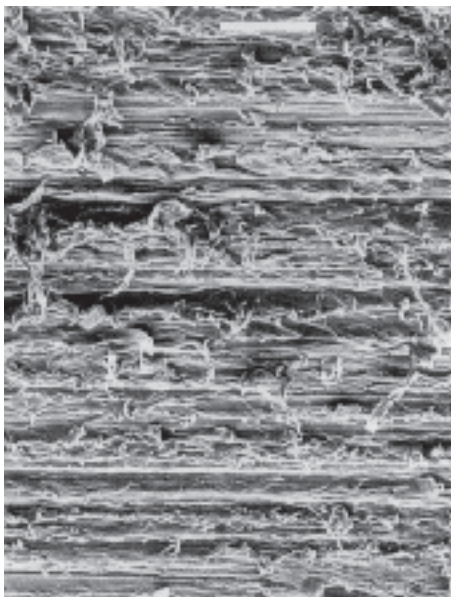
Item #SWX-T790T 60mm \$19.95ea
 Item #SWX-T79075 75mm \$19.95ea
 Item #SWX-T796T T7672 \$19.95ea

VICES AND WIDE SKIS

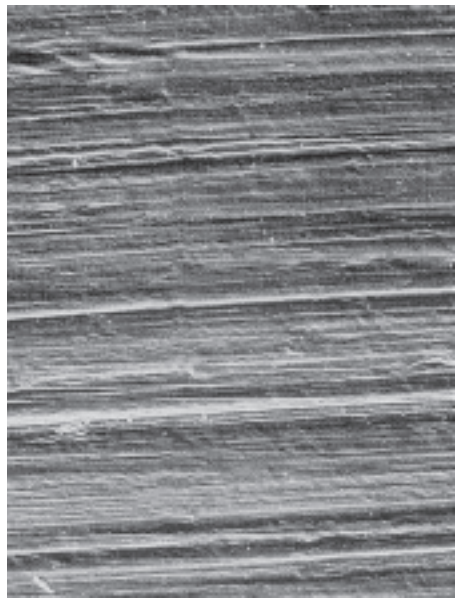
We get a lot of calls from folks whose new skis are too wide to fit in their old ski vises. While we do offer vises for these wider skis, it is not always necessary to upgrade. Here are a couple workarounds to try- Depending on the model, sometimes you can clamp the riser of a binding rather than the sidewall of the ski, in most cases you'll need to raise the tip and tail supports a bit. Don't clamp too tightly. Another option is to use a "boot dummy" (p.1) which, when installed, provides a solid vertical clamping area and works with just about any vise.

CARE & FEEDING OF P-TEX BASES

Compare the two photos below. The first is a magnified view of a fresh untreated p-tex base. It is rough and “fuzzy” with zillions of p-tex hairs. It will also be a very slow base due to this unfinished condition. Compare it to the next photo...it’s the same base after it’s been worked on by hand. This relatively clean look (remember, these photos are magnified 100X) will yield good glide. It also represents time well spent working the base with a brush, scotchbrite pads, Omni-prep pad, scraper, structure tool, etc. The ultimate tool that will give this base the perfect finishing touch (after waxing it, of course) will be snow...a good polishing tool in its own right.



Untreated Base



Treated Base

After getting bases into the condition you see in the second photo, world cup techs start applying wax to impregnate the p-tex as deeply as possible, then send the skis or snowboards out to be ridden. They continue this cycle of waxing, brushing and riding until the bases get their fastest...which sometimes takes half a season. They do not structure or stonegrind the bases again that season, unless they become sufficiently damaged to warrant repair and a regrind. Compare this scenario to the racer who has their bases stoneground just before any big race. Unwittingly, they are giving themselves a significant technical handicap...and one that all the Cera F or other 100% fluoro in the world can't help overcome.

Finishing bases as thoroughly as possible before waxing is probably the most important thing you can do for fast and optimal glide...regardless if your discipline is snowboarding, alpine skiing, nordic skiing, telemark skiing, or anything else that involves sliding over snow on a p-tex base. This is gospel truth...no doubt about it. However, like politics and movie reviews, there are numerous opinions about the details involved in achieving the best base finish. Differing ideas abound about such subjects as stonegrinding vs. hand structuring, the type of structure (linear vs crosshatch vs. a combination of the two), using a thin flexible steel scraper vs. a stiff rigid one, use of a brass brush vs. bronze brush vs. copper brush, how many strokes to make with scotchbrite and brushes, etc. Rather than get confused by the fray, we recommend you simply try one particular method (such as detailed in several of the wax manuals and tuning books we offer), then decide for yourself. The exact tools and procedures these different volumes recommend may vary somewhat, but usually not substantially...and certainly not enough to make a significant difference to most junior or master racers, much less recreation riders. Any technician we've met who's worth their wax iron is usually looking, listening and asking for new ideas, trying them out, and, if they work, adopting them into their tuning procedures accordingly.

WATER - A KEY TO FAST BASES

As a ski or snowboard slides over snow crystals, heat is created due to friction. The heat, in turn, usually creates moisture by melting the tips of the snow crystals. This water is the key to bases that are fast and easier to turn, but only if the correct amount is present under your skis or snowboard. If the snow and humidity is very dry, there may not be enough water present to help improve glide. In this case, you may try to generate it by increasing friction between the snow and your base with a smooth or fine structured finish.

When snow is warm or wet, however, excess water can be generated underfoot that creates suction and slows your glide. In this situation, the base should be structured with a deeper pattern which, similar to tire tread, breaks up suction and helps channel water away. In general, a finer structure with base rills or ridges spaced .5mm or less apart is best for cold, dry snow...and a coarser structure with base rills or ridges spaced .75mm or more apart is best for warmer wet snow.

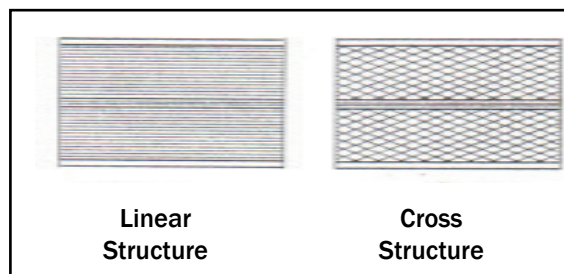
Another rule of thumb is that the rills or ridges should never be larger than one-half the size of the snow crystals...this avoids crystals from getting stuck in the troughs of the structure and creating drag.

Structuring can make more difference in speed than waxing, according to world cup technicians. It can also make a board or ski easier to turn for recreational riders.

Most all new skis and snowboards come from the factory with a medium structure base to satisfy the needs of most skiers or riders. You can change this, however, by hand structuring at home or going to a good shop for a stone-grind. Be aware, however, that even the best structure can't totally compensate for very dry cold snow. Tests have shown that when snow temperatures are around 28°F, there is usually the optimal amount of moisture in the snowpack to create the fastest glide (this can be enhanced by good wax and structure, of course). But when snow temperatures drop to -10°F, it is usually so dry that glide speeds drop dramatically (to less than half the glide speed at 28°F!). For more details, see the article "COLD SNOW = POOR GLIDE" on page 39 in this catalog.

STRUCTURE PATTERNS

There are many structure patterns. Linear structures are straight grooves that run from tip-to-tail. Most hand-produced and belt-sander structures are linear, which works well for a wide variety of conditions, and is commonly used for speed events (SG, DH). Broken linear patterns are shorter, random structure lines that also run straight from tip-to-tail. Cross-hatch or diagonal structures are produced on a stone grinder by passing a diamond dressing tool in intersecting patterns over the stone face, and has traditionally been preferred for technical events (SL, GS).



Structure patterns can be changed depending on many factors... weather and snow conditions, the whims of individual technicians, new structure tools, etc. Combination structures are commonly tried as well...such as a linear pattern overlaid with a light cross-hatch pattern, or a light linear pattern overlaid on a coarse linear pattern, etc. It's not a science carved in stone... only P-tex...so it's subject to change. And there's more variables one can consider when choosing structure... such as the type and speed and length of the race, the type of base material involved, the color of the ski or board (which affects how much heat it'll absorb on a sunny day), the core materials involved (steel, wood, foam, sagebrush?), etc. Then, regardless of the pattern used, you can debate the depth of the structure, configuration of the channels (peaked or planed-off ridge tops? sharp or semi-filled troughs?), spacing between channels, random or uniform width rills, etc. Obviously, there's enough rocket science here to keep anyone occupied.

Being basically lazy and cheap, we use hand tools to impart a basic linear pattern unless it's a special event that merits a spendy stone grinding. We generally use a fine-medium pattern for cold early winter snow, and a coarser one in late winter and spring when temperatures warm up. All gear can benefit from a good structure... including nordic skating and diagonal-glide skis, tele and alpine gear, freestyle and racing snowboards (and, of course, plastic trays for those exciting fast-food races).

BASE FLATTENING & STRUCTURE TOOLS

BASE FLATTENING TOOLS

Ski and snowboard bases need to be as flat as possible from edge to edge... otherwise they behave in strange, unpredictable ways on the snow.

That's why your first tuning priority is to seek and destroy any high or low spots along the length of your base... regardless if the gear is brand spanking new or veterans of many seasons.

BLACKLIGHT TRUE BAR

No, these babies don't glow in the dark



like a psychedelic poster under ultraviolet light...but they do sport a stealthy black finish to help reduce reflected light. This makes it easier for your eye to detect variances when checking bases for flatness. They're made of hefty 5/8" square hardened steel with four crisp edges, so if you handle and store it with care (instead of dropping it on the floor like a blockhead), it'll last a lifetime. The ski model is 6" long, and the snowboard model is 14" long.

Item #SVT-TB6	ski model	\$19.95
Item #SPK-TB14	snowboard model	\$39.95

BEAST TRUE BAR

The Beast true bar features a lightly rounded "knife" edge that many find easier to read than square or round bar designs.

Light weight and matte black. It measures 6" (150mm) long, so it easily spans most skis. Use with



a strong, bright backlight for best results but it's also more susceptible to damage...so be careful to avoid dinging the bar edge during handling, transport or storage. This precision flat black anodized aluminum true bar is 6" (150mm) long so it spans most ski widths easily.

Item #BTS-TRUE	\$29.95
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BASE & EDGE MAGNIFIER

We offer this 5 power magnifier to inspect and evaluate base structure definition, the finish of steel edge surfaces, or the presence of unwanted p-tex hairs or oxidation. It doubles as a hand lens for examining snow crystals too.



Item #KOB-527	\$9.95
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SKIVISIONS BASE FLATTENING & STRUCTURE TOOLS

These have long been some of our most popular tools. Why? Flattening a ski base is one of the most challenging and difficult tasks for home tuners. Hand sanding, flat-filing or a stone-grind at your local shop are all options, but they can be time-consuming, inaccurate or expensive.



These precision hand-planing tools use a hardened steel blade (BF1), or a file (BF3) to cleanly and efficiently shave/file off high or low spots on p-tex bases, cut away oxidized areas and remove unwanted p-tex hairs. Although the steel blade used with the ski tool is hard enough to cut down steel edges, we recommend you use a file or the BF3 for such work, and save the steel blade from unnecessary wear.

The BF1 not only removes P-Tex with the Steel Blade it also accommodates a medium or coarse stone blade to impart a linear base structure. A few quick passes periodically will refresh the structure, keep bases flat, remove any oxidation and thereby improve its ability to absorb wax. These touch-ups can significantly improve performance without removing excess base material.

The BF3 only accepts a file and is only used for flattening. The fairly aggressive cross-cut file quickly removes base and edge material. It is a great choice for flattening concave skis in short order! Think of it as a hand-held belt sander, it should not be used as a stand-alone-tool, it should be used in conjunction with the BF1.

The BF1 includes a 6" steel flattening blade and a 6" medium ruby structure stone. The BF3 includes the special cross-cut file.

A special 4"x 1" 80 grit silica carbide hand stone is offered for reshaping the steel blade. A diamond tool for redressing structure stones is also offered.

Complete tool instructions are available at www.skivisions.us Made in the USA.

Tools:

Item #SVN-BF1	BF1 (steel blade/stones)	\$69.95
Item #SVN-BF3	BF3 (file only)	\$59.95

Ski Tool Inserts:

Item #SVN-BL6	6" steel flattening blade	\$29.95
Item #SVN-MB6	6" med. structure stone	\$15.95
Item #SVN-CB6	6" coarse structure stone	\$15.95
Item #SVN-BFF	File (for BF3 only)	\$19.95

Redressing:

Item #SVN-BLSS	Steel blade redressing	\$15.95
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BASE FLATTENING & STRUCTURE TOOLS

SANDVIK STEEL SCRAPER

Made of very high quality Swedish steel, these Sandvik scrapers will hold an excellent burr to scrape off excess base material if your bases aren't flat or p-tex hairs if your base is fuzzy. Still other folks use 'em as pressure plates when clamping delaminated skis. Whatever the use (do you refinish furniture in the off-season?), try these.



Item #SAN-474 \$8.95

SCRAPER BURNISHER

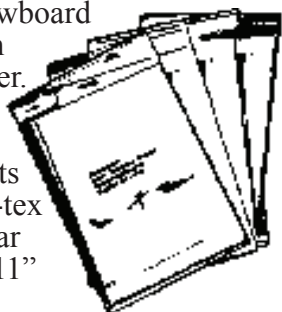
A steel scraper only cuts effectively if you maintain a sharp and uniform cutting lip (or burr) along the edge. This burnisher tool does that job better and more safely than any other we've used. It features a protective wooden grip with an angled steel burnishing rod. If maintained, a good steel scraper should last a lifetime! Made in USA.



Item #TMT-SB1 \$19.95

BASE SANDPAPER

You can flatten ski and snowboard bases by sanding them with progressively finer grit paper. The 80 grit paper is coarsest, 400 grit is finest. Our stearated sandpaper cuts cleaner and picks up less p-tex and wax residue than regular sandpaper. Three full 9" x 11" sheets come in each pack. Always use sandpaper with the backing of a sanding block to ensure even pressure.



Item #KLG-80	80 grit	\$3.95 pack
Item #KLG-100	100 grit	\$3.95 pack
Item #KLG-120	120 grit	\$3.95 pack
Item #KLG-150	150 grit	\$3.95 pack
Item #KLG-180	180 grit	\$3.95 pack
Item #KLG-240	240 grit	\$3.95 pack
Item #KLG-320	320 grit	\$3.95 pack
Item #KLG-400	400 grit	\$3.95 pack

SANDING BLOCK

Sanding a base without a sanding block can do more harm than good. This tool insures that you are applying even pressure across the full width of the ski when sanding...and not creating any unwanted high or low spots in the process.



Item #JAN-45395 \$5.95

MICROHAIR BASE SHAVER

No, this ain't for shaving beards or 5 o'clock shadows... it's a tool for scraping ski bases after they've been stone-ground or hand-structured. The sharp flexible blades help remove protruding p-tex microhairs for a faster glide. To use, tilt the handle in the direction of travel with the blade following behind...like using a paintbrush. We recommend about 10 light passes per ski, with blade replacement after shaving a dozen pair of skis.



Item #JAN-33250 \$7.95

Item #JAN-33255 \$4.95

• Replacement blades-pack of 5

ABRASIVE PADS

These 6"x9" abrasive pads have many uses... scour loose p-tex "hairs" away; remove excess wax to restore base structure; clean and polish ski tops and sidewalls, etc. Always wipe bases clean after scotchbriting to remove any loose particles left behind by the pad.

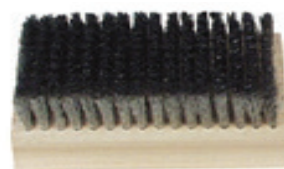


Item #SPK-NPM medium \$1.95 ea. ★

Item #SPK-NPF fine \$1.95 ea.

STEEL BASE REFRESHING BRUSH

This steel brush is specifically designed with medium stiff bristles to remove oxidized p-tex and old wax from bases, while "refreshing" the existing base structure. More aggressive than a brass brush, it is intended to be used occasionally during the season.



Item #APG-716X Rectangular brush \$19.95

GRIT RATINGS

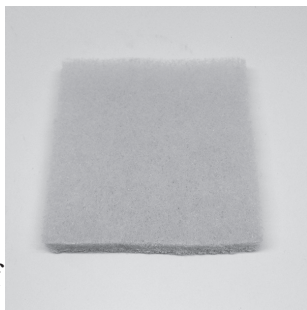
Out in the big industrial world, there are different grit ratings that they apply to different abrasive products... which can sometimes be a bit confusing for us common folks. So, for simplicity's sake, we decided to cheat the system a bit in this catalog by applying the same rating system to all abrasives we sell. This means, for example, that a 600-grit ceramic stone will match the smoothness of a 600-grit diamond stone. Likewise, a 150-grit sandpaper sheet will match the abrasiveness of a 150-grit diamond stone, etc.

This makes it easier to anticipate the results you'll get from whatever abrasive or polishing tool you buy. Just be aware that the rating system you see printed in our catalog will sometimes differ from the grit rating printed on the actual diamond stone, etc. you receive...but rest assured you are getting the product you meant to order.

BASE FLATTENING & STRUCTURE TOOLS

OMNI-PREP PAD

These thick white pads quickly erase any microscopic p-tex hairs left on a base after scotch-briting or fibertexing. In the past, it took days of riding before the natural abrasive action of snow crystals would scour off these drag-inducing microhairs. Now you can accomplish the same job with these pads in just seconds. If good glide is important to you, these thick white pads are an essential tool. Sold each.



Item #JNX-HOP Hand (4x4") \$5.95

BASE POLISHING CLOTH

This special microfiber cloth helps remove un-wanted ultra-fine p-tex hairs after structuring a ski or snowboard base by machine or hand tool. Make several passes against the hairs until the cloth slides freely down the base when it's tilted at a 45-degree angle. Use it after rubbing bases with a Scotch-brite and/or Omni-Prep pad for best results. This polishing cloth can be machine-washed periodically for greater longevity.



Item #SPK-20210 \$9.95ea.

SCOTCHBRITE HOLDER

This handy tool holds your Scotchbrite, Fibertex or Omni-prep pad with a hook and loop like grip and insures that you apply even pressure on the pad across the full width of the base.



Item #SVJ-09493 \$9.95

AVOID A HEAVY HAND

Take a look at your ski or snowboard edges, not a whole lot of material there, it helps to keep this in mind when taking a file to them. Ski tuning is gentle work and a heavy hand should be avoided. A sharp file will cut with little more pressure than is needed to keep it against the edge. Use light, overlapping strokes followed by longer strokes to even things out. If the file is not cutting in an area check for "case hardened" metal resulting from rock strikes and remove it with a diamond stone, now the file should cut cleanly. Always use a file guide to ensure a consistent bevel, and brush away metal shavings from the file and edge frequently.

TOKO STRUCTURITE NORDIC TOOL

This simple but effective tool imprints (presses) a broken linear or continuous linear structure on Nordic ski bases. The tool includes a medium (red) broken linear roller. Also available are a coarse (yellow) broken-linear roller or a fine (blue) continuous linear roller. Toko has color coded the rollers to match the colors of their waxes (yellow, red and blue). This makes structure selection a breeze, simply match the roller color to the wax of the day's color and away you go! As with any imprinting tool it is best to structure after waxing and scraping so the shape of the structure remains crisp. Imprinting or pressing a structure into the base is not as permanent as a cut-in structure, but has the advantage of allowing the structure to be changed frequently without first scraping the base flat. This tool works well for applying structure the day of an event.



Item #TOK-0960 Structurite Tool \$79.95
• Includes medium (red) broken linear roller

Item #TOK-0963 Fine (blue) roller \$39.95
• Continuous

Item #TOK-0962 Medium (red) roller \$39.95
• Broken-linear

Item #TOK-0961 Coarse (yellow) roller \$39.95
• Broken-linear

SWIX NORDIC ROLLER TOOL

This nifty composite tool rolls a structure into the base of Nordic skis. Rollers allow for more structure pattern options than a rilling tool. The beautiful brass rollers run on cartridge bearings for a smoother glide along the ski base. The kit includes three commonly used structure rollers.
One .5mm Broken Structure Roller - used for cold snow (standard).
One .75mm Linear Structure Roller - used for conditions between 0°C and -5°C.
One 1.00mm Broken Structure Roller - used for wet snow.



Simply set the tool on the ski base and, while applying moderate pressure, slide the tool from tip to tail. Composite guides on the side of the tool help it track straight. Structure is most effectively applied after waxing (so heat from the iron will not affect the structure shape) and is then lightly brushed. Structure will fade after next waxing and can be changed or reapplied.

Item #SWX-T423S Swix Roller Tool \$179.95
• Includes 3 structure rollers.

CREATING BASE STRUCTURE

Different tools create base structure in different ways. For example, tools like the brass riller bar create structure by pressing or imprinting it into p-tex base material...whereas the SkiVisions base flattener/structure tool or Swix steel structure brush create it by cutting away p-tex. Theoretically, a brass riller bar can also be used to cut, although we recommend it only be used to press in a structure because, unless brand new, doesn't cut cleanly or easily.

In general, pressing in a structure is less durable than cutting it in. This is because p-tex is a fairly elastic material, which... when exposed to heat (such as when hot-waxing)...tends to return to its original shape and condition. This occurs on extruded bases at temperatures above 210 °F (99 °C), and on a sintered base above 270 °F (132 °C). A pressed-in structure, therefore, will become shallower and less defined fairly quickly if you hot-wax frequently... but it's fast and easy to refresh.

A structure that has been cut into p-tex doesn't suffer this same problem as readily...but you need to make sure the structure tools are kept sharp. This means sharpening or replacing blades on the SkiVision base flattener regularly, or replacing a steel brush if you notice it ripping and tearing p-tex instead of cutting cleanly (use a loupe to determine this). Ripping and tearing creates a ton more of unwanted p-tex hairs or fuzz...which will take even more time to remove afterwards.

Another significant advantage of using a structure tool that cuts is that it removes oxidized p-tex on the surface of the base in the process. This helps the p-tex to absorb more wax.

All base structures wear down in time and occasionally need to be renewed...how long this takes depends on the snow hardness, frequency of waxing, base material hardness, how often you ski or ride, etc. Check it visually on a regular basis. You may also want to change structure during the season...from fine to coarse as the season changes from cold winter to warm spring.

WAX SCRAPING AND BRUSHING

Wax works best when, after application, you take the time to scrape and brush any excess wax from the ski or snowboard base. The whole idea is to glide on the p-tex base material, not a layer of wax. Wax is designed to act as a molecular lubricant for the base, and hot-waxing is the best way to impregnate the p-tex with wax.

WHAT IS P-TEX?

P-tex is a tradename for the polyethylene base material used on skis and snow-boards. It was originally produced and supplied by Inter Montana Sport (IMS) of Switzerland, and, although other companies now produce base material under different trade names, just about everyone in the ski and snow-board industry still calls it P-tex out of habit.

There are two types of p-tex used today...extruded and sintered. Extruded p-tex is a low molecular weight polyethylene that is manufactured by heating it to 350 ° F. and pressure feeding it through a die (or slot) to the desired shape and thickness. It is a less expensive base material used on recreational skis and snowboards.

Sintered p-tex is made by packing ultra high molecular-weight polyethylene powder into a cake that is heated and compressed (sintered) to form a log or billet. A lathe or mill is then used to shave (scive) off a thin layer to the desired thickness. It costs more to produce than extruded p-tex.

The advantages of sintered over extruded p-tex are 20% to 25% higher abrasion and impact resistance, a lower coefficient of friction, and the ability to absorb more wax. Accordingly, sintered p-tex is found on the bases of most racing and high performance skis and snowboards.

Electra or graphite base is a sintered p-tex to which 15% carbon black and graphite have been added to increase electrical and thermal conductivity. The frictional heat that develops (especially at higher speeds) is dissipated better along the entire ski or snow-board base due to this thermal conductivity...it helps reduce the water film that otherwise builds up and creates more suction and drag. The improved electrical conductivity helps reduce static electricity build-up that attracts dirt to the base, also creating more drag. The drawback of Electra bases, however, is less water repellency and less impact and abrasion resistance than that offered by clear sintered p-tex.

Electra-spec, double-sint and triple-sint bases are a blend of clear sintered, colored sintered, and/or electra p-tex mixed together and reheated. While the cosmetic impact of these exotic recipes may be impressive, they offer no performance advantage over standard sintered p-tex bases.

RP-105 BASE REPAIR PISTOL

This compact repair pistol is ready made for the home mechanic. It is extremely simple to operate, capable of producing quality base repairs with good durability and it's pretty darn affordable



to boot! The RP105 uses the 11mm techo sticks which are more durable than drip repair candles, and produce longer lasting repairs (the material resists snow abrasion, so repairs don't cup-out over time).

It is crucial to allow the RP105 to heat-up to operating temperature, about 20 minutes. If you try to use it too soon the material will not flow smoothly and you'll have a gummy mess! Make sure you put a repair stick in the pistol while it heats!

When the pistol is hot simply hold the tip over the gouge and press the trigger, the ptx will begin to flow, press the molten ptx lightly into the gouge with the tip (always keep ptx between the tip and the base to avoid damaging the base) and proceed along the gouge until it is filled. Don't move too quickly, you want the tip to heat the base a bit so a good bond can form, nice and easy. Allow the p-tex to cool completely, then remove excess repair material with a Surform tool (ACE-2115), followed by a steel scraper (SAN-474) for the smoothest results.

The temperature the RP105 operates at is less than the RP360 and the Repair Iron (MMN-WB1), the lower the temperature the less durable the bond between base material and repair material. That said, the RP105 is worlds better than drip candles and almost at the level of our base repair Iron. The RP105 will get hot enough to melt co-polymer or ptx repair string but not the repair ribbon.

The RP105 includes a great stand for your bench, (2) four-inch clear repair sticks and a nice long seven-foot cord! It has an on/off switch and an adjustable trigger.

This repair pistol is designed operate on any voltage between 100-240v. The cord has an American-style plug, so folks in countries other than the U.S. and Canada will need a plug adaptor (available at travel or electronics stores), or, if you're electronically savvy, you can replace the plug entirely.

Item #BLI-RP105	RP105 Gun	\$59.95
Item #SHP-187033	Black Repair Sticks	.69ea
Item #SHP-187034	Clear Repair Sticks	.69ea

RP-360 BASE REPAIR PISTOL

This shop-quality repair pistol is ideal for mechanics who do a lot of base repair work or need to repair large volume gouges. Its advantages are speed, convenience and superior repair strength.



Simply insert your choice of black or clear 11mm techo stix, pull the trigger, and extrude a bead of molten p-tex to fill base gouges. Unlike most repair pistols, the large aluminum extruding head is heated with its own element separate from that of the body, this eliminates temperature fluctuation in the repair material and helps to pre-heat the base to ensure a strong bond. The pistol reaches a working temperature of 530°F in approximately 5 min. The reach-adjustable trigger is very light so it takes very little pressure to extrude an adequate amount of material.

It is recommended that the head should remain approximately 1-2mm above the base, and should float lightly on the extruded material. This helps to spread the base material to the adjacent base. Most gouges are filled in just one pass. It is important to keep the head moving at all times, a stationary head can damage the base.

Allow the p-tex to cool completely, then remove excess repair material with a Surform tool (ACE-2115), followed by a steel scraper (SAN-474) for the smoothest results. If you opt for the kit a special scraping tool is included.

The RP360 Gun includes a magnetic bench stand that holds the pistol upright while not in use, it can be mounted to a wooden bench using screws. It also includes 3 black and 3 clear P-Tex sticks.

The Kit includes the RP360 gun, metal plate, 10 sticks each of Black and Clear P-Tex, a special scraping tool and a molded plastic storage case to hold it all.

Cord length is a user friendly 9-feet in length. Available in 110V only.

Item #BLI-RP360	RP360 Gun	\$209.95
Item #BLI-RP360KT	RP360 Kit	\$289.95
Item #SHP-187033	Black Repair Sticks	.69 ea
Item #SHP-187034	Clear Repair Sticks	.69 ea

Make it Stick!

The key to a lasting P-Tex repair is applying just enough material to fill the gouge, but not so much that it you end up with a ton of excess material above the gouge. Use a light touch on the trigger. When removing material start in the center of the repair and work out toward the edges. Be sure to allow the repair to cool.

BASE REPAIR TOOLS

BASE REPAIR IRON

Our base repair iron is a good choice for home tuners who have previously used drip



candles to fill base gouges. It works with p-tex repair ribbon, string or copolymer allowing melt-in repairs that are more durable and cosmetically cleaner than drip candle repairs. The tool features a wooden handle and a ceramic heating element that heats-up quickly. Unlike soldering irons or woodburning tools that heat to 1000F, it hovers around a safer 550F (288C) operating temperature. It includes a narrow 3/16" flat nickel-plated copper tip (4NS), which melts and smoothes repair material to make pinpoint repairs without unnecessarily affecting surrounding base material. An optional 1/2 inch-wide curved, spatula tip (LK16) is also available... it works better for melting repair material into especially wide gouges or core shots (simply slide it on after removing the standard narrow tip). The iron is available in 115 volts for use in the U.S., Canada, etc. or 230 volts for Europe and beyond. (230 volt requires a plug adaptor). Made in USA.

Item #MMN-WB1	Repair Iron 115 volt	\$39.95
Item #MMN-EU	Repair Iron 230 volt	\$39.95
Item #MMN-4NS	Replacement 4NS tip	\$9.95
Item #MMN-LK16	Optional Wide tip	\$9.95

BASE REPAIR DURABILITY

Different p-tex repair materials vary in hardness, which affects their durability when filling gouges on a ski or snowboard base.

A soft p-tex material, like a drip repair candle, is fast and easy to apply. This can be handy for travel or 'on-the-spot' repairs, but it will wear away quicker than surrounding base material. This might be okay for very shallow scratches, but with deeper gouges can become an ongoing maintenance nightmare.

Harder p-tex material, such as our repair string, ribbon or techo stix, take a little more time to apply... but last much longer. They won't wear or 'dish-out' in gouges as fast. Some folks have noted that these materials don't 'flow' into gouges like drip repair candles do. This is because they are denser and more durable, so don't be discouraged... simply apply the string, ribbon or techo stix using a base repair iron or pistol (in successive layers if necessary) until you've slightly overfilled the gouge. Let the material cool a few minutes. To remove excess, a regular steel scraper will usually not be sharp enough...its dull edge will tend to grab and yank the repair material out of the gouge. You need a sharper cutting tool for this. We recommend the Surform Versaplane to initially remove excess material...it's very sharp and cuts cleanly. Once you've shaved away most of the excess, you can then use a steel scraper or base flattener tool to take off remaining material until the repaired area is flush with the surrounding base.

To help make new repairs 'blend in' with the surrounding material, you can lightly restructure the base with a tool such as the brass riller bar or SkiVisions base flattener... altho if the repair is small, this might be more effort than it's worth.

If you need to fill deep core shots or gouges along steel edges, use metalgrip string since p-tex repairs won't bond to steel or fiberglass. For optimal durability and performance, you can use metalgrip to partially fill these repairs, then put p-tex repair material over the metalgrip as a top layer.

P-TEX REPAIR STRING

This repair string works better than traditional drip repair candles when filing base gouges for several reasons. First, it's made of harder, more durable polyethyl-



ene, so your repair jobs wear longer and don't "dish out" prematurely. Secondly, since it is melted into gouges using a base repair iron instead of burning with an open flame, no smudgy black carbon particles are created which flow into the gouge and create cosmetically-ugly and mushier repairs. String is 1/8" in diameter and comes in 10' rolls... enough material to keep most bases patched through a full season. This material bonds well in deep or shallow gouges, and can be applied atop copolymer repair material when making repairs to core shots or along steel edges.

Item #SPK-241	Clear	3.5mm	\$6.95 roll
Item #SPK-242	Black	3.5mm	\$6.95 roll

METALGRIP REPAIR STRING

P-tex does not bond to steel, aluminum, wood, or fiberglass...so if you get a deep gouge that exposes core material, or is along a steel edge, it won't stay in place.



Metalgrip is a mix of polyethylene and heat-sensitive adhesive which is melted (using a base repair iron) into core-shot gouges or along steel edges. It is 5mm in diameter, and comes in a 5' roll. It is more rubbery in texture than p-tex, and should be overlaid with p-tex repair material. Available in clear or black.

Item #SPK-560330	Clear	5mm	\$6.95 roll
Item #SPK-560331	Black	5mm	\$6.95 roll

P-TEX REPAIR RIBBON

This ribbon is the toughest and most durable p-tex repair material we've been able to find on the planet...



in fact, it's nearly equal to the hardness of your original sintered base material. To apply, melt and press it directly into base gouges using our base repair iron (MMN-WB1 or MMN-EU). It has a slightly gummier texture when molten than other repair materials, so be patient applying it...but, once in place, will last nearly forever. It bonds better in deep gouges versus shallow ones...but that's where you need it most anyway. After filling gouges, remove most of the excess repair material with our Versaplane tool before finishing up with a well-burnished steel scraper or base flattener tool. We offer this thin (1/32") ribbon in 7/8" wide x 1' lengths in either black or clear.

Item #SVN-CRIB	Clear	\$1.00 ea
Item #SVN-RIBL	Black	\$1.00 ea

DRIP REPAIR CANDLES

For temporary repair of base gouges, simply light one end of these sticks with a match, then drip... rather than iron...the molten p-tex into gouges. They burn extra-hot...in excess of 970°F, which helps consume some of the undesirable black carbon created while the candle burns.

Please use them carefully because dripping p-tex is hot enough to severely burn skin. Hold a steel scraper under those candles when not actually dripping molten p-tex into gouges.

Sticks measure 8" x 3/8". Sold in bundles of 5 sticks.



Item #SHP-187071	Clear	\$2.50
Item #SHP-187070	Black	\$2.50

P-TEX 2000 BASE MATERIAL

This sintered base material comes on most high-performance skis and snowboards today. Use it in conjunction with

our base templates to make patches to repair especially large gouges or damaged areas... it is glued and clamped in place instead of melted. 110mm wide, available in clear or black. We sell it in any length in 1-foot increments.



Item #MTO-021	Clear	\$8.95 per foot
Item #MTO-002	Black	\$8.95 per foot

BASE TEMPLATES

Indispensable tools if you're splicing a p-tex patch into a base. Use these metal templates as guides to cut out the old base material and new patch material. The exterior model features two different radius cut-outs, plus a longer parallel cut-out for repairs along edges. The interior model is for making patches in the center of the base and features two different oval cut-outs.



Item #SPK-BRT	Exterior model	\$44.95
Item #SVT-BT2	Interior model	\$44.95

AFTER THE GRIND

According to World Cup technicians, you'll win or lose a race more because of the preparation you do after a stonegrind than from the grind itself. Right before a race, don't go get a stonegrind because your skis will actually be slower until you've spent enough time fibertexing, waxing, scraping, brushing and skiing on 'em to achieve a really polished and fast base.

SURFORM VERSAPLANE

The Versaplane utilizes a curved 3" surform blade to trim away excess p-tex repair material after filling gouges on ski

or snowboard bases. The curved blade keeps the leading edge of the tool up off the base for smooth efficient cutting, and you can vary the cutting rate from fine to coarse by changing the blade angle and stroke speed. Use this tool to remove the bulk of p-tex repair material, then finish the job with a steel scraper or base flattener tool for the smoothest possible results. Replacement surform blades are available.



Item #ACE-2115	Tool	\$9.95
Item #ACE-515	Spare Blade	\$6.95 ea

SANDVIK STEEL SCRAPER

Made of very high quality Swedish steel, these Sandvik scrapers

hold an excellent burr to scrape off excess base repair material or p-tex hairs if your bases are fuzzy. Still other folks use 'em as pressure plates when clamping delaminated skis. Whatever the use (do you refinish furniture in the off-season?), try one.



Item #SAN-474	\$8.95
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SCRAPER BURNISHER

A steel scraper only cuts effectively if you maintain a sharp and uniform cutting lip (or burr) along the edge. This burnisher tool does that job better and more safely than any other we've used. It features a protective wooden grip with an angled steel burnishing rod. A quality steel scraper, if maintained, should last a lifetime. Made in USA.

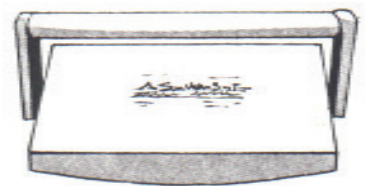


Item #TMT-SB1	\$19.95
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P-TEX ROLLER

Bear down on the handle of this roller and rock the curved base over freshly patched areas immediately after melting

P-tex into place. This forces out air bubbles in the repair and helps it bond better. It also serves as a 'heatsink' to draw heat away from steel when making p-tex repairs alongside metal edges. The roller is machined from hi-grade 7075 aluminum and features teflon-impregnated anodizing to keep it from pulling up base material. 3 1/2" x 6" 2 1/4 lbs. Made in USA.



Item #SVT-PTR	\$99.95
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HOW TO CHOOSE A BEVEL TOOL

There are basically two mechanical approaches to beveling ski or snowboard edges.

First, on pages 26 and 27, you'll find an offering of bevel "devices". These tools usually feature a plastic body fitted with small steel files (or other optional inserts), plus an adjustment that lets you dial in a desired bevel angle. The advantage of these tools is convenience, adjustability, easy to learn to use, and they provide pretty precise results in the hands of even a less-than-attentive or skilled mechanic. Their disadvantages include more frequent file replacement (since file inserts are small and wear faster) and less "feel" for the cutting action of the files. We usually recommend these tools for beginners, folks born without meteoric learning skills, or those less mechanically-gifted (ok, klutzes).

By comparison, we offer bevel "guides" starting on page 26. These tools reflect more traditional filing techniques in that they're used along with a regular 8" (or similar) mill file, or any diamond or hard stones. Their advantage is flexibility (use 'em with whatever favorite file or stone you prefer to bevel, deburr, polish or detemper rock damage), longer file life (since files are larger and you utilize their full cutting surface), greater cutting sensitivity (since your fingers are usually in direct contact with the file itself instead of a plastic tool body), and more bragging rights (since this is assumed by some highbrows to be a more refined craft). Downside? Their use requires greater attentiveness and can take klutzes a little longer to master.

The bottom line? Bevel "devices" are akin to driving a nice sweet Buick with a smooth shifting automatic transmission, while bevel "guides" are for those who feel their hand is homeless if it ain't on a stickshift.

BURRED EDGES

A condition where a thin, vertical lip of steel forms along steel edges, usually the result of side filing, hitting rocks, and/or scissoring ski tips. This lip penetrates deeper into the snow than the rest of the edge and, depending on the consistency of the snow and the sidecut, makes skis and snowboards act very unpredictably. Fact is, they actually try to turn in opposite directions simultaneously. Yikes! It can quickly be removed with a gummi, diamond, pocket, or ceramic stone.



ROUGH
BURRED
EDGE

REVIEWING THE 3-D'S... BEHAVIOR MODIFICATION OF SKIS & BOARDS

Deburring is the process of removing rough burrs from the side and base steel edges of skis or snowboards after a day of ridin' 'em on the slopes. It's done with...what else?...a deburring stone (ceramic, diamond, arkansas, etc.). This helps keep edges sharp and free of nicks, rust, raggedness and roughness. Compared to personal hygiene, it's akin to brushing your teeth regularly.

Dulling on the other hand, is more like performing a labotomy. It's usually done on new skis or boards with a deburring stone to intentionally dull (or radically bevel) base edges at the very tip and tail where skis and boards lift up out of the snow. Edges here curve dramatically in toward each other, and should be dulled so they don't unexpectedly engage in bump troughs, ruts, crusty snow or other funky condition and re-vector your planned line of travel downhill off in some new unanticipated direction. Yikes!

Detuning refers to the subtle massaging of an edge's sharpness or base bevel near tips and tails to intentionally adjust performance of a ski or board. On old traditional skis, detuning behind the contact points makes a skis less grabby and "hooky" for easier control. But shaped skis are used in shorter lengths than traditional skis, and are designed so the full length of the edge engages to carve nice crisp turns. But if you feel your shaped ski tips and tails are just a little too sharp and make it hard to initiate a turn, then simply increase the base edge bevel at tips and tails by 1/2° more than what you use underfoot. This will still give you good carving grip when the ski is turned up on edge, but allow the ski to initially slip into a turn easier.

Like Terry Young, ex-ski shop owner and professional tuning guru in Aspen says, "If you want to turn shaped carving skis into fenceposts, tune 'em like traditional old race skis."

POLISHED EDGES

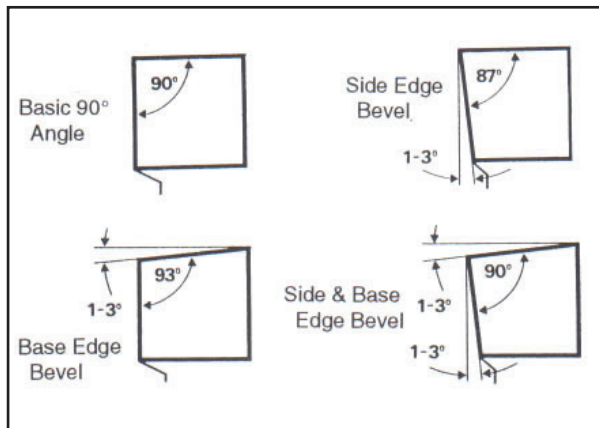
Filing steel edges will leave tiny but unwanted striations that can drastically slow down a ski and make it harder to turn. Polishing the steel edges with a fine polishing stone will leave the edge surfaces much smoother and free of scratches or burrs.



SMOOTH
POLISHED
EDGE

**Stop by www.tognar.com
for more tuning tips and tricks!**

EDGE BEVEL TIPS



Beveling the steel base and side edges on skis and snowboards can greatly affect their performance. Increasing the base edge bevel 'lifts' more of the bottom edge off the snow, which, because steel edges drag in snow more than p-tex base material, results in better glide and greater speed. Base edge bevel at the tips and tails also makes it easier to initiate a turn, since the outside lip of the edge is lifted slightly off the snow and won't catch unexpectedly. Beveling the side edge surface helps increase the gripping power of a ski or board on ice and hardpack snow. The trick is finding the right relationship between the base and side edge bevel to match your needs.

Most skis and boards come from the factory with a .5° to 1° base and 1 to 3° side edge bevel. For most recreational skiers, it's best to maintain this original bevel, or adjust it slightly according to the charts below.

Racers and high-performance skiers and riders may want to adjust the bevel more to suit their particular needs. A slalom racer, for example, might choose a 3° to 4° side and 0° to .5° base edge bevel for extra grip when making quick turns on an icy course. A giant slalom skier might stick with a .5° to 1° base edge bevel, but reduce the side edge bevel to 2° to 3° so the skis glide fast, but aren't too grabby. When Bill Johnson won the Olympic downhill in 1984, his skis were tuned with a very radical 5° base edge bevel and a slightly reduced side edge bevel. This provided the fastest possible speed for Johnson on a relatively flat, soft downhill course. By contrast, Tommy Moe won his Olympic downhill gold with 1° of base edge bevel. This was dictated by the steep, icy conditions on the course in Norway.

A freestyle skier who 'pivots' their ski underfoot and doesn't want tips or tails to catch in moguls might prefer a 1.5° bevel on both the base and side edges. Extreme skiers who drop into ultra-steep or icy chutes might vary the bevel along the length of their skis, such as a 2° side bevel underfoot that changes to a 0° or .5° bevel at

the tips and tails. Conversely, they'll start with a 2° base edge bevel at the tips and tails, then taper down to a 0° base edge bevel underfoot. This allows their skis to get greater grip underfoot (handy when you're perched above a cliff or crevasse), while allowing tips & tails to turn easily in narrow chutes.

After any beveling, be sure to polish both the base and side surfaces of steel edges as smooth as possible without dulling the cutting edge.

Below are listed recommended bevel angles for skis and snowboards. These angles can be adjusted to suit your particular needs.

SUGGESTED SKI BEVEL RECOMMENDATIONS

Skier	Base Bevel	Side Bevel
Novice/Intermediate	1°	1°
Advanced		
All-Mountain	1°	2°
Expert		
All-Mountain	.75 to 1°	2 to 3°
Slalom Racer	0 to .5°	3 to 4°
GS Racer	.5 to .75°	2 to 3°
SG & DH Racer	.75 to 1°	2 to 3°

SNOWBOARD BEVEL RECOMMENDATIONS

Rider	Base Bevel	Side Bevel
Beginner	1 to 2°	0 to 1°
Intermediate	1°	1°
Freerider	1°	1 to 2°
Spinner	2+°	0°
Halfpipe	1 to 2° at tip/tail 0 to 1° underfoot	1°
Boardercross	0 to 1°	1 to 2°
Slalom Race	0 to .5°	2 to 3°
GS Race	1°	2°

GET THE MOST OUT OF YOUR FILES

The problem we often run into when addressing the side edge of a ski is the file tends to hit the binding brakes when trying to access fresh teeth further up the file. To extend the life of a file when using it with a side bevel guide, start by using just the very end, when the teeth get dull, shift the file out a bit to expose fresh teeth. When the first couple inches are dull (on both sides of course) snap the dull section off using a steel bench vise. Repeat until the file is too short to use comfortably. We usually mark the date the file first used up near the tang with a marker. Designating a specific file for side edge use is another thing we like to do.

GET MORE MILES PER FILE!

Here's some tricks for longer file life...

1) Avoid the missionary position...never stack one file atop another or they'll literally wear each other down. Store each in its own plastic sleeve or wrap each up in paper.

2) Brush their teeth...a file that is frequently brushed with a file card will cut better and last longer.

3) Chalk 'em up...rubbing a thin layer of common chalk into the teeth can help the file slide more easily along the ski, not load up with steel shavings that can otherwise be ground into the base, absorb oil from your hands that can otherwise contaminate the base, and doesn't impair cutting efficiency.

4) Stop backsliding...files are made to cut in only one direction. If you back-draw a file two or three times, it'll break off teeth and you'll end up having to buy a new one.

5) Avoid work-hardened edges...when a ski edge hits a rock, the resulting friction creates enough heat to temper (or harden) the edge at that location. The steel will look shiny and glazed, and is so hard that it can chip the teeth on a file. Use a diamond stone (see page 24) to remove all the glazing before filing this edge.

6) Before you start using a new file, put a piece of masking tape on one face of the file, and work with the other. When the file starts getting dull (begins skipping or rolling along an edge instead of cleanly cutting it), expose the unused face and cover the worn side.

7) Put a piece of cloth tape (from a first aid kit) on the surface of a file bevel guide where you clamp on your file...it'll create some cushioning that'll help keep the file from shifting around while beveling.

8) Don't use wraps of tape around one end of a file to bevel the base edges on sidecut skis. Due to the radical change of ski width from tip to waist to tail, this technique will create more base bevel underfoot than at the tip or tail, which is just the opposite of what you want. On a traditional ski, this variance might be as little as 20%, but on sidecut skis this variance can be magnified to as much as 50%. Instead, spring for a bevel guide or device to ensure getting results you want.

9) Soak 'em in vinegar...an 8-12 hour (over-night) bath will actually eat away some old metal, exposing sharper new material. This will usually work at least twice before retiring your files, but doesn't work with chrome files.

EFFECTIVE EDGE FILING TIPS

If you're learning to sharpen steel edges with a hand-held file, carefully "listen and feel" for clean cutting action...as opposed to grinding sensations or noise. Grinding indicates problems... such as a dull file (resharpen or replace it); edge shavings building up under the file (clean it frequently with a file brush); or work-hardened edge sections caused from nicking rocks (use a diamond or pocket stone to cut away these ragged and/or glazed areas before filing). Your filing will be cleaner and crisper as a result.

If you're filing ski or snowboard edges, but find that your file isn't contacting the edge consistently, avoid the temptation to just bear down harder to make it cut. This indicates other possible problems that heavy-handed filing might just make worse...such as a convex base (check it with a true bar, then flatten the base as required with sanding, a hand-flattening tool or a shop stonegrind); the edges may already be over-beveled (again, check this with a true bar...it may be necessary to flatten the base a bit to "erase" some base bevel); the file may be bent so that it's not contacting the edges (check the file against a true bar to see if this is so and flip it over or replace it if necessary); there may be old wax on the base that's gumming up file teeth (scrape all excess wax off the base first with a plastic scraper, and then keep file teeth clean using a file brush); the ski or board may have recessed edges (some come from the factory like this to simulate a predetermined base bevel); or, heck, it might just be late and you're wiped from a hard day on the hill, and don't realize you're filing a pair of nordic race or jumping skis that don't even have steel edges (get some ZZZ's, dude!).

Lastly, be aware that right- and left-handed tuners almost always bear down harder with their predominant hand when filing. This can create more bevel on one edge of your ski or snowboard than the other. Try to apply even pressure with both hands when working, and apply pressure directly over the steel edges (not the ends of the file) so as not to bow or bend the file, and use base and side edge file guides to insure precise bevel results on all edges along their full length (don't feel like this is wimping out or cheating...it's what world cup tuners do!).

The other remedy for bearing down harder on a file with your predominant hand is to file tip-to-tail down one edge, then tail-to-tip up the other. This will pretty much cancel out any discrepancy in bevel angles caused by uneven pressure...but, again, you're better off using a bevel guide with your file rather than risk uneven or variable results.

SIDEWALL PLANERS

It can be difficult to bevel the side edges on some skis and snowboards because overhanging plastic sidewall material gets in the way and clogs up file teeth. Removing this stuff with a hand-held file is tricky. The fastest and easiest tools are sidewall planers. They use a sharp carbide insert to shave away excess plastic sidewall material and maintain a constant planing depth from tip to tail.

When removing sidewall material keep in mind you only need to remove enough so the file is no longer cutting into the material. If you cut too much away (you'd have to really work to do this) the edge will not be supported as well. Generally a pass or two is sufficient.

FK/SKS SIDEWALL PLANER

The FK/SKS model is one of our most popular planers. It is small and light with a combination square and circular carbide steel cutting blade. By rotating the blade you can choose which blade profile best matches your sidewall. The cutting depth as well as the blade position relative to edge thickness are both fully adjustable. Replacement blades are available.



- | | |
|-----------------------------|---------|
| Item #MTK-721 | \$39.95 |
| • FK sidewall planer | |
| Item #MTK-3134 | \$14.95 |
| • Replacement carbide blade | |

ERGO SIDEWALL PLANER

The Ergo model is slightly beefier, it ships with a circular carbide steel blade which works well on most modern skis. An optional square cutting blade for traditional 90-degree sidewalls is also available. The cutting depth and position of the blade in relation to edge thickness are fully adjustable. Ships with an allen key for adjustments.



- | | |
|--------------------------------------|---------|
| Item #SPK-3004 | \$49.95 |
| • Ergo sidewall planer | |
| Item #SPK-5130 | \$21.95 |
| • Replacement circular carbide blade | |
| Item #SPK-5120 | \$21.95 |
| • Optional square carbide blade | |

BEAST SIDEWALL PLANER

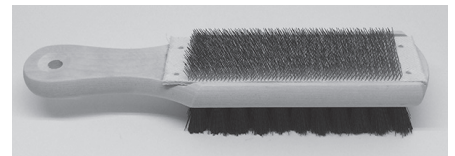
Quickly remove sidewall material with this simple tool. Similar to a side edge file guide in construction, but the angle is a whopping 7°. The robust aluminum/composite tool includes a replaceable 1.5" (35mm) long panzar file that easily removes metal or plastic from sidewalls. One or two passes down the length of the ski will remove just enough material to allow access to the edge material. Made in USA.



- | | | |
|-----------------|--------------|---------|
| Item #BTS-PLANE | Tool | \$39.95 |
| Item #BTS-PANZ | Repl. Panzar | \$14.95 |

FILE BRUSHES

A file gets dirty fast when sharpening edges. This not only reduces cutting efficiency but leads to faster wear. The fine wire bristles of these tools will remove filings and other gunk from the teeth of the file to ensure longer life and efficiency. Use frequently. Two models are offered...singleside has short wire bristles on one side for cleaning files, while the doubleside has wire bristles on one side and nylon bristles on the other for sweeping file shavings off the ski base as well.



- | | | |
|------------------|------------------|---------|
| Item #SWX-T177B | Singleside brush | \$5.95 |
| Item #SPK-500180 | Doubleside brush | \$12.95 |

SUPERTOOTH BRUSHES

Industrial grade "tooth-brushes" featuring sturdy nylon bristles for regular cleaning, or brass bristles for tougher scrubbing. Especially useful for cleaning debris from files and hard-to-reach inserts in edge beveling tools.



- | | | |
|----------------|-------------|--------|
| Item #BM-93APN | Nylon brush | \$1.95 |
| Item #BM-93APB | Brass brush | \$1.95 |

ACCLIMATIZING

No...this isn't about shortness of breath at high altitude...instead, we're talking about a freshly-waxed p-tex base responding to cold. When laid in the snow, your ski or snowboard base cools and 'squeezes' out excess wax... which you'll want to brush away at the race start for the fastest glide.

TOO MANY PEOPLE GO THROUGH LIFE WITH DULL EDGES

The steel edges on most recreational skis and snowboards range in hardness from 42 to 51 (Rockwell hardness) but can go as high as 60 on some racing models. Ideally, a file should be at least 10% harder than the steel edges you're filing...so don't expect a typical hardware store file with an average Rockwell hardness of 45 to 52 to last long. Although cheap to buy, they prove most expensive in the long run. Our files feature an average Rockwell hardness of 67 for much greater durability.

Files also vary in their cutting ability. Pansar files are the most aggressive (coarsest), featuring about 10 teeth per inch. This allows them to remove steel edge material very quickly, which is handy for roughly cutting in side edge bevels when you're tuning many pairs of skis or snowboards. Our coarse mill files (sometimes referred to as 'bastard cut') feature 13 teeth per inch, which is plenty aggressive enough for most home tuners. Our medium files (sometimes referred to as '2nd cut'), feature 16 teeth per inch, which makes them very versatile. Our fine files (sometimes referred to as 'smooth cut'), feature 20 teeth per inch. They cut slower but create a smoother finish on edge surfaces.

Regardless which files you choose, always follow any filing work with deburring and polishing stones to create the smoothest, fastest and most precise edge.

VIALA CHROME MILL FILES



These popular World Cup files offer great performance at a reasonable price. They have a hardness rating of 67, plus are hardchromed for good longer life and a smoother finish. Available in three lengths ...6", 8" or 10". The 8" and 10" files are offered in 1st and 2nd cut versions. The 1st cut files have fewer teeth per inch which makes them more aggressive, better for shaping edges initially or other times when you need to remove more material quicker. The 2nd cut files are a great all-around choice, being finer they leave a smoother finish which requires less clean up. If you are into simplicity and want just one file then choose the 8" 2nd cut, it will do everything you need.

First Cut

Item #SPK-FC08	8"	1st cut	\$10.95
Item #SPK-FC10	10"	1st cut	\$12.95

Second Cut

Item #SPK-SC06	6"	2nd cut	\$7.95
Item #SPK-SC08	8"	2nd cut	\$10.95
Item #SPK-SC10	10"	2nd cut	\$12.95

SWIX WORLD CUP RACING PRO FILES



These keenly sharp single-sided, tangless files are some of the smoothest cutting we've encountered.

Available in two cuts -Fine (17tpi) and Medium (13tpi). The Medium is slightly more aggressive, but still leaves a fine finish, the Fine leaves an incredibly smooth finish making polishing up a breeze. Both files are 100mm long and have a handy directional arrow on top, 'case you get confused. Swix says they last up to 10X as long as a standard file, we're still testing this, but the outlook is good!

Item #SWX-T102X	Med. 13tpi	\$79.95
Item #SWX-T103X	Fine 17tpi	\$79.95

VALLORBE ICECUT FILE



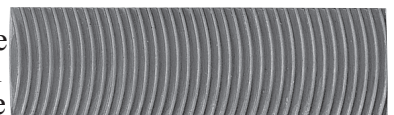
These unique tang-less mill files have become

increasingly popular for use with base and side-edge bevel guides. They are made with hard steel (high Rockwell index) for good durability, and are sized slightly shorter than traditional tanged files. The 4.75" file is coarsest with 13-teeth/cm, the 9.5" file is finer with 16-teeth/cm, and the 7.25" file is the smoothest and finest with 20-teeth/cm.

Item #SPK-500037	4.75" (120mm)	\$19.95
Item #SPK-500038	7.25" (185mm)	\$21.95
Item #SPK-500039	9.5" (245mm)	\$23.95

PANSAR FILES

These very aggressive files have large curved teeth to quickly remove edge or sidewall

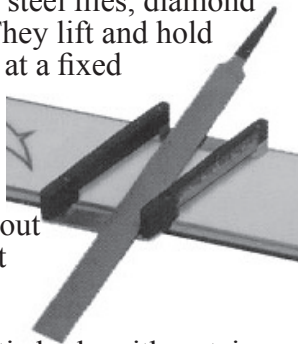


material. The shorter length files can be used in conjunction with an file guide to initially set the side edge bevel on skis or snowboards (be sure to follow-up with a fine 2nd cut file). The larger size can be used shave excess p-tex repair material off bases...carefully! Panzar files easily remove plastic sidewall material that overhangs steel edges. Use 'em with a light touch, however...they're real sharp and cut very fast.

Item #MTK-702P	2.75" file	\$12.95
Item #MTK-707P	4" file	\$14.95
Item #TOG-PANZ	300mm file	\$19.95

BASE EDGE FILE GUIDES

These precise base bevel guides are used in conjunction with your favorite steel files, diamond stones or ceramic stones. They lift and hold one end of the file or stone at a fixed height, while allowing the other end to rest on one base edge. This ensures a precise and consistent base bevel from tip-to-tail (without being influenced by sidecut curvature). We offer two brands...the economical Beast guides feature a plastic body with a stainless steel bridge. The Final Cut guides are machined from aluminum and stainless steel, and feature replaceable delrin pads where the tool contacts steel edges. All guides made in USA



Beast Guides

Item #BTS-05	.5° bevel	\$19.95
Item #BTS-07	.75° bevel	\$19.95
Item #BTS-10	1.0° bevel	\$19.95
Item #BTS-20	2.0° bevel	\$19.95

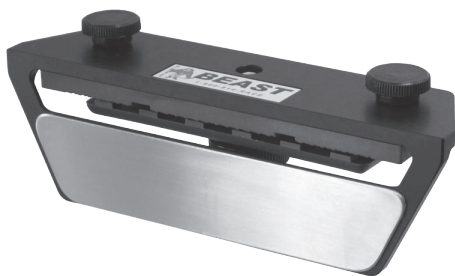
Final Cut Guides

Item #SVT-TFC5	.5° bevel	\$79.95
Item #SVT-TFC7	.75° bevel	\$79.95
Item #SVT-TFC1	1.0° bevel	\$79.95
Item #SVT-TFC15	1.5° bevel	\$79.95
Item #SVT-RR		\$9.95 pr.

• Replacement delrin pads for all Final Cut Guides

SIDE OF BEAST PRO

An accurate and versatile side bevel tool. The frame is constructed of anodized aluminum with a stainless steel wear plate. Unlike most side bevel guides, the Side of Beast Pro doesn't require a separate clamp. Files or stones are held securely in place with an integral clamp that eliminates the possibility of angle inaccuracy due to the file/stone lifting away from the tool during filing. The tool ships with the designated bevel plate installed. Optional angle plates are available. Made in USA.



Side of Beast Pro

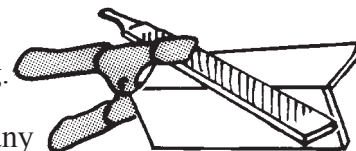
Item #BTS-PRO1	1.0° bevel	\$59.95
Item #BTS-PRO2	2.0° bevel	\$59.95
Item #BTS-PRO3	3.0° bevel	\$59.95
Item #BTS-PRO4	4.0° bevel	\$59.95

Optional Angle Plates

Item #BTS-PLT1	1.0° angle plate	\$9.95
Item #BTS-PLT2	2.0° angle plate	\$9.95
Item #BTS-PLT3	3.0° angle plate	\$9.95
Item #BTS-PLT4	4.0° angle plate	\$9.95

SIDE EDGE FILE GUIDES

These file guides guarantee precise side edge beveling. They are used in conjunction with any files or stones. Hold the face of the guide against your base, and set your stone or file on the top platform. The guides feature a recess to catch steel filings so they don't grind into bases. Three precision models are available...the Aluminum Pro-Edge Guides are made of 100% hard anodized aluminum and are an excellent choice for home mechanics, they are offered with or without a stainless wear plate. The Stainless Pro-Edge Guides are milled from solid stainless steel for unsurpassed accuracy and durability. Both models accept optional machined aluminum shims that can be used to increase the designated bevel angle of either guide from 1 to 3 degrees. The shims set firmly into a machined groove on any Pro-Edge guide. Optional clamps are strongly recommended to secure your file or stones to the guides. All guides made in USA.



Aluminum Pro-Edge Guides

Item #SVT-PEB90	0° bevel	\$27.95
Item #SVT-PEB91	1° bevel	\$27.95
Item #SVT-PEB92	2° bevel	\$27.95
Item #SVT-PEB93	3° bevel	\$27.95
Item #SVT-PEB94	4° bevel	\$27.95

Aluminum/Stainless Pro-Edge Guides

Item #SVT-PEBS91	1° bevel	\$34.95
Item #SVT-PEBS92	2° bevel	\$34.95
Item #SVT-PEBS93	3° bevel	\$34.95
Item #SVT-PEBS94	4° bevel	\$34.95

Solid Stainless Pro-Edge Guides

Item #SVT-SSEB91	1° bevel	\$77.95
Item #SVT-SSEB92	2° bevel	\$77.95
Item #SVT-SSEB93	3° bevel	\$77.95
Item #SVT-SSEB94	4° bevel	\$77.95

Shims for Pro Edge Guides

Item #SVT-PEBA1	1° shim	\$19.95
Item #SVT-PEBA2	2° shim	\$19.95
Item #SVT-PEBA2	3° shim	\$19.95



ACE-3201



SVT-PEBC

Clamps

Item #ACE-3201	\$5.95
Item #SVT-PEBC	\$14.95

You say Tomato...

Bevel angle designation varies among edge bevel tools, e.g.: 2.0° vs 92°. These numbers designate the same angle...just from different perspectives.

BEVEL TOOLS

SKIVISIONS SKI SHARP EDGE BEVEL TOOL

One of our most popular bevel tools. The SkiSharp tool files, bevels and polishes both base and side edges simultaneously...instead of one at a time like other bevel tools. This is a huge advantage when you have lots of skis to tune, or if you want to do a quick touch-up after a day of skiing (just a pass or two with the Ceramic stone freshens up your edges). It features adjustments so you can choose different bevel angles for each edge surface in precise .25° increments from 0° to 3°. It includes a pair of sharp and smooth file inserts for initial filing or beveling needs. Optional (but recommended) inserts include Green Stones (use in place of files to bring edges back to sharp without removing unnecessary material, and for cutting through hardened edge material), and Ceramic Stones (to sharpen and polish edges). The grit on the Ceramic and Green stones can be refreshed almost indefinitely with a 100-grit Moonflex diamond stone. Also offered is a pansar file for quickly roughing in bevels on new skis. The tool includes a pair of mill files, a brass cleaning brush and a Tuning Stick. Instructional videos available at www.skivisions.us Made in the USA.



Item #SVN-SS	Ski Sharp Tool	\$59.95
Item #SVN-SSMF	• Replacement mill file inserts	\$13.95pr
Item #SVN-PANZ	• Pansar file for side edge only (1 file)	\$9.95ea
Item #SVN-GRN	• Aggressive sharpening stones	\$10.95pr
Item #SVN-CRR	• Ceramic stones	\$13.95pr

TOKO EDGE TUNER PRO

This easy to use side edge tuning tool is adjustable from 90° to 85° (or 0° to 5° if you prefer) in one-degree increments. Nice wide base excellent stability. Four widely spaced roller bearings act as wheels enabling the tool to glide smoothly along the base reducing the chance of scratches. Ergo shape really fits well in the hand. Works best with files or diamond stones 2.75" (70mm) long, but will accept slightly longer. Accepts DMT, Swix or Moonflex diamond stones. Includes a Toko mill file to get you started. For side edges only.



TOK-9830	Edge Tuner Pro	\$59.95
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FK MULTI EDGE BEVEL TOOL

Accuracy and ease of use make this one our most popular bevel tool. The tool is adjustable from 0° to 5° (in .5° increments). It includes a 2.75" (70mm) long mill file insert for beveling edges as well as occasionally resharping side edges. Files or stones are inserted into the tool vertically to work on side edges, or horizontally for base edges. The tool will accept any 2.75" (70mm) stone or file we offer. Compact enough for travel but sturdy enough for daily use.



Item #MTK-701	Tool w/mill file	\$49.95
Item #MTK-702	Replacement mill file	\$9.95
Item #MTK-702P	Optional pansar file	\$12.95
Item #DMT-WS7K	Diamond stone set	\$25.95
• Set of 3 stones- fine, medium and coarse		

PRO SHARP ADJUSTABLE BEVEL GUIDES

These tools can be a good choice for folks that have a lot of skis to tune with various bevel angles. The aluminum Pro Sharp base bevel guide adjusts from .5° to 1.5° (1/4° increments) and accommodates files, stones or diamonds up to 6mm thick and 10" long.

SPK-401112	Base bevel guide	\$49.95
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The composite Pro Sharp side bevel guide features adjustable bevel angles from 0° to 5° (in 1° increments). It accommodates diamond stones or files (up to 6mm thick and 3" long). Includes a 3" Icecut mill file.

SPK-401030	Side bevel guide	\$49.95
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DEBURRING STEEL EDGES

Ski and snowboard edges should be deburred after every day of use... otherwise nicks and dings will leave the edge ragged, which translates into unpredictable turns and reduced grip on hard pack.

SKI VISIONS STONES

These top notch stones feature internalized grit, which means they can be resurfaced (made new) almost indefinitely using a 100grit Moonflex diamond stone. Use the Green stone on new edges, work-hardened edges or for imparting a wicked sharp edge for extremely firm snow. Use the Ceramic stone to hone edges and bring them to a high polish. The stones are 4" long, 1" wide and 1/4" thick. Sets include Green and Ceramic Stones and a Tuning Stick. More info at skivisions.us. Made in the USA.



4" (100mm) Stones

Item #SVN-4GRN	4" Green	\$15.95
Item #SVN-4CRR	4" Ceramic	\$15.95
Item #SVN-4SET	4" Set	\$34.95

• set of 2x4"stones: green/ceramic & tuning stick

BASE TAPE

Apply strips of this ultra-thin tape to your base along the steel edges before filing. It protects the base from filings and grime that could otherwise get ground-in, plus it helps protect the base structure from being scratched by files or bevel guides. This tape peels off without leaving harmful residue. Base tape 2" wide x 50yd. roll. Strapping tape is 1.25" wide x 50yd. roll.



Item #SWX-R386	Swix Base Tape	\$17.95
Item #TOK-7008	Toko Base Tape	\$12.95
Item #SWX-R389	Swix Strapping Tape	\$15.95
Item #TOK-7007	Toko Strapping Tape	\$9.95

BEVEL GAUGES

These quality German made gauges help you quickly check the bevel on any ski or snowboard. Made of steel for precision and durability. The 3157 measures side angles from 0° to 5° in 1° increments, and base bevels of .5°, .75°, 1°, 1.25°, 1.5° and 2°. The 3159 measures side angles only from 0° to 4° in 1° increments.



Item #MTK-3157	Side & Base	\$69.95
Item #MTK-3159	Side Only	\$39.95

DMT DIAMOND STONES

These metal and plastic laminate 'stones' have industrial-grade diamonds bonded to the top. The extra coarse model (220 grit) is best for repairing rock damage on steel edges (where it's been hardened by impact and looks glazed and/or very ragged), and for re-sharpening carbide tips on ski and skating poles. Use the coarse model (325 grit) to initially debur steel edges after filing or beveling, and the fine model (600 grit) for finer deburring and edge polishing. The extra fine stone (1200 grit) is used for ultra-smooth edge polishing. Diamond stones last a long time if kept clean, are used with light pressure, as well as with water or cutting solution.



Pocket Stones- 2.75" length (70mm)

Item #DMT-W7X	x-coarse-220 grit	\$9.95
Item #DMT-W7C	coarse-325 grit	\$9.95
Item #DMT-W7F	fine-600 grit	\$9.95
Item #DMT-W7E	x-fine-1200 grit	\$9.95
Item #DMT-WS7K		\$25.95

• set of 3 pocket stones: x-coarse/coarse/fine

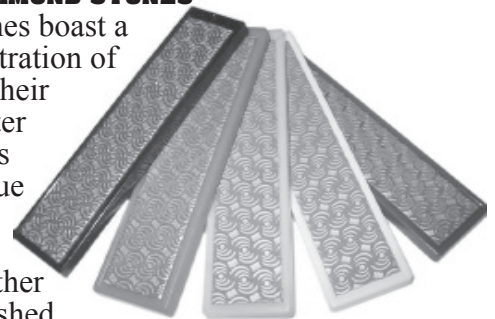
Workshop Stones- 4.25" length (100mm)

Item #DMT-A4X	x-coarse-220 grit	\$19.95
Item #DMT-A4C	coarse-325 grit	\$19.95
Item #DMT-A4F	fine-600 grit	\$19.95
Item #DMT-A4E	x-fine-1200 grit	\$19.95
Item #DMT-A4SET		\$79.95

• set of 4 workshop stones: x-fine/fine/coarse/x-coarse
• comes in nylon roll-up pack

MOONFLEX DIAMOND STONES

Moonflex stones boast a higher concentration of diamonds on their faces for greater durability, plus feature a unique spiral pattern designed to create a smoother and more polished finish when deburring/polishing steel edges. They are available in similar grits and in the same sizes as the DMT stones above.



Pocket Stones- 2.75" length (70mm)

Item #SPK-MFM1	coarse-100 grit	\$19.95
Item #SPK-MFM2	medium-200 grit	\$19.95
Item #SPK-MFM4	fine-400 grit	\$19.95
Item #SPK-MFM6	x-fine-600 grit	\$19.95

Workshop Stones- 4.25" length (100mm)

Item #SPK-MF100	coarse-100 grit	\$29.95
Item #SPK-MF200	medium-200 grit	\$29.95
Item #SPK-MF400	fine-400 grit	\$29.95
Item #SPK-MF600	x-fine-600 grit	\$29.95

DEBURRING & POLISHING

TOOLS

CERAMIC FINE POLISHING STONES

These fused alumina ceramic stones polish side and base steel edge surfaces. This reduces edge drag and resists rusting as well.



We offer a fine 600-grit stone, an ultrafine 1200-grit stone, and a combo stone with both grits... one on each side. They measure 5" x 1". Each includes a leather pouch.

Item #SPO-303M	600 grit stone	\$23.95
Item #SPO-303F	1200 grit stone	\$23.95
Item #SPO-303C	combo stone	\$39.95

ARKANSAS POLISHING STONES

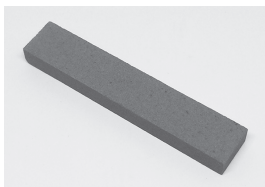
We offer two premium Arkansas stones for the finest, most precise edge honing and finishing results. These stones are cut by circular diamond saws from Novaculite blocks, a naturally-occurring 99.9% pure silica sedimentary rock with a unique crystal structure that cuts, hones and polishes steel extremely well. The fine Arkansas Hard stone is great for the edge finishing needs of most skiers and snowboarders...including recreational riders, master and junior racers. The ultrafine Translucent stone is a favorite of many World Cup techs for creating a near mirror-like finish (it's used in the medical field to sharpen scalpels). Both stones come in a sturdy leather pouch, and measure 3" x 1" x 1/4" so they can be used in conjunction with most base and side edge bevel guides to precisely maintain your desired bevel angles.



Item #DWH-HARD	\$8.95
• Arkansas Hard Stone 800-1000 grit	
Item #DWH-TRANS	\$16.95
• Arkansas Translucent Stone 1200+ grit	

ALUMINUM OXIDE STONE

Use this fine pocket stone to deburr steel edges after a day on the slopes. A great all-around general use stone. Measures 4" x 3/4" x 3/8".



Item #SPK-200102	\$5.95
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GUMMI STONE

This rubber abrasive block is for polishing steel edges after filing or bevelling. It's softer than hard stones, so it doesn't dull edges if you don't hold it perfectly flush against side or base bevel surfaces while polishing...plus it's handy for removing rust from edges, too. It measures 3" x 1 x 5/8".



Item #KLG-SF	\$5.95
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SKIVISIONS TUNING STICK

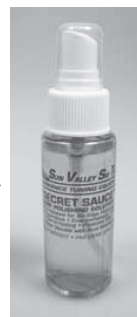
The SkiVisions Tuning Stick helps you determine if your edges are sharp. Simply hold it at a 45-degree angle to the edge and, using moderate pressure, slide and try to "shave" some stick material away. If the steel edge is sharp at that spot, you will hear and feel noticeable resistance and vibration. If the edge is dull, the stick will not shave, but slide without much sound, resistance or vibration. A cheap but invaluable tuning aid!



Item #SVN-TS	\$5.95
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CUTTING FLUID

Apply a squirt of this fluid to ceramic, arkansas or diamond stones to help reduce friction and residue build-up while deburring and polishing steel edges. A little goes a long way! 2oz spray bottle.



Item #SVT-SS2	\$9.95
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BASE & EDGE MAGNIFIER

This 5x power magnifier is ideal for base and edge inspections, and doubles as a good hand lens for examining snow crystals too.



Item #KOB-527	\$9.95
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ACCLIMATIZING

No...this isn't about shortness of breath at high altitude...instead, we're talking about a freshly-waxed p-tex base responding to cold. When laid in the snow, your ski or snowboard base cools and 'squeezes' out excess wax...which you'll want to brush away at the race start for the fastest glide.

AFTER THE GRIND

According to World Cup technicians, you'll win or lose a race more because of the preparation you do after a stonegrind than from the grind itself. Right before a race, don't go get a stonegrind because your skis will actually be slower until you've spent enough time fibertexting, waxing, scraping, brushing and skiing on 'em to achieve a really polished and fast base.

CASE HARDENED EDGES

Steel edges sometimes strike rocks, usually at good speed and under substantial weight (yours!). The result is an instant heat-treating of the steel that leaves it extremely hard on the surface. Use a coarse diamond or hard stone to remove the glazed and ragged surface before attempting to file it.

SWING WEIGHT

Pick up a ski and grab it with both hands at mid-point. Swing the tip and tail side-to-side several times. Feel how much effort this takes? That's the swing weight of the ski. Longer skis usually have a heavier swing weight than shorter skis. This gives them more stability at higher speed and helps dampen vibrations.

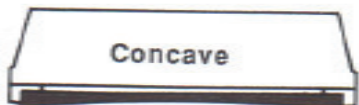
CONVEX

The opposite of a concave base. In this case the base protrudes further into the snow than the edges. It makes for a ski or snowboard that turns easily but is difficult to edge. It can be detected with the aid of a true bar, and can be corrected by sanding, stone-grinding or with a base flattener tool. Convex bases are a genuine thrill at high speed... they give new meaning to the phrase "a pig on ice".



CONCAVE

A condition where the base edges protrude further into the snow than the base material (think of the base as a "cave"). This condition feels similar to railed or burred edges when skiing or snowboarding. It can be detected with the aid of a true bar, and can be removed by filing, stone grinding or with a base flattener tool. Concave bases are exciting to ski or board because you're never quite sure just what direction they'll take you next!



FLATTENING CONCAVE BASES

In the past, skis were pretty easy to flatten with a stonegrinder, belt sander, or base flattener tool. But wider powder skis, shaped skis and snowboards have been more difficult...and, in some cases, nearly impossible. Constructing these makes it tougher for manufacturers to prevent some warpage from creeping in during the curing process. The result is usually slightly concave tips and tails. If this curvature is slight, it can be removed with a file and base flattening tools...but if more pronounced, it can be difficult to completely remove without also removing unacceptably large amounts of p-tex or steel edge material in the process. In this event, work to get the bases flat from each edge in toward the center of the ski or board at least 3/8", leaving a smaller concave area in the center. This will save base and edge material, and still provide good performance.

FLAT-FILING

Mill files are designed to cut metal (like your steel edges) real well, but aren't sharp or aggressive enough to effectively slice p-tex. To expect otherwise is like trying to carve the Thanksgiving turkey with a pizza cutter...it ain't gonna do a pretty job of it.

This misconception partially stems from prehistoric days before stonegrinding machines were invented. Skis fresh off the production line were promptly run over a belt sander, then shipped off to ski shops. Unfortunately, the process of heating and bonding together such diverse materials as steel edges, epoxy, wood, foam, metal sheets and fiberglass is not as simple as mixing coffee and cream. A curing time is required before everything settles comfortably together...and this process takes awhile.

Anyway, the new skis were still going through curing changes while in transit. By the time they arrived at ski shops, they often had...among other things...high or railed edges. Ski shop mechanics really hated life back then since they didn't have stonegrinders either, but fortunately were tough, stoic blokes, who, sporting abundant scar tissue on their thumbs, spent most of their time hand-filing these edges down "flat" to the level of the p-tex base. This was before the days that base edges were intentionally beveled (although, ironically, they often ended up this way due to heavy-handed filing), and this process was usually referred to as "flat-filing".

Besides being a crummy tool for cutting p-tex, few mill files are absolutely flat. File blanks are usually stamped from steel sheets and often have a slight bow to them so they won't cut "flat". And since you usually grip a file at each end, it tends to bow even more under pressure and therefore won't create a flat base anyway.

If you want a flat base, use the right tools. Plane it with the Skivisions base flattener tool, sand it with silicon carbide paper and a sanding tube or block, scrape it with a sharp steel scraper or get a good stonegrind at your ski shop of choice. You'll get the job done faster and better.

CAMBER

The arch of a ski or snowboard along its length that gives it extra spring (or pop) rebounding out a carved turn. It not only feels really cool, but also can help a racer accelerate through the gates. Nordic skiers appreciate it because camber keeps gripwax or pattern off the snow allowing a smooth glide between kicks.



WAX TOOLS

WAX IRONS

Many of us began our waxing careers with an old clothes iron, and while it did melt wax it also smoked profusely and temperatures tended to fluctuate wildly. Do yourself a favor and get a proper wax iron, lack of steam holes and a more accurate thermostat protect expensive skis and make for a safer, more enjoyable experience.

CHUGGER WAX IRON

This is a great choice for home tuners and will neatly fit nearly any waxbox budget. It features a hefty 3/8"-thick aluminum base that measures 4" x 5". It has an adjustable thermostat, warms up to optimal operating temperature in 5 minutes, and features a heating element that fluctuates only +/- 5°C. 120 volt, 850 watts.



Item #APG-MS256 \$39.95

TOKO T8 WAX IRON

Toko's standard wax iron is both compact and rugged...ideal for home, workshop or traveling. It holds steady temperatures, and is adjustable from 212° to 320°F (100 to 160°C). It features a stout 1/2" thick aluminum base plate measuring 4" x 6". Available in 110 volts or 230 volts. 800W.



Item #TOK-T8 120V \$64.95

Item #TOK-T8EU 230V \$64.95

TOKO T14 DIGITAL WAX IRON

Toko's T14 professional waxing iron features a built-in microprocessor to precisely control temperature fluctuations, and heats up quickly to deliver a working temperature range of 212° to 320°F (100° to 160°C). It also features a digital read-out to continually display the current operating temperature. The compact ergonomic chassis has a pressure-cast aluminum base with diagonal grooves to help distribute wax evenly across the base. The base plate is a 1/2" thick and measures 4" x 6". Offered in a 110 volt or 230 volt model both with a whopping 1200 watts. Includes a padded nylon carrying case.



Item #TOK-T14 120V \$129.95

Item #TOK-T14EU 230V \$129.95

TOKO T18 DIGITAL WAX IRON

Toko's newest professional level ski and snowboard waxing iron. Temperature is regulated by an onboard microprocessor which verifies the set temperature ten-times per second! Heats up quickly to deliver a working temperature range of 90°C to 180°C (194°F to 356°F). A digital readout continually displays the current operating temperature. An 8' long powercord is connected to the side of the iron which helps keep it out of the way. The 15mm thick aluminum base measures 4" x 5.75" (98x148mm) and is ramped toward the rear to simplify powder application. A Toko padded iron cozy is included, it protects the base during storage and allows the iron to be put away warm (if you wait for it to cool completely, you'll wait a long time!) 850watts. The 230V model has a two-prong European plug.



Item #TOK-T18 120V \$399.95

Item #TOK-T18EU 230V \$399.95

SWIX T74 SPORT WAX IRON

Over the years thousands of bases have been waxed with this venerable iron. Simple to use and reliable it is an excellent choice for the home tuner. Features a dial to adjust temperature, and a control light to indicate proper temperature. Includes a removable clip for attaching Fiberlene paper when using the "fast clean iron method" 110 volts. 400 watts.



Item #SWX-T7411 120 volt \$89.95

SWIX T73 PERFORMANCE WAX IRON

This workhorse wax iron features a 8mm thick aluminum base plate to provide long lasting and consistent heat. The sleek design fits nicely in the hand the temp. dial is easily accessed by the thumb. Operating temperature range is 203° to 338°F (95 to 170°C) Cord length is a generous 6 1/2'. The base plate measures 4 1/4" x 5 3/4". 110 volt, 500 watts.



Item #SWX-T7311 120V \$159.95

SWIX ALPINE WORLD CUP T71A DIGITAL WAX IRON

The T71A waxing iron features a built-in micro processor which constantly displays the iron temperature in either Celsius or Fahrenheit. Temperature is regulated at 1°C deviation. The thermostat also features correct temperature settings for all Cera Nova waxes. An advanced ceramic element and massive 25mm-thick steel plate help hold heat and keep temperature fluctuations to a minimum. Half the base is dimpled to help spread wax evenly. Temperature range 176° to 356°F (80 to 180°C). 120 volts, 1000 watts. Includes carrying case and iron cozy.



Item #SWX-T71A 120volt \$464.95

SWIX PETROL BASE CLEANER

Although we usually prefer citric-based wax remover for health and safety reasons, we also offer this extra heavy-duty petroleum-based solvent for removing tough stuff like klister. We recommend applying it sparingly to fiberlene, base tex paper or a lint-free rag to wipe unwanted grime or wax off ski or snowboard bases. Please use with very good ventilation, and not around open flames. 500ml can.



Item #SWX-I64 \$21.95

SWIX CITRUS BASE CLEANER

If we have to use base cleaner we prefer the citrus version, it is not nearly as rough on bases and is better for our health. Use sparingly on fiberlene or a lint-free cloth to remove old wax, dirt and grime from bases and top sheets. A little goes a long way! 500ml can.



Item #SWX-I74 \$21.95

TOKO RACING WAX REMOVER

A liquid wax remover for all types of wax. It is especially useful for removing hi-fluoro waxes and 100% fluoro overlays such as liquids, blocks and powders. Fluoro waxes can be difficult to remove with standard cleaners due to their strong bond with the base, over time their presence in the base can inhibit further wax absorption. 500ml bottle.



Item #TOK-6501 500ml \$34.95

SWIX FLURO WAX REMOVER

Special cleaner for fluoro waxes. Fluoro waxes are resistant to solv-ing with standard citric or petro-leum-based cleaners. Removal of old fluoro components in a base allows for better absorption of subsequent wax layers. Apply cleaner with a lint-free cloth, brush with a white nylon brush while wet, wipe clean and allow to dry for 5-30min. Finally brush with a steel or brass brush and begin re-waxing with base prep wax. Available in 70, 150 or 500ml.



Item #SWX-I84S 70ml \$14.95

Item #SWX-I84M 150ml \$21.95

Item #SWX-I84L 500ml \$34.95

FIBERFREE PAPER

This thin non-woven paper is strong, absorbent, and lint-free. Use it with wax remover to clean dirty bases, sidewalls and topsheets... as well as positioned between your iron and p-tex base when hot waxing to pick up unwanted dirt from your iron, base material or wax bar for faster glide. We offer a variety of brands in different size rolls.



Item #TOK-0004 \$9.95

• Toko Base Tex 6" x 33 yards

Item #SWX-T151 \$7.95

• Swix Fiberlene 5" x 28 yards

Item #SWX-T150 \$13.95

• Swix Fiberlene 9" x 55 yards

FIBERLENE WAXING PAPER

Use a sheet of this lint-free absorbent paper between your iron and the ski or snowboard base during your last tip-to-tail pass when hot-waxing, especially when applying very hard (cold temp) waxes. It helps protect the base from overheating when applying cold waxes, and absorbs the excess wax leaving a thin and uniform wax layer that requires less scraping afterwards. Pack of 100. Sheets measure 5" x 9".



Item #SWX-T153 \$19.95

We offer many of our waxing irons in two voltages, 110 volts and 230 volts. North America operates on 110 volts, most other continents operate on 230 volts. The 120 volt irons have a two-flat-prong plug, the 230 volt irons have a two-round-prong plug. If you live in a 230 volt country with outlets that won't accept the two-round-plug, you can always use a plug adaptor.

WAX TOOLS

PROTECTIVE IRON BASE COZY

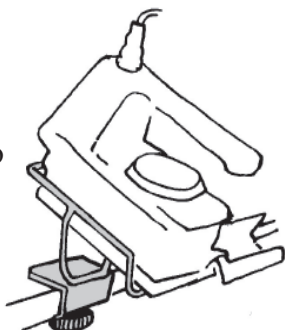
Here's a simple and effective way to help keep your quality wax iron working like new. These nylon, padded adjustable cozies are designed to slip over the base plate of any of our wax irons, protecting the bases from scratches and dings during transport or storage. This helps save your ski or snowboard bases from scratches when hot-waxing.



Item #SWX-R384	Swix (red)	\$29.95
Item #TOK-7130	Toko (yellow)	\$29.95

WAX IRON HOLDER

This steel holder serves as a safe and clean 'perch' for your wax iron (whether hot or not), and easily clamps to workbenches up to 1" thick. It helps keep dirt and grime out of your wax jobs, and works well with our Swix and Toko wax irons.



Item #SWX-T70H	\$39.95
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COVERITE IRON THERMOMETER

Have you ever wondered what temperature your wax iron is operating at? Here's a simple dial thermometer that can tell you. Simply hold the coiled bi-metal element against the base plate of your iron, then read the scale... it measures from 0° to 500°F (0° to 250°C).



Item #GPM-2410	\$9.95
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WAX AND TOOL BOXES

Transport and store valuable waxes, scrapers, and corks safely, securely and conveniently in these wax boxes. Constructed of heavy-duty plastic, with a sturdy, lockable metal clasp (includes two keys) and multiple removable and rearrangeable drawers.



Small boxes measure 13" wide, 11" tall, and 7" deep. Large boxes measure 18" wide, 14" tall and 7" deep. (outside measurements). Various drawer configurations and colors, depending on model. Please check our website for current dimensions.

Item #SWX-T57	Swix Lrg. Box	\$99.95
Item #TOK-7168	Toko Sml. Box	\$89.95
Item #TOK-7169	Toko Lrg. Box	\$99.95

TOKO DIGITAL SNOW THERMOMETER

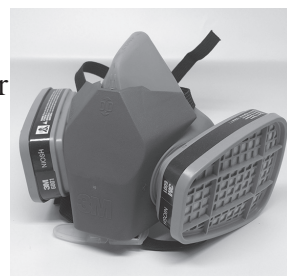
A compact, water-proof thermometer for accurate snow measurements from -40°C to 200°C (-40°F to 392°F). Can be switched from °C to °F. Min/Max function. Probe measures 2.75" (70mm). Handy cap covers probe, when not in use, for safe pocketing. Overall length is 6" (150mm). Uses one LR44 battery (included).



Item #TOK-1001	\$39.95
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PRO-TEC RESPIRATOR

Protect your lungs from wax smoke, wax remover fumes, repair material smoke, etc. This respirator uses two filters to screen out vapors, dust, and smoke. It features a non-allergenic PVC face seal to fit most faces.



Item #SPK-RESP	\$49.95
• Respirator w/filters	
Item #SPK-CART	\$22.95pr
• Replacement filters	

PLEXIGLASS WAX SCRAPERS

These scrapers are precision cut and all four edges are planed smooth, square and straight to efficiently scrape excess wax from ski and snowboard bases. They can be resharpened with a file, sharpening screen or tool. The ski scrapers are 5" or 6" long, 2 3/8" wide and 5mm thick. The snowboard scraper measures 2 3/8" x 12" and is 4mm thick...it's also good for ultra wide powder skis, jumping skis and monoskis. Scrapers sport Tognar, Swix or Toko logos, just pick your favorite team!



Item #APG-SKI	Tognar 6"	\$5.95
Item #SWX-T825	Swix 5"	\$5.95
Item #TOK-3815	Toko 6"	\$5.95
Item #APG-SNBS	Tognar 12"	\$9.95

SWIX PLEXI SCRAPER SHARPENER

This tool can be mounted to a bench top or held in the hand to quickly and effectively sharpen any plastic scraper from 3 to 6mm wide.



The tool accurately guides the scraper along a replaceable 40mm file, imparting crisp, clean edges to dull and ratty scrapers. Works best with ski length scrapers for snowboard scrapers use the World Cup model.

Item #SWX-T408	\$19.95 ea
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ELECTRIC SCRAPER SHARPENER

A dull scraper can make the simple task of removing wax arduous, especially with today's wider boards. We offer manual scraper sharpeners that work well, but if you are looking for a dead simple and efficient way to keep an edge on your scraper, or if you have a family or team worth of skis to scrape, this is the tool to have. We have one on the bench here at Tognar and love it! Simply slide the scraper through the slot and a sharp cylindrical cutting blade (spun by a high speed electric motor) imparts a super-smooth, super-sharp edge in seconds! The tool measures 6" x 3.5" x 2.5" making it compact enough to take on the road. Accepts all Plexiglass scrapers up to 7.6mm in thickness. Made from recycled plastic. Machined and assembled in the USA. The unit itself will operate on any voltage from 110 to 240. Simply indicate the cord-type for your neck of the woods and it will ship with the unit. We offer the various cords for purchase separately as well. If you plan on traveling, simply choose the cord for your destination, plug it in, and you're ready to go. **NOT FOR METAL SCRAPERS!**



Item #MAN-SSSH	Scraper Sharpener	\$159.95
Item #MAN-CDUS	North American cord	\$9.95
Item #MAN-CDEU	European cord	\$9.95
Item #MAN-CDAU	Australia cord	\$9.95

★ **SCRAPER SHARPENER**

Run this tool along plastic wax scrapers to maintain a crisp clean edge. It features 4 different width slots (3, 4, 5 & 6 mm wide), and has a durable ceramic cutting insert that cuts away old wax and plastic scraper material. Using this tool continually, however, can lead to concave scraper edges...so occasionally flatten and sharpen them using our scraper sharpening screen (see below).



Item #TOK-1910	\$29.95
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TOKO WORLD CUP SCRAPER SHARPENER

Sets on a bench top to quickly and effectively sharpen any plastic scraper from 3 to 6mm in thickness. The tool accurately guides the scraper along a replaceable 100mm file, imparting crisp, clean edges to dull and ratty scrapers.



Item #TOK-0008	\$49.95
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TOKO MULTI-EDGE SCRAPER

This handy plastic scraper has round and square groove scrapers and multiple flat edges for removing wax from hard to reach areas. It even sports a dedicated edge for smoothing Klister.



Item #TOK-3817	\$5.95
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PRO-GLIDE WAXING SYSTEM

This tool lets you safely and effectively apply wax without hot waxing. Simply rub a thin layer of your favorite wax on the base, then use this 4" x 1.5" diameter aluminum tube with its high-friction fabric cover, to rub the wax into the base. This tool creates an amazing amount of heat to drive wax deep into bases for great durability and performance. Covers can be cleaned by soaking in hot water. Includes two covers, a brake retaining band and a handy storage tube. Replacement fabric covers are also available, handy when using different waxes that you might want to keep from mixing.



Item #SMD-PRO	Pro-Glide System	\$34.99
Item #SMD-FAB	Replacement fabric	\$8.00

WAX CORKS

Use a cork to rub in wax... rub-a-dub to create heat through friction that melts wax into the base. Use the natural cork for regular block waxes, the kind you could iron in. The synthetic cork creates a higher heat and is good for fluoro blocs and powders (less durable than the natural)



Item #TOK-2626	Toko Natural cork	\$5.95
Item #SWX-T12	Swix Synthetic cork	\$6.95

FLUORO POLISHING BLOCKS

This felt pad is used to apply 100% fluoro powders such as Cera F, Jetstream or Q, as well as buff and polish them to a fine finish on p-tex bases after corking them in. The felt pad is attached to a nicely finished hardwood block and is easily replaceable.



Item #SVT-HWF	Polishing Block	\$12.95
Item #SVT-RFP	Repl. Felt Pad	\$6.95

WAX TOOLS

TOGNAR RECTANGULAR HAND BRUSHES

These quality hand brushes feature solid hardwood handles that measure 3" x 4.75" and feature our Tognar Logo.



★ Item #APG-712 Brass \$19.95

• Use to remove old wax and debris from base prior to hot waxing. Also good for brushing out hard, cold snow waxes.

Item #APG-713 Nylon \$14.95

• Use to remove soft to medium-hard wax from base structure after scraping. This is the brush to have if you only have one.

Item #APG-711 Horsehair \$14.95

• For final polishing of all hot waxes. Gives bases a high luster. Reduces static.

Item #APG-713B Blue Nylon \$14.95

• Soft nylon brush final polishing of 100% fluoro overlays.

Item #APG-716Y Fine Steel \$19.95

• Use this very soft, fine steel bristled brush to remove excess wax (any hardness) from any structure after scraping. It can also be used to polish very hard waxes.

Item #APG-715 Brass/Nylon \$14.95

• Half of this brush is brass and the other half is nylon. Brush out old wax and debris from the base with the brass prior to waxing. Use the nylon to brush excess wax off the base after scraping. Best used with Nordic skis due to narrow width of the brush.

TOGNAR OVAL HAND BRUSHES

Our oval brushes are larger than our rectangular version effectively covering more base with each pass. They also have nylon hand straps for better grip and more power. A good choice for wider skis, snowboards or folks who want to cut down on time spent brushing. All brushes feature a solid hardwood handles with Tognar logo and an adjustable nylon hand strap. The brushes measure 8" x 3.75".



Item #APG-BO722 Brass \$29.95

• To clean old wax from base before waxing, and to remove new hard wax from fine structure.

Item #APG-BO723W Nylon \$24.95

• To remove new soft wax from coarse or medium structures.

Item #APG-BO721 Horsehair \$24.95

• For final polishing of all waxes.

Item #APG-BO723B Fine nylon \$24.95

• For final polishing of 100% fluoro overlays.

SVST RADIAL BRUSHES

These unique brushes feature a rounded bristle profile which enables them to "roll" more naturally through the brushing motion. This loads and unloads bristles for a more focused and powerful brush-stroke, the radial also whisks away wax debris as you move along the ski. Hardwood handles measure 3 1/2" X 6".



Item #SVT-RDNS Nylon Soft \$39.95

• To remove soft wax from coarse or medium structures. Or as a second brush after stiff nylon.

Item #SVT-RDBB Bronze \$44.95

• To clean old wax from bases before waxing, and to remove hard wax from finer structures.

Item #SVT-RDHH Horsehair 18mm \$39.95

• For final polishing of all waxes. Reduces static.

Item #SVT-RDNB Nylon Stiff \$39.95

• Works well with all wax temps and hardness. Use directly after scraping.

Item #SVT-RDBH Brass/Horsehair \$44.95

• To clean old wax from bases before waxing, or brush out hard waxes. Horsehair bristles surrounding the perimeter help reduce static built up by the brass bristles and polish the base.

Item #SVT-RDCK Cork \$19.95

• A very efficient, large area cork for applying hard waxes of fluoro overlays.

SWIX PASTE WAX COMBI BRUSH

This handy brush is designed for more effective application of paste waxes such as the Swix F4, One Ball Jay Viper, or Dominator Momentum. Simply use the felt side to spread and buff the wax into the base, allow the wax to dry for a few minutes then use the blue nylon side to remove excess wax from the structure. This process greatly increases the durability of any paste wax. 2.25" x 3.25"



Item #SWX-T166B \$15.95

DON'T WAX COLD BASES

Make sure P-tex bases are clean and at room temperature (minimum 60° F) before waxing. If too cold, P-tex base molecules have less space between them to properly absorb wax, it can also result in overheating and possibly damaging bases with excessive iron heat.

**RED CREEK
ROTOBRUSHES**

Rotobrushes save time and are very versatile...they can be used to remove wax, uncover base structure, cut away p-tex micro-hairs and polish bases. To operate, slip the desired brush or attachment onto a control handle, clamp the handle into any electric drill, and brush away. All rotobrush and handle brands we offer are interchangeable.



Ski Control Handle

Item #TOK-2547 \$69.95
 • Standard handle (accommodates one 100mm brush) with protective plexi shield

100mm Ski Brushes

Item #TOK-2523 \$99.95
 • 10mm Brass bristles. Use to remove old wax and clean base structure before waxing. It can also be used after hot-waxing and scraping to remove very hard excess wax (very cold snow conditions) from base structure. Use back and forth at medium pace with light pressure at 800rpm, followed by 2 tip-to-tail finishing strokes.

Item #TOK-2531 \$49.95
 • 6mm Horsehair bristles. Use to brush out hard to medium-hard waxes. Use back and forth at medium pace with medium pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #TOK-2529 \$49.95
 • 10mm Soft Nylon bristles. Use for final polishing. Use back and forth at medium pace with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #TOK-2525 \$49.95
 • 4mm Medium Nylon. General use brush, good for removing medium-hard to soft waxes.

Item #TOK-2533 \$49.95
 • Rotocork. Use to cork-in 100% fluoro and soft hydrocarbon waxes (instead of ironing). Use with very light pressure and low (800) rpm's.

Snowboard Control Handle

The snowboard control handle does not have a plexi shield, so wear yer safety glasses! For 300mm brushes only.

Item #TOK-2584 \$69.95
 • Snowboard handle (accommodates one 300mm brush or three 100mm brushes side-by-side) without plexi shield

300mm Snowboard Brushes

Item #TOK-2549 \$89.95
 • 4mm X .12mm medium gray nylon bristles. Use after scraping to remove excess wax from any base structure.

Item #SPK-500313 \$89.95
 • 10mm x .2mm black nylon bristles. Use to remove excess softer (warm snow) waxes from coarser base structures. Also good for polishing.

Item #SPK-500316 \$89.95
 • 6mm x .25mm horsehair bristles. Use to remove excess harder (cold snow) waxes from finer base structures. Also good for final polishing.

SWIX ROTOBRUSHES

Swix offers a broad range of quality rotobrushes. The quick release control handle allows brush changes without removing the control shaft from the electric drill each time...a clever time-saver.



We recommend wearing protective eyewear whenever rotobushing. All brushes and control handle are 100mm long. All rotobrush and handle brands we offer are interchangeable.

Item #SWX-T14HPS \$79.95
 • Control shaft and shield with quick release handle. Shield is removable.

Item #SWX-T14SL \$44.95
 • 210mm shaft to replace the 100mm included with Swix rotohandle. Allows the mounting of two 100mm brushes at the same time, side-by-side.

Item #SWX-T17W \$49.95
 • 5mm X .3mm blue nylon bristles. Use after hotwaxing and scraping to remove excess softer waxes (warmer snow conditions) from medium to coarse base structures. Use back and forth with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #SWX-T16M \$49.95
 • 5mm X .25mm horsehair bristles. Use for final polishing of any waxes. Also use for polishing after applying 100% fluoro overlays (Cera F, Jetstream, Q, etc.). Use back and forth with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #SWX-T18 \$49.95
 • Rotocork. Use to warm Cera F and other 100% fluoro overlays, with very light pressure at 1000rpm.

Item #SWX-T18FC \$49.95
 • Hard Fleece for polishing of Cera F overlay waxes.

Item #SWX-T19S \$99.95
 • Steel refreshing brush. Use to refresh base structure and to remove oxidation.

ROTOBRUSH TIPS

How can you determine the speed (in rpm's) of your drill when rotobushing? A rough guideline to remember is that most cordless drills don't go above 1200rpm, whereas regular electric drills can reach 2500rpm. Use the sound of the drill (compared to how it sounds running full speed) to estimate your speed. If you use a rotocork (or hand cork) to rub in fluoro waxes, try to use separate corks for cold and warm waxes. Any cork gets better as wax gets embedded into it over time. For best results, operate a rotocork at 1000rpm or less. Rotocorks work best for melting in warmer (softer) waxes For more tips, www.tognar.com

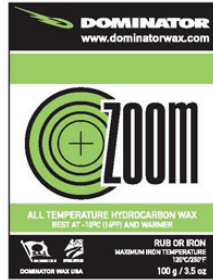
DOMINATOR WAX

DOMINATOR WAX

Dominator is an American-made line of fluorinated performance waxes recognized for their low friction coefficients and high degree of water repellency. They have a handy “virtual technician” online at dominatorwax.com to help you choose which wax to use.

DOMINATOR UNIVERSAL ZOOM WAXES

Unlike traditional universal waxes, these “smart” waxes provide good glide in warmer temperatures, but also harden at colder temperatures to better reduce the increased drag and abrasion of cold sharp snow crystals. This versatility is ideal if you encounter a wide range of temperatures and conditions during the day. It's available in three versions. **Zoom** hydrocarbon is offered with or without graphite (graphite helps resist dirt) and is ideal for recreational riding, instructors and patrollers, it is available in an economical 400gm bar. **HyperZoom** is a lo-fluoro wax suited for race training, junior racing or higher speed recreational cruising. **RaceZoom** is a mid-fluoro wax that'll pick up your pace on days when you want the fastest race or freeriding results. It is offered in a simple to use Old Snow and New Snow version. These waxes work great with a base layer of Dominator ReNew base prep wax, it helps the Zoom waxes bond better for increased the longevity of your wax job.



Zoom

Item #DOM-Z100	100g	\$23.95
• Hydrocarbon Zoom		
Item #DOM-Z400	400g	\$49.95
• Hydrocarbon Zoom		
Item #DOM-Z100G	100g	\$23.95
• Hydrocarbon Graphite Zoom		
Item #DOM-Z400G	400g	\$49.95
• Hydrocarbon Graphite Zoom		

Hyper-Zoom

Item #DOM-HZ40	40g	\$29.95
Item #DOM-HZ100	100g	\$49.95
• Lo-fluoro HyperZoom		

Race-Zoom

Item #DOM-RZ40OS	40g	\$49.95
Item #DOM-RZ100OS	100g	\$89.95
• Mid-fluoro RaceZoom (old snow)		
Item #DOM-RZ40NS	40g	\$49.95
Item #DOM-RZ100NS	100g	\$89.95
• Mid-fluoro RaceZoom (new snow)		

DOMINATOR RENEW WAX

Unlike most traditional base prep waxes these are formulated to deeply penetrate ski or snowboard bases, when they cool they form a hard layer of wax which prevents subsequent glide waxes from mixing with the prep wax (mixing can change the characteristics). Use this as a storage, travel, new base prep or post-stonegrind. Sold in 100 or 400-gram bars in three formulas, regular, with graphite additive and the new Race Renew with SRB added to it for increased antistatic qualities when used on older snow, Race Renew is sold only in 100g.



Item #DOM-RN100	Regular 100gm	\$23.95
Item #DOM-RN400	Regular 400gm	\$49.95
Item #DOM-RN100G	Graphite 100gm	\$23.95
Item #DOM-RN400G	Graphite 400gm	\$49.95
Item #DOM-RR100	RaceRenew 100gm	\$44.95

DOMINATOR HYDROCARBON WAXES

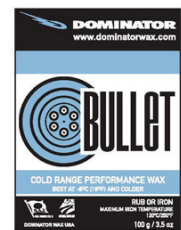
Highly refined hydrocarbon waxes for everyday use, training, base cleaning and travel waxing. Offered in three temperature ranges and two sizes (100g or 400g).



Item #DOM-HX77	100gm	\$23.95
Item #DOM-HX77L	400gm	\$49.95
• -4 to 20°F (-20 to -7°C)		
Item #DOM-HX88	100gm	\$23.95
Item #DOM-HX88L	400gm	\$49.95
• 16 to 32°F (-9 to 0°C)		
Item #DOM-HX99	100gm	\$23.95
Item #DOM-HX99L	400gm	\$49.95
• 26°F & above (-3°C+)		

DOMINATOR BULLET

These waxes are designed to cover the lower range of snow temperatures where it is too cold for the Zoom waxes. Bullet wax works best at snow temperatures of 14F (-10C) and lower, but will work on snow as warm as 22F (-5C) especially if it is icy. Simply apply with Zoom or other base layer as conditions warrant. Sport is non-fluorinated, Race Bullet are fluorinated



Item #DOM-BLLT	Sport 100g	\$27.95
Race-Bullet		
Item #DOM-B40OS	Old Snow 40g	\$29.95
Item #DOM-B100OS	Old Snow 100g	\$49.95
Item #DOM-B40NS	New Snow 40g	\$29.95
Item #DOM-B100NS	New Snow 100g	\$49.95

DOMINATOR ROCKET/RACE ROCKET

We offer two versions of this wax.

Rocket - a broad range mid-fluoro, ideal for freeskiing

or recreational racing.

Race Rocket - also a broad range, mid-fluoro but includes two bars, a gray bar (SRB) for old snow and a black bar (graphite) for new snow. Simply rub the wax onto the base and polish with the included synthetic cork. To extend the life of your Q5 by first applying the black (new snow) Race Rocket, same for Q7, apply the gray (old snow). Rocket sold as 1-20gm bar. Race Rocket sold as 2-20gm bars.



Item #DOM-RKT	1x20gm	\$24.95
Item #DOM-RR	2x20gm	\$44.95

DOMINATOR BUTTER

This highly fluorinated antistatic soft wax is designed for very wet snow at high air temperatures. After the hot wax has been scraped and brushed, Butter is applied by rubbing (either alone or with Q6) then worked into the base with a cork and brushed out. 40-gram bar.



Item #DOM-BT40		\$49.95
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DOMINATOR SRB FLUOROGRAPHITE WAX

These waxes contain Electro-ground Fluorographite Polymers, that have been ground to an extremely fine powder. This substance runs extremely well on snow that has transformed (old snow). Sold in 40gm.



Item #DOM-SRB11C		\$79.95
• 5°F to 20°F (-15° to 7°C)		
Item #DOM-SRB32C		\$79.95
• 20°F (-7°C) and warmer.		

UNIVERSAL WAXES

The most basic and popular formulas are wide-temperature range (universal) waxes. These are versatile, inexpensive, reliable and convenient for recreational riders, patrollers, guides, instructors and others who commonly encounter a wide variety of snow/temperature conditions, and simply need such basic wax benefits as easier turning, decent glide and base durability more than top speed. These waxes are readily available in bar, paste or liquid form.

DOMINATOR VICTORY OVERLAYS

These top-line fluoro overlays are designed for optimal race speed. They cover a wide temperature range and work well for all snow crystal types. Rub a thin layer on base and rub in with a cork.



Q5 - fluoro/graphite block that runs great in new snow.

Q6 - blend of fluorinated and fluorocarbon compounds in block form, is highly versatile, economical to use and the one to buy if you can only buy one.

Q7 - fluoro/SRB block that excels in old snow.

FLASH - (formerly R6) is a fluoro/hydro/anti-static blended paste (wipe-on) that runs well in its temp. range, great for recreational racers.

Item #DOM-FLASH	40gm	\$69.95
• -4 to 14°F (-20 to -10°C) for old snow		
• -5 to 27°F (-15 to -3°C) for new snow		

Item #DOM-Q5	20gm	\$144.95
• 5°F (-15°C) & warmer - new snow		

Item #DOM-Q6	20gm	\$144.95
• 7 to 32°F (-14 to 0°C) for old snow		
• 14 to 32°F (-10 to 0°C) for new snow		

Item #DOM-Q7	20gm	\$144.95
• 5°F (-15°C) & warmer - old snow		

DOMINATOR MOMENTUM PASTE WAX

This pair of fluorinated paste waxes is ideal for the many racers and performance riders. They are formulated for two different snow temperature ranges, but embodies properties of what would amount to several different types of waxes in other systems. We love the Momentum system, because if something changes with conditions up on the hill we can easily adapt with a quick rewax. To apply, spread a thin layer on your base with the included felt pad, wait 10 min, then polish well with a synthetic cork (or nylon stocking) and brush with a finishing brush. 40g jar.



Item #DOM-MNC	40g	\$29.95
• COLD 18° & colder (-8° & colder)		

Item #DOM-MNW	40g	\$29.95
• WARM 18° & warmer (-8° & warmer)		

To get more technical info, or to place an order, visit us on the web.
www.tognar.com

HERTEL WAX

HERTEL WAX

Hertel has been pouring top-notch wax in the USA since 1972. A deceptively simple line of waxes covering the needs of rank amateurs to the pros. If you're looking for a no-nonsense, get-the-job-done wax, Hertel has you covered.

HERTEL SUPER HOT SAUCE

Hertel's Super Hot Sauce is uniquely formulated to work exceptionally well in a broad range of conditions. If you have been searching for one wax to rule them all, this could be the end of your quest! Solid bars can be ironed or corked in. Available in 5oz (a block of 5-one-ounce bars) or one big 3/4lb. block. Made in the USA.



Item #HTL-HS05	5oz solid	\$12.95
Item #HTL-HS12	12oz solid	\$20.95

HERTEL RACING FC739

Hertel's Racing Fluorocarbon 739 wax was developed way back in 1986 and has been winning races, at all levels, ever since. The formula is designed to excel in all conditions from icy cold to water ski warm. Racing 739 also utilizes a new wax formula developed by Hertel (158 Flex) that allows the wax to match the flex of any ski, this keeps wax in the base, where it belongs, and greatly increases wax durability, up to 7-days is the claim. Sold in 5oz (5-one-ounce bars), or one big 3/4lb block. Made in the USA.



Item #HTL-FC05	5oz solid	\$25.95
Item #HTL-FC12	12oz solid	\$55.00

HERTEL SPRING SOLUTION

This fluorinated wax from Hertel is an antidote to the dreaded stop-start condition encountered during springtime. Seems pollen is one of the main culprits of the unexpected over-the-bar tumbles, this wax addresses the pollen issue and much more! Can be ironed on or corked in. Sold in 5oz (5-one-ounce bars). Made in the USA.



Item #HTL-SS05	5oz solid	\$24.95
Item #HTL-SS12	12oz solid	\$54.00

LEARN SKILLS AT SCHOOL

Ski & Snowboard Tuning and Repairs:

Learn all about ski and snowboard tuning and repair at workshops offered each fall at locations all across the country. The Ski & Snowboard Mechanics Workshops are open to the public as well as ski and snowboard shop personnel, and are taught by very experienced and qualified instructors. Go to www.vermontskisafety.com and click "ski & snowboard mechanics".

Boot Fitting: Ski Magazine and Masterfit University take their campus on the road every fall for two-day workshops. Taught by some of the best boot-fitters in the country, they are also open to the public as well as shop personnel. Go to www.masteruniversity.com.

Avalanche Training: Offered every other year, the National Avalanche School is a week-long classroom course, followed by on-slope training. Taught by a staff of over 20 well-known and respected experts in the field, it is the oldest and most popular avalanche course of its kind held in North America.

Go to www.avalancheschool.org

LEARN SKILLS ONLINE

Visit our website at www.tognar.com for a wide range of tuning and waxing tips and video tutorials. You'll also find wax temperature charts, recommended tools and a plethora of other useful information!

Please email us at info@tognar.com if you would like to see something added or have a tip of your own that might help others!

FRICITION

Although friction that occurs between the ski or snowboard base and snow is generally understood as a single entity, it is more accurately described as a sum of 4 components:

- 1) Dry friction...where dry snow particles touch the base.
- 2) Wet friction...when a lot of free water is present, adheres to the base and creates suction.
- 3) Static electricity friction...electric charged generated on base and edges through movement on the snow.
- 4) Dirt friction...when hard dirt particles penetrate the base and snow simultaneously, connecting them and creating drag

-Dominicator Wax

HOLMENKOL WAX

Founded in 1922, Holmenkol is a German wax company located in Stuttgart, just down the street from the Porsche factory, they offer waxes ideal for everything from occasional recreational riding to full-on World Cup racing.

HOLMENKOL HYDRO WAX

These premium hydrocarbon waxes are the foundation of Holmenkol's wax line. They can be used as travel or cleaning waxes, for recreational riding or race training, or as a base layer for any fluoro-carbon additive or powder. They work especially well in conjunction with Holmenkol Fluoro Additive GW25 for weekend racers who want maximum fluoro wax flexibility, convenience and economy.



- | | | |
|--------------------------------------|------|---------|
| Item #HOL-24121 | 150g | \$25.95 |
| • Ultra, -22° to 5°F (-30° to -14°C) | | |
| Item #HOL-24111 | 150g | \$25.95 |
| • Beta, 5° to 18°F (-14° to -8°C) | | |
| Item #HOL-24101 | 150g | \$25.95 |
| • Alpha, 18°F & above (-8°C & above) | | |

HOLMENKOL RACING MIX HIGH FLUORO WAX

Holmenkol racing mixes are highly fluorinated waxes for Alpine or Nordic racing. A simple, but effective three-wax system helps take the guess work out of wax selection. Use with a base wax of Alpha, Beta or Ultra hydrocarbon waxes. Sold in 70g (2x35g bars) or 150g packs.



- | | | |
|--|------|---------|
| Item #HOL-24970 | 70g | \$53.95 |
| Item #HOL-24971 | 150g | \$99.95 |
| • COLD -1° to 14°F (-18° to -10°C) | | |
| • for manmade and abrasive snow conditions | | |
| Item #HOL-24960 | 70g | \$53.95 |
| Item #HOL-24961 | 150g | \$99.95 |
| • MID 14° to 25°F (-10° to -4°C) | | |
| • for fine to coarse, damp snow. | | |
| Item #HOL-24950 | 70g | \$53.95 |
| Item #HOL-24951 | 150g | \$99.95 |
| • WET 32° to 25°F (0° to -4°C) | | |
| • good for fine to coarse, wet snow | | |

HOLMENKOL GW25 FLUORO ADDITIVE

Why didn't someone think of this clever idea before? Mix this fluoro additive with any hydrocarbon wax, from any brand, to turn up performance and speed on race day. When mixed 1:1 (GW25:hydro wax) with a hydrocarbon waxes, it transforms them into a high fluoro wax for high-humidity snow conditions. Mixed 1:3 yields a mid-fluoro wax for mid-range humidity conditions, and mixed 1:4 yields a low-fluoro for low-humidity conditions. A simple, flexible and economical way to add fluoro. 70g (2x35g bars) or 150g bar.



- | | | |
|-----------------|------|----------|
| Item #HOL-24140 | 70g | \$109.95 |
| Item #HOL-24141 | 150g | \$179.95 |

HOLMENKOL SPEEDBLOCK

These 100% fluoro race overlays come in block form for fast and easy rub-on application nearly anywhere...including windy race starts. They can be applied without ironing... simply rub-on, then use elbow grease to melt in using a cork, felt polisher, and brush. Three temperature formulations offered. 15-gram blocks.



- | | | |
|--------------------------------|--|----------|
| Item #HOL-24355 | | \$159.95 |
| • Cold 5 to 23°F (-15 to -5°C) | | |
| Item #HOL-24353 | | \$159.95 |
| • Mid 14 to 28°F (-10 to -2°C) | | |
| Item #HOL-24351 | | \$159.95 |
| • Wet 23 to 32°F (-5 to 0°C) | | |

HOLMENKOL SPEEDFINISH 2.0

Holmenkol Speedfinish is a 100% fluoro, liquid wax overlay that provides maximum acceleration, glide, durability, and dirt repellency. The liquid formulation allows full base coverage, and penetrates down to the bottom of the deepest base structure. Simply spray evenly onto the base, allow the liquid to dry and polish with a felt block or lint-free cloth. Three temperature ranges are offered in 1.7oz (50ml) spray applicators.



- | | | |
|-----------------------------------|--------------|----------|
| Item #HOL-24368 | Cold formula | \$179.95 |
| • 5° to 23°F (-15° to -5°C) | | |
| Item #HOL-24367 | Mid formula | \$179.95 |
| • 14° to 28°F (-10° to -2°C) | | |
| Item #HOL-24366 | Wet formula | \$179.95 |
| • 28°F and above (-2°C and above) | | |

HOLMENKOL WAX

HOLMENKOL SPEEDPOWDER HYBRID

These 100% perfluorocarbon powder overlays offer outstanding durability and speed with wide temperature ranges. They work with any snow type, just match the snow temperature, cork or iron in, brush out and hold on! Three temperature formulations are offered.

25-gram shaker.



Item #HOL-24331 \$269.95

• Cold -13 to 7°F (-25 to -14°C)

Item #HOL-24333 \$269.95

• Mid 5 to 28°F (-15 to -2°C)

Item #HOL-24335 \$269.95

• Wet 25 to 32°F (-4 to 0°C)

CHOOSING AN OVERLAY

Overlays, or topcoats are 100% fluoro waxes intended as the final layer on top of the waxes already melted into the base. They provide increased acceleration and glide, especially when the snow is wet and humidity is high. Overlays come in solid, liquid and powder forms. Perhaps the most economical are the solids which are rubbed in a thin layer onto the base and corked in by hand or with a rotocork, solids are pretty easy to apply on-hill too as they are unaffected by wind. Liquids are easy to apply and tend to provide excellent coverage, these too can be economical depending on your liquid choice and application technique. Powders are the trickiest to use but can be very durable, especially if ironed in (they require high temperatures so be aware of base burn and wear a respirator). Powders can also be corked in with a rotocork and provide good results.

GRAPHITE & MOLYBDENUM

Use graphite or molybdenum wax when humidity is low, the snow is fine-grained and temperatures are cold to enhance the static-reducing benefits of graphite bases. It also helps keep bases cleaner in old snow by reducing static "cling" that attracts and picks up contaminants such as dirt, ash, lubricants and pollen, as well as better equalizing heat build-up on bases that can increase suction.

OXIDATION

The "drying-out" of a p-tex base that occurs when it is left unprotected by wax and exposed to air. On metal, oxidation appears as rust...on p-tex, it appears as a whitish, dry area. Oxidation reduces wax absorption and gliding performance, and can only be removed by scraping, sanding or grinding the base.

DON'T LET A GOOD TOOL

GO BAD!

**A clean tool is a happy tool.
Here's some care and feeding tips...**

Ceramic Stones- scrub gently with a brass Supertooth brush (on p.28), using Comet or Ajax cleanser with water, or vinegar and water to cut away grime.

Diamond Stones- scrub gently with a nylon Supertooth brush (on p.25), along with a little wax remover or Ronson lighter fluid.

Steel files- clean frequently with a file brush (on p.25), and rub a little chalk into file teeth occasionally.

Plastic Scrapers- wipe away wax build-up frequently using a steel scraper, ski edge, etc. Resharpener with a pansar file, sanding screen or sharpening tool (p. 33).

Steel Scrapers- keep sharp using a flat file and burnisher (p. 11).

Aluminum Oxide & Hard Stones- gently lap face of stone with a coarse (black) diamond stone...but do not use too much pressure or you'll greatly accelerate wear on the diamond stone..

Base Repair Irons & Pistol- keep tips clean by wiping on an old scotchbrite pad while still warm.

Riller Bars/Structure Tools- clean out teeth and ridges on structure bars/blades with a brass brush (on p.25).

Wax Irons- wipe off wax and any dirt from the bottom of warm iron (not hot) with a soft, clean rag or old t-shirt (preferably not on someone's back at the moment).

Wax Brushes- Pour some base cleaning solvent in an old bread pan, set your brush bristles down in it and let stand for 15 minutes, then rinse clean with warm water.

Scotchbrite, Fibertex, Omni-Prep Pads- Rinse pads under hot water (180 °F) to melt away wax.

SIDEWALL PLANING

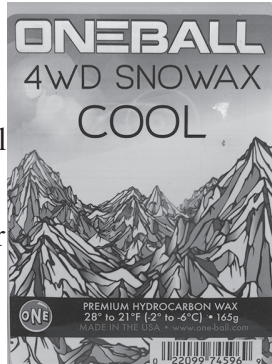
A sidewall planer is designed to remove excess material from the lip (just above the edge) of the sidewall. This material gums-up files and reduces efficient filing. But, it is also an integral part of the ski structure so care must be taken to not remove too much. Remove just enough that the file can cleanly address the edge and no more. Generally one or two passes.

ONE BALL

Born way back in '86 One Ball is still cranking out top notch American made waxes. Whether you race, ride pipe or just slay it on a daily basis One Ball has you covered.

OBJ 4WD WAX

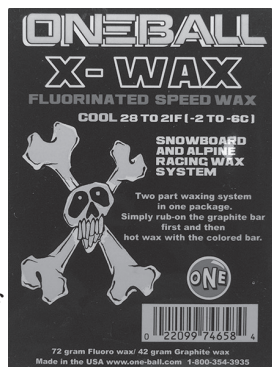
Temperature-specific hydrocarbon waxes perfect for all-around riding. Chances are you'll only need a couple for your region. They can be applied by hot-waxing, or by rubbing-on and corking-in with lots'a elbow grease. 165 grams.



- Item #OBJ-W4I Ice (165g) \$9.95
• 12°F & below (-11°C & below)
- Item #OBJ-W4CL Cold (165g) \$9.95
• 12 to 23°F (-11 to -5°C)
- Item #OBJ-W4C Cool (165g) \$9.95
• 21 to 28°F (-6 to -2°C)
- Item #OBJ-W4W Warm (165g) \$9.95
• 26°F & above (-3°C & above)

OBJ X-WAXES

X-Waxes are a temperature specific group of high-end fluorinated waxes that offer race performance without the price of full-blown race waxes. A step above the 4WD waxes. Each wax includes a 42 gram bar of graphite wax. Simply rub on the graphite wax first, then drip and iron in the colored X-Wax and you have a fast and durable combo. 72grams X-Wax + 42grams Graphite.



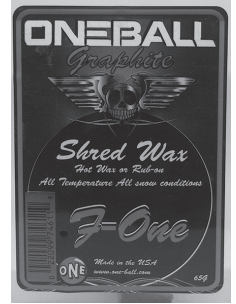
- Item #OBJ-WXI X-Cold \$17.50
• 12°F & below (-11°C & below)
- Item #OBJ-WXCL Cold \$17.50
• 12°F to 23°F (-11°C to -5°C)
- Item #OBJ-WXC Cool \$17.50
• 21°F to 28°F (-6°C to -2°C)
- Item #OBJ-WXW Warm \$17.50
• 26°F & above (-3°C & above)

DON'T BURN BASES!

Hot irons should never come in contact with dry or unwaxed base material or you can seriously burn and damage it. To avoid this, drip or rub on enough wax before ironing, too much is better than too little. Also make sure the iron is set to the correct temperature for the wax you are using, most waxes have suggested iron temperature printed on the packaging.

OBJ BLACK MAGIC GRAPHITE

An all-temperature hydrocarbon wax with fluoro-polymer graphite additive. Use it when snow is dirty, or in very dry snow conditions for optimal performance. We recommend rubbing it on your base (like a crayon), then dripping on your regular wax of the day before hot-waxing both in together. 65 grams.



Item #OBJ-WBMB

\$9.95

OBJ BLACK SUMMER SLUSH

This wax is specifically designed to combat late season snow conditions and it really does a great job! Contains graphite to resist dirt, pollen, cat grease, etc. Silicone is added for hydrophobic qualities (helps glide better in wet, sloppy snow). If you're tired of the stop-and-go common to Spring riding, try this wax. 150 grams.



Item #OBJ-SLUSH

\$11.95

OBJ UNIVERSAL F-I WAX

This is an all-temperature, all condition wax that can be hot-waxed using a waxing iron or rubbed-on with a cork. A versatile wax, that is easy to use and priced right! 130 grams.



Item #OBJ-WFR

\$8.95

COLD SNOW = POOR GLIDE

Cold snow is usually dry snow...in fact, somewhere around -20°F (-30°C), snow feels more like beach sand and bases are really slow...whether correctly waxed or not. Warmer temperatures usually create more moisture in the snowpack, which provides greater lubricity and helps the base slide...up to a point, since too much water creates suction that again slows your glide. Ideal glide usually occurs at temperatures just below freezing (28 to 30°F, or -2 to -1°C...depending on the moisture content).

Tests conducted by the Ski Research Group at Eagle River Nordic in Wisconsin (using nordic skis gliding downhill through a speed trap on a 12° slope) produced the following results:

Snow Temp Glide Speed % Difference

Snow Temp	Glide Speed	% Difference
28°F	18mph	-
20°F	17mph	5% slower
10°F	15mph	11% slower
-4°F	12mph	33% slower
-10°F	8mph	56% slower

PURL WAX

PURL WAX

Made in Summit County, Colorado. Purl wax offers a unique line of non-fluoro waxes to meet any condition you're likely to find. A longtime favorite among discerning skiers and boarders.

PURL MICRO-CRYSTALLINE WAX

These waxes have a unique ultrafine crystalline structure which provides superior adhesion to base material and increased flexibility to resist wax breakdown from heat, static and friction. The Spring wax contains a silicone additive for increased glide in wet snow and high humidity conditions. The All-temp. is the go-to wax for most winter days. The graphite works well as an underlayer to any wax in extremely cold or icy snow. Use the Sub-Zero for man made snow or extreme icy conditions. Sold in one-pound bricks. Made in the USA.



Item #PRL-MGN1 1 lb sub-Zero \$19.95
• -10° to 5°F (-23° to -15°C) Green
• Good for cold, aggressive conditions, man made

Item #PRL-MBL1 1 lb winter \$19.95
• 5° to 20°F (-15° to -7°C) Blue
• Good for cold winter conditions

Item #PRL-MPR1 1 lb all-temp. \$19.95
• 5° to 35°F (-15° to 2°C) Purple
• Extremely wide temp. range

Item #PRL-MYL1 1 lb spring \$19.95
• 20° to 35°F (-4° to 1°C) Yellow
• With silicone additive for high humidity, spring

Item #PRL-GR1 1 lb graphite \$24.95
• Graphite wax
• Anti-static all temperature

CALIBRATING A WAX IRON

To calibrate your wax iron, give it 10 minutes or more to warm up, then check the temperature with our iron temperature platform or coverite thermometer. When the heat sensor (thermocouple) in the iron clicks off, the temperature will drop slightly, then climb again (probably a few degrees warmer than last time), when it re-engages. After you see this take place 3 or 4 times, your iron has probably reached the maximum temperature for that particular thermostat setting. Record both this setting and temperature for future reference. By taking a reading whenever you change your iron setting and keeping a record of the melting temperatures of your favorite waxes, you'll be able to keep the iron at the safest optimal temperature to get the deepest wax absorption while minimizing the possibility of base damage. Check your iron calibration periodically since the operating temperature will change as the iron's thermocouple gets older.

-courtesy of Sun Valley Ski Tools

CHOOSING THE RIGHT WAX

Consider some of the following conditions before deciding on the best wax of the day.

1) Snow Temperature- measure this with a thermometer inserted within the top 1/4" of the snowpack for accurate results...this will usually determine which temperature range wax to use.

2) Air Temperature-if the air temperature is significantly warmer than the snow temperature, it will tend to warm up the snow, which can affect your choice of wax by race start time.

3) Air Humidity- this will determine if you want to race using low, medium or high fluoro waxes...the higher the humidity, the higher you usually want the fluoro content to be.

4) Snow Crystals- if snow crystals are sharp, you need a harder wax to prevent them digging into the base and creating drag. If crystals are rounder and wetter, a softer wax will provide greater water repellency and faster glide.

5) Wind- if the air is dry, wind will tend to decrease moisture in the snow...whereas if it's foggy or moist, wind can add moisture to the snow.

6) Solar Exposure- if critical flat sections are in the shade, wax colder...and if in the sun, wax warmer.

7) Miscellaneous- there's always more considerations you can factor in, such as graphite additives to combat static conditions in dry snow, wax hardeners for abrasive ice or manmade snow, etc. How far you want to take it is up to you...but at least pay careful attention to the first 3 or 4 factors.

HUMIDITY AND FLUORO WAXES

Low fluoro wax should be used for low humidity conditions, mid fluoro wax for medium (normal) humidity, and high fluoro wax for higher humidity. Unfortunately, wax companies have different standards of humidity levels, as you can see below...

Humidity	Swix/Holmenkol	Toko	Dominator
Low	0-50%	0-40%	0-25%
Medium	50-70%	40-70%	25-65%
High	70-100%	70-100%	65-100%

But rather than getting confused, you can just use the trusty old snowball method to determine humidity... If you can't make a snowball, it's usually low humidity conditions. If you can make a snowball, it's usually medium humidity. If you make a snowball and it's wet and soggy, it's usually high. This is a greatly simplified seat of the pants method, but works well for most folks.

SWIX

Swix is a Norwegian wax manufacturer that began in 1947 with a series of waxes based on synthetic raw materials rather than traditional natural products. The original Swix waxes had no color, so Swix elected to color-code their waxes using cool colors for cold snow and warm colors for warm snow. This color coding system was eventually adopted by most wax suppliers and is still common today.

SWIX UNIVERSAL WAX

Universal wax is ideal for recreational riders who need a general use wax; ski patrollers, instructors and other professionals out in a wide variety of snow conditions and families, clubs or groups where the simplicity and economy of bulk waxing is a consideration. It's a great choice for the variable conditions often found in the backcountry. We offer it in a 180g or an economical 900g (5x180g bars) all-temperature universal formula, we also offer it in a cold formula (only available as 900g. The cold formula is good for folks that find themselves often on more aggressive snow conditions, such as man-made or sheet ice.



Item #SWX-U180	180gm Univ.	\$16.95
Item #SWX-U900	900gm Univ.	\$49.95
Item #SWX-U900C	900gm Cold	\$49.95

SWIX F4 UNIVERSAL WAX

F4 is a step-up from standard non-fluoro universal waxes. The addition of fluoro increases glide in wetter snow conditions (conditions in which a solid, or sloppy snowball can be made), and also helps to reduce base contaminants in dirty snow (late season) The paste formula is great for traveling without a wax iron, or to wax a dry base when out on the hill. Solid bars can be rubbed-on with a cork or hot waxed with a waxing iron.



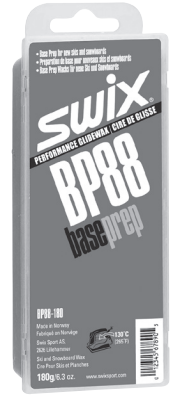
Item #SWX-F440		\$12.95
• Rub-on paste: 40ml tin (shoe polish sized tin)		
Item #SWX-F4180	180gm bar	\$25.95
Item #SWX-F4900	900g (5x180g bars)	\$119.95

WAX CONSUMPTION

As a general rule, it takes 15 to 20 grams (1/2 oz) of wax to hot wax a pair of alpine skis...less for nordic and more for fat boards or snowboards. If you rub and cork in wax, it only takes about 1/2 this amount or less. Reminder...30 gr = 1 oz.

SWIX BASE PREP WAX

Base-Prep waxes are intended as a base layer for glide waxes and for preparing new ski bases. Low melt temperatures ensure excellent penetration deep into bases providing a solid foundation for subsequent wax layers. BP88 is an all-around prep wax for "normal" winter conditions 0°C to -10°C (32°F to 14°F), it is a great foundation and travel wax and the one which will get the most use.



BP99 is intended as a first wax on new skis, the low melt point helps bases become accustomed to hot irons. BP99 is also an excellent hot-box wax. Both waxes are offered in 180g bars or 900g boxes (5x180g bars).

Item #SWX-BP8818	BP88 180g	\$26.95
Item #SWX-BP889	BP88 900g	\$89.95
Item #SWX-BP9918	BP99 180g	\$26.95
Item #SWX-BP999	BP99 900g	\$89.95

SWIX CHX WAX

These are high-quality temperature-specific hydrocarbon waxes that work well on any ski or snowboard base. Perfect for everyday riding or training or as a base layer for LF or HF waxes. CH10 is soft enough to use as "hot-scrape" wax. CH5 was added as an alternative to the somewhat difficult to scrape CH4. Available in 180 or 900g packs.



Item #SWX-CH4X18	180gm	\$31.95
Item #SWX-CH4X9	900gm	\$89.95
• -25° to 10°F (-32° to -12°C)		
Item #SWX-CH5X18	180gm	\$31.95
Item #SWX-CH5X9	900gm	\$89.95
• 7° to 18°F (-14° to -8°C)		
Item #SWX-CH6X18	180gm	\$31.95
Item #SWX-CH6X9	900gm	\$89.95
• 14° to 23°F (-10° to -5°C)		
Item #SWX-CH7X18	180gm	\$31.95
Item #SWX-CH7X9	900gm	\$89.95
• 18° to 28°F (-8° to -2°C)		
Item #SWX-CH8X18	180gm	\$31.95
Item #SWX-CH8X9	900gm	\$89.95
• 25° to 39°F (-4° to 4°C)		
Item #SWX-CH10X18	180gm	\$31.95
Item #SWX-CH10X9	900gm	\$89.95
• 32°+F (0°+C)		
Item #SWX-CH12XA9	900gm	\$89.95
• 5x180gm bars: CH5(x2), CH6, CH7, CH8		
Item #SWX-CH12XN9	900gm	\$89.95
• 5x180gm bars CH5, CH6, CH7, CH8, CH10		

SWIX WAX

SWIX LFX WAX

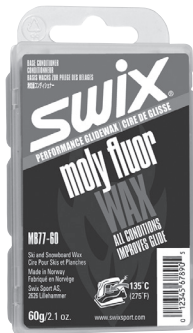
These low fluorocarbon waxes offer a wide temperature range, greater durability, better water and dirt repellency than a pure hydrocarbon wax. They're a good choice for race training in nearly all conditions, or on race days when the humidity is low. They can be used alone, or overlaid with a high fluoro wax or 100% fluoros like Cera F. Available in 60, 180 or 900 gram bars.



Item #SWX-LF4X6	60gm	\$27.95
Item #SWX-LF4X18	180gm	\$69.95
Item #SWX-LF4X9	900gm	\$269.95
• -25° to 10°F (-32° to -12°C)		
Item #SWX-LF5X6	60gm	\$27.95
Item #SWX-LF5X18	180gm	\$69.95
Item #SWX-LF5X9	900gm	\$269.95
• 7° to 18°F (-14° to -8°C)		
Item #SWX-LF6X6	60gm	\$27.95
Item #SWX-LF6X18	180gm	\$69.95
Item #SWX-LF6X9	900gm	\$269.95
• 14° to 23°F (-10° to -5°C)		
Item #SWX-LF7X6	60gm	\$27.95
Item #SWX-LF7X18	180gm	\$69.95
Item #SWX-LF7X9	900gm	\$269.95
• 18° to 28°F (-8° to -2°C)		
Item #SWX-LF8X6	60gm	\$27.95
Item #SWX-LF8X18	180gm	\$69.95
Item #SWX-LF8X9	900gm	\$269.95
• 25° to 39°F (-4° to 4°C)		
Item #SWX-LF10X6	60gm	\$27.95
Item #SWX-LF10X18	180gm	\$69.95
Item #SWX-LF10X9	900gm	\$269.95
• 32°+F (0°+C)		
Item #SWX-LF12X6	60gm	\$27.95
• Includes 20gm each of LF6, LF7 and LF8		
Item #SWX-LF12X9	900gm	\$269.95
• 5x180gm bars LF5 (x2), LF6, LF7, LF8		

SWIX MOLY FLUORO WAX

This is a fluorinated hydrocarbon wax with molybdenum added. It is designed for use in dirty snow conditions to help repel contaminants that decrease glide. The wax can be used alone or as a base for other waxes such as Swix HF. It is a great choice for late season conditions. Sold in 60 and 180g bars and 900g boxes (5x180g bars).



Item #SWX-MB776	60gm	\$27.95
Item #SWX-MB7718	180gm	\$67.95
Item #SWX-MB779	900gm	\$279.95

SWIX HFX WAX

Swix HFX waxes have a high fluoro content, excellent durability, water repellency and dirt resistance. They work well alone, mixed with other Swix Fluoro waxes or overlaid with Cera F. Sold in 40 or 180 gram bars.



Item #SWX-HF4X4	40gm	\$79.95
Item #SWX-HF4X18	180gm	\$279.95
• -25° to 10°F (-32° to -12°C)		
Item #SWX-HF5X4	40gm	\$79.95
Item #SWX-HF5X18	180gm	\$279.95
• 7° to 18°F (-14° to -8°C)		
Item #SWX-HF6X4	40gm	\$79.95
Item #SWX-HF6X18	180gm	\$279.95
• 14° to 23°F (-10° to -5°C)		
Item #SWX-HF7X4	40gm	\$79.95
Item #SWX-HF7X18	180gm	\$279.95
• 18° to 28°F (-8° to -2°C)		
Item #SWX-HF8X4	40gm	\$79.95
Item #SWX-HF8X18	180gm	\$279.95
• 25° to 39°F (-4° to 4°C)		
Item #SWX-HF10X4	40gm	\$79.95
Item #SWX-HF10X18	180gm	\$279.95
• 32°+F (0°+C)		
Item #SWX-HF12X4	40gm	\$79.95
• Includes 20gm each of HF7 and HF8		

SWIX HFBWX WAX

Black Wolf waxes are Swix HFX waxes, but with the addition of the "secret" Black Wolf solid, (a shear-type lubricant... graphite, galium, moly?). Use it on high humidity days on old snow, or when racing on man made snow. Man made snow is usually pumped out of open resevoirs, the resulting "snow" has a very high moisture content and is often chock-full of contaminants (dirt, pollen, etc.). This wax can be used alone, or with Cera F or similar 100% fluoro overlays. Sold in 40 gram bars.



Item #SWX-HFBWX4	40gm	\$79.95
• -25° to 10°F (-32° to -12°C)		
Item #SWX-HFBWX5	40gm	\$79.95
• 7° to 18°F (-14° to -8°C)		
Item #SWX-HFBWX6	40gm	\$79.95
• 14° to 23°F (-10° to -5°C)		
Item #SWX-HFBWX7	40gm	\$79.95
• 18° to 28°F (-8° to -2°C)		
Item #SWX-HFBWX8	40gm	\$79.95
• 25° to 39°F (-4° to 4°C)		
Item #SWX-HFBWX10	40gm	\$79.95
• 32°+F (0°+C)		

SWIX CERA F POWDERS

This is the stuff to use for fastest acceleration and speed on most race days. Swix Cera F is a 100% fluorocarbon “wax” that is extremely water-repellent (hydrophobic), minimizes friction (30% less than Teflon), resists dirt or pollen, bonds easily to bases, and comes in different formulations for a wide range of race conditions. Cera F can be applied by hand with a synthetic (divinucell)



cork for any alpine race and nordic races of 10km or less...or ironed in for greater durability on longer courses. For best results, apply Cera F atop a base layer of fluoro wax that has previously been ironed in, scraped and brushed. For quick re-application on a race course, simply apply a little Cera F on the base and cork it in. Follow all Cera F applications using a polishing brush and pad. It works equally well on snowboards, alpine or nordic skis. If ironing in, watch your iron temperature and be sure to wear a respirator.

Item #SWX-FC78 30 grams \$169.95
 • 10°C to -10°C (50°F to 14°F). For transformed, old snow. Highly durable on man made snow. Iron setting 165°C (320°F).

Item #SWX-FC4X 30 grams \$139.95
 • -10°C to -20°C (14°F to -4°F). Minimizes dry friction in very cold conditions. Iron setting 165°C (330°F).

Item #SWX-FC5X 30 grams \$139.95
 • -3°C to -15°C (27°F to 5°F). Best for transformed snow, but runs well on new too. Iron setting 160°C (320°F).

Item #SWX-FC6X 30 grams \$139.95
 • -1°C to -10°C (30°F to 14°F). For new and fine grained snow. Iron setting 165°C (330°F).

Item #SWX-FC7X 30 grams \$139.95
 • 2°C to -6°C (36°F to 21°F). For normal winter conditions around freezing and lower. Iron setting 160°C (320°F).

Item #SWX-FC8X 30 grams \$139.95
 • -3°C to 4°C (39°F to 25°F). Runs well in all snow conditions both sides of freezing. Iron setting 165°C (330°F).

Item #SWX-FC10X 30 grams \$139.95
 • 0°C to 15°C (32°F to 59°F). For spring, melting snow. Iron setting 170°C (338°F).

SWIX CERA F SOLIDS

Cera F Turbos are sintered blocks of 100% fluoro powders. Use them over Cera Nova Waxes (LFX or HFX) for greater acceleration. The consistency of the block is designed to make rubbing-on easier. To apply; rub a thin layer on the base, cork it in and polish with a soft nylon brush. Sold as 20g blocks.



Item #SWX-FC6XS Cold \$99.95
 • 2°C to -15°C (36°F to 5°F).

Item #SWX-FC8XS Warm \$99.95
 • -2°C to 15°C (28°F to 59°F).

SWIX CERA F HVC

High Velocity Cera (HVC) is a new fluorinated liquid topping for use as the final layer when waxing for top-level competitions. Use on top of LF or HF waxes for best results. 50ml container with sponge applicator, the Swix catalog claims 5-6 pairs of alpine skis, we have heard claims of 15+ pairs...so lots of applications we think. Just apply a thin layer and allow to dry, no brushing or polishing needed.



Item #SWX-FC60L Cold \$159.95
 • 2°C to -10°C (36°F to 14°F). Works best in high humidity on the cold side, and in all humidities on the warm side. For new and old snow.

Item #SWX-FC80L Warm \$159.95
 • -2°C to 10°C (28°F to 50°F). Works best in above 70% humidity. For new or old snow.

SWIX CERA F ROCKET SPRAY

Liquid waxes are the most economical way to take advantage of Cera F performance. Easy to use, simply spray evenly onto the base, allow it to dry and buff with a cork or felt pad. A little goes a long way. Both formulas work best in higher humidity conditions and can be applied over the top of LF or HF waxes. They can also be used on top of powder overlays to offer a bit more initial acceleration. Offered in two formulas, COLD is designed for +2°C to -10°C (36°F to 14°F). WARM is designed for +4°C to -4°C (40°F to 25°F). Rocket is a great choice for junior or citizen racers looking for excellent performance without breaking the bank. 70ml spray bottle.



Item #SWX-FC8A WARM \$99.95

Item #SWX-FC6A COLD \$99.95

Want help choosing what Swix wax to use today?
 Go to **Swix Wax Wizard** at
www.swixsport.com/waxwiz.htm

SWIX WAX

SWIX NORDIC KICK WAXES

Swix kick waxes provide grip underfoot on classic (diagonal-stride) nordic skis. Available in a hydrocarbon selection, or in the Krystal fluorocarbon selection for better glide and durability, greater dirt repellency, wider temperature range, and reduced risk of icing. All kick waxes are either rubbed-on and corked-in, or ironed onto, the "wax pocket" area found underfoot on the ski base. A base layer binder wax is also available for greater wax durability in abrasive snow conditions. 45g.



Basebinder

- Item #SWX-VG35 \$14.95
- New/Old snow -7° to 30°F (-22° to -1°C)
 - Base layer for all kick waxes in abrasive conditions.

Hydrocarbon selection

- Item #SWX-V05 Polar \$9.95
- New snow -12° to 10°F (-25° to -12°C)
 - Old snow -22° to 5°F (-30° to -15°C)
 - Excellent base wax for wooden base skis.

- Item #SWX-V20 Green \$9.95
- New snow 5° to 18°F (-15° to -8°C)
 - Old Snow 0° to 14°F (-18° to -10°C)
 - Excellent base wax for wooden base skis.

- Item #SWX-V40 Blue Extra \$9.95
- New snow 19° to 30°F (-7° to -1°C)
 - Old Snow 14° to 27°F (-10° to -3°C)

- Item #SWX-V45 Violet Special \$9.95
- New snow 27° to 32°F (-3° to 0°C)
 - Old Snow 21° to 28°F (-6° to -2°C)

- Item #SWX-V55 Red Special \$9.95
- New snow 32° to 34°F (0° to 1°C)
 - Old Snow 28° to 32°F (-2° to 0°C)

- Item #SWX-V60 Red/Silver \$9.95
- New snow 32° to 37°F (0° to 3°C)
 - Old Snow 30° to 34°F (-1° to 1°C)

Krystal fluorocarbon selection

- Item #SWX-VR30 Light blue \$17.95
- New snow -4° to 19°F (-20° to -7°C)
 - Old snow -22° to 14°F (-30° to -10°C)

- Item #SWX-VR40 Blue \$17.95
- New snow 18° to 28°F (-8° to -2°C)
 - Old snow 10° to 25°F (-12° to -4°C)

- Item #SWX-VR45 Light violet \$17.95
- New snow 28° to 34°F (-2° to 1°C)
 - Old snow 23° to 32°F (-5° to 0°C)

- Item #SWX-VR50 Violet \$17.95
- New snow 32° to 36°F (0° to 2°C)
 - Old snow 27° to 32°F (-3° to 0°C)

- Item #SWX-VR60 Silver \$17.95
- New snow 32° to 36°F (0° to 2°C)
 - Old snow 28° to 34°F (-2° to 1°C)

- Item #SWX-VR70 Yellow \$17.95
- New snow 36° to 41°F (2° to 5°C)

SWIX KLISTERS

Swix klisters provide the grip you need underfoot on classic nordic skis for corn, icy, granular or slushy old snow conditions. We offer a selection of classic hydrocarbon klisters, as well as the fluorinated Krystal line. 55gm tubes.



Classic selection

- Item #SWX-KB020 Green Spray \$15.95
- Base binder layer for abrasive conditions, apply regular klisters on top. 70ml spray can.

- Item #SWX-K22 VM Universal \$15.95
- 27° to 50°F (-3° to 10°C)
 - For coarse granular snow from wet to crusty.

- Item #SWX-K21S Silver \$15.95
- 23° to 38°F (-5° to 3°C)
 - For frozen and wet corn, and transformed fine grained corn. Both sides of freezing.

KX Selection

- Item #SWX-KX20 Green Base \$14.95
- Serves as base binder under other klisters.

- Item #SWX-KX30 Blue Ice \$14.95
- 10° to 32°F (-12° to 0°C)
 - For frozen icy tracks in cold conditions...also serves as base layer under wet snow klisters in abrasive conditions

- Item #SWX-KX35 Violet Special \$14.95
- 25° to 34°F (-4° to 1°C)
 - For transformed cold, coarse snow starting to get wet.

- Item #SWX-KX45 Violet \$14.95
- 28° to 39°F (-2° to 4°C)
 - All around klisters for wet, coarse snow as well as frozen corn snow.

- Item #SWX-KX65 Red \$14.95
- 34° to 41°F (1° to 5°C)
 - For wet and moist, coarse corn snow.

- Item #SWX-KX75 Red Extra \$14.95
- 36° to 59°F (2° to 15°C)
 - Wet snow & slush klisters.

SWIX COLD POWDERS

Sprinkle some of this ultra-hard powder wax on your base (or at least along both edges) immediately after hot-waxing with your wax of the day...then iron both waxes in together. It helps protect the base in very cold and abrasive (icy, manmade) snow against base burn. Available with or without fluoro. 30g shaker.



-25° to 14°F (-32° to -12°C)

- Item #SWX-CH3X Hydrocarbon \$26.95

- Item #SWX-LF3X Lo-fluoro \$34.95

TOKO

Toko is a Swiss company founded in 1916 that makes an easy to use selection of high quality hydrocarbon and fluorocarbon waxes for skiers and snowboarders.

TOKO UNIVERSAL GLIDE WAX

Universal wax is like aspirin...it serves the needs of nearly all skiers or snow-boarders, and performs well in almost all snow conditions. Rub or melt it onto bases as a glide wax, travel wax or storage wax. Good for waxing a lotta skis or boards for the family or club...or as a cleaning wax using a 'hot scrape' technique. Good, affordable, versatile stuff.



- Item #TOK-2006 \$12.95
• 120gm (6-8 applications)
- Item #TOK-0163 \$49.95
• 1.25kg (50+ applications)
- Item #TOK-0167 \$89.95
• 2.5 kg (100+ applications)

TOKO NF HYDROCARBON WAX

These hydrocarbon waxes are the foundation of the Toko wax line. They can be used alone or mixed together for any recreational riding or race training needs. They also work as a good base wax for low or high fluoro waxes. Simple 3-wax system. Mix in the black wax with DLC additive to combat friction encountered in dirty snow. The hot box and cleaning wax is a super low melt temperature wax that penetrates deep into bases. Use with a hot box to saturate bases, or as a cleaning wax using the "hot scrape" method. Also an ideal summer storage wax, just iron it in and leave it on until next season. All NF waxes are 120g



- Item #TOK-2003 \$19.95
blue
• Snow -22° to 14°F (-30° to -10°C)
• Air -22° to 16°F (-30° to -9°C)
- Item #TOK-2002 \$19.95
red
• Snow 10° to 25°F (-12° to -4°C)
• Air 12° to 28°F (-11° to -2°C)
- Item #TOK-2001 \$19.95
yellow
• Snow 21° to 32°F (-6° to 0°C)
• Air 25° to 50°F (-4° to 10°C)
- Item #TOK-2004 \$19.95
black
• Used as base prep wax or mixed into the above waxes as an additive.
- Item #TOK-2007 \$17.95
Cleaning
• Used to prep new ski bases, as a "hot scrape" cleaning wax or as a hot box wax.

TOKO LF HOT WAX

These low fluoro waxes are a good choice for race days, race training, or high performance recreational riding. They work best in lower humidity conditions, although they'll deliver better glide than hydrocarbon waxes whenever there is moisture in the snow. They can be used alone or as a base layer for high fluoro waxes or 100% fluoro additives. New Tribloc formulation this season improves an already great wax. 40g or 120g.



- Item #TOK-1013 \$19.95
blue 40g
- Item #TOK-2013 \$44.95
blue 120g
• Snow -22° to 14°F (-30° to -10°C)
• Air -22° to 16°F (-30° to -9°C)
- Item #TOK-1012 \$19.95
red 40g
- Item #TOK-2012 \$44.95
red 120g
• Snow 10° to 25°F (-12° to -4°C)
• Air 12° to 28°F (-11° to -2°C)
- Item #TOK-1011 \$19.95
yellow 40g
- Item #TOK-2011 \$44.95
yellow 120g
• Snow 21° to 32°F (-6° to 0°C)
• Air 25° to 50°F (-4° to 10°C)
- Item #TOK-1014 \$19.95
black 40g
- Item #TOK-2014 \$44.95
black 120g
• Used as base wax or mix as additive for improved dirt repellancy and abrasion resistance.

TOKO HF HOT WAX

Toko's venerable line of high fluorowaxes have been upgraded this season from Dibloc to Tribloc. In addition to high quality paraffins the waxes now feature a new type of fluorine and a previously unknown anti-static additive. Expect excellent glide, acceleration and dirt/water repellancy from these superb waxes. Available in 40g and 120g packs.



- Item #TOK-1023 \$54.95
blue 40g
- Item #TOK-2023 \$119.95
blue 120g
• Snow -22° to 14°F (-30° to -10°C)
• Air -22° to 16°F (-30° to -9°C)
- Item #TOK-1022 \$54.95
red 40g
- Item #TOK-2022 \$119.95
red 120g
• Snow 10° to 25°F (-12° to -4°C)
• Air 12° to 28°F (-11° to -2°C)
- Item #TOK-1021 \$54.95
yellow 40g
- Item #TOK-2021 \$119.95
yellow 120g
• Snow 21° to 32°F (-6° to 0°C)
• Air 25° to 50°F (-4° to 10°C)
- Item #TOK-1024 \$54.95
black 40g
- Item #TOK-2024 \$119.95
black 120g
• Used as base wax or mix as additive for improved dirt repellancy and abrasion resistance.

HYDROPHOBIC

A fancy way to say 'water-repellent'...an important quality of wax which helps prevent your p-tex base from absorbing water and creating unwanted drag.

TOKO WAX

TOKO HF AX134 HOT WAX

AX134 is a very soft, highly fluorinated special-purpose race wax. Used during World Cups as a “magic agent” when temperatures are very warm and the snow is wet. Tribloc technology for excellent glide properties and dirt resistance. When snow gets wet and sloppy and the sun is beating down, reach for this wax.

120g.

Item #TOK-2025

- Snow 21° to 32°F (-6° to 0°C)
- Air 25° to 50°F (-4° to 10°C)



\$124.95

TOKO JETSTREAM BLOC 2.0

These 100% perfluorocarbon waxes provide high acceleration and optimum glide properties from race start to finish. Apply ‘em over your favorite low, medium or high-fluoro wax and hold on! Jetstream Yellow is designed for all snow types and is a great choice for freshly fallen snow. Jetstream Red has a wide temperature range and is a safe bet for all snow conditions it has superior dirt resistant properties. Jetstream Blue excels in extreme cold and aggressive, icy snow conditions. Waxes can be rubbed-on or ironed-in. All are sold in solid 30g blocks.



Item #TOK-3023 Blue \$109.95
• Snow 14°F to -22° (-10°C to -30°C)

Item #TOK-3022 Red \$109.95
• Snow 25°F to 14° (-4°C to -10°C)

Item #TOK-3021 Yellow \$109.95
• Snow 32°F to 25° (0°C to -4°C)

TOKO JETSTREAM POWDER 2.0

These 100% perfluorocarbon waxes provide high acceleration and optimum glide properties from race start to finish. Apply ‘em over your favorite low, medium or high-fluoro wax and hold on! Jetstream Yellow is designed for all snow types and is a great choice for freshly fallen snow. Jetstream Red has a wide temperature range and is a safe bet for all snow conditions it has superior dirt resistant properties. Jetstream Blue excels in extreme cold and aggressive, icy snow conditions. Waxes can be buffed-in or ironed-in. All are sold in 30g shakers.



Item #TOK-3013 Blue \$134.95
• Snow 14°F to -22° (-10°C to -30°C)

Item #TOK-3012 Red \$134.95
• Snow 25°F to 14° (-4°C to -10°C)

Item #TOK-3011 Yellow \$134.95
• Snow 32°F to 25° (0°C to -4°C)

TOKO HELX 2.0

This is Toko’s fastest, most versatile and simple-to-apply 100% fluorinated liquid wax. Just spray it on and buff it in for optimal acceleration and speed on race day. It doesn’t require hot ironing (which can damage p-tex bases) or corking. Spray on a thin layer over your favorite low-fluoro or high-fluoro wax of the day... let dry a few minutes... then buff to a finish using the Toko dual polishing pad (included), base-tex paper or a fluoro polishing pad. It comes in a 100ml pump-spray can. Three formulas are available.



Item #TOK-3003 Blue \$104.95
Snow -22° to 14°F (-30° to -10°C).

Item #TOK-3002 Red \$104.95
Snow 14° to 25°F (-10° to -4°C).

Item #TOK-3001 Yellow \$104.95
Snow 25° to 32°F (-4° to 0°C).

TOKO EXPRESS FLUORO WAX

Toko no-iron waxes are very easy to apply and provide excellent glide in all snow conditions and temperatures. The Paste and Solid waxes are highly fluorinated which make them a great choice for racers or folks looking for a bit more top-end. The paste wax in particular is very popular among younger racers, it’s easy for dads to apply on the hill and it won’t break the bank. The solid can be corked in or even ironed on in a pinch. The liquid Express Wax does not contain fluoro and is a great wax for recreational skiers, also works well on the “fish scales” of Nordic skis. Contains a sponge applicator for easy...er, application.



Item #TOK-9259 Liquid 75ml \$9.95

Item #TOK-9298 Race Paste 50g \$23.95

Item #TOK-9267 Race Solid 40g \$23.95

TOKO X-COLD POWDER

Very hard powdered hydrocarbon wax. Use as an additive in cold aggressive snow conditions. Makes any wax it is added to harder and more resistant to wear. Sprinkle along edges or over entire base after dripping on glide wax, wax the two together, scrape and brush normally. 50g shaker.



Item #TOK-9870 \$21.95
• Snow 5°F to -22° (-15°C to -30°C)

TOKO NORDIC GRIP WAX

Toko grip waxes provide traction underfoot on classic (diagonal-stride) Nordic skis. Four easy to use temperature ranges (and one green base binder), ideal for beginner waxers. Clever “lip balm” twist-type container makes application easier than ever!
25g.



Item #TOK-8750 green base \$12.95
Used as a base wax for other grip waxes.

- Snow -22°F to 32°F (-30°C to 0°C)
- Air -22°F to 50°F (-30°C to 10°C)

Item #TOK-8751 yellow \$12.95
For damp snow, just before klister.

- Snow 28°F to 32°F (-2°C to 0°C)
- Air 26°F to 38°C (-3°C to 3°C)

Item #TOK-8752 red \$12.95
Broad range wax for new or old snow.

- Snow 14°F to 28°F (-10°C to -2°C)
- Air 14°F to 32°F (-10°C to 0°C)

Item #TOK-8753 blue \$12.95
For cold, dry conditions or compacted snow.

- Snow -22°F to 19°F (-30°C to -7°C)
- Air -22°F to 20°F (-30°C to -7°C)

Item #TOK-8754 x-cold \$12.95
For extremely cold conditions.

- Snow -22°F to 10°F (-30°C to -12°C)
- Air -22°F to 10°F (-30°C to -12°C)

TOKO NORDIC KLISTER

Take some of the guesswork out of klister waxing with this simple but effective 3-color line that covers all conditions. A green base klister is also offered to be applied as an under-layer for other klisters to increase base bond and prevent the klister from slipping out of the wax pocket.
Sold in 55g tubes.



Item #TOK-8740 green base \$13.95
Used as a base wax for other klister layers.

- Snow -22°F to 32°F (-30°C to 0°C)
- Air -22°F to 50°F (-30°C to 10°C)

Item #TOK-8741 yellow \$13.95
For wet to moist snow.

- Snow 28°F to 32°F (-2°C to 0°C)
- Air 26°F to 38°C (-3°C to 3°C)

Item #TOK-8742 red \$13.95
Wide range, damp to frozen snow, universal klister.

- Snow 14°F to 28°F (-10°C to -2°C)
- Air 14°F to 32°F (-10°C to 0°C)

Item #TOK-8743 blue \$13.95
For icy snow.

- Snow -22°F to 19°F (-30°C to -7°C)
- Air -22°F to 20°F (-30°C to -7°C)

TOKO NORDIC GRIP SPRAY

Getting a grip has never been easier! Toko Grip Sprays are simplicity refined. No more choosing between klister or grip wax, grip spray effectively covers both. One base spray (apply first to ensure a durable bond) and one universal spray (apply over the base layer)...that's it! Spend less time prepping and more time skiing. Just spray on and cork in.
70ml.



Item #TOK-8795 base \$13.95
Used as a base wax for other grip sprays.

- Snow -22°F to 32°F (-30°C to 0°C)
- Air -22°F to 50°F (-30°C to 10°C)

Item #TOK-8796 universal \$13.95
For use on fresh, old or artificial snow.

- Snow -22°F to 32°F (-30°C to 0°C)
- Air -22°F to 50°F (-30°C to 10°C)

TOKO EXPRESS GRIP & GLIDE LIQUID WAX

A universal liquid wax for all snow types and conditions. Apply to the kick pattern “fish scales” of cross country skis. Prevents snow from clumping to the kick pattern and improves glide. Quick and easy to apply. Non-fluorinated formula. Biodegradable. Fits in your pocket or pack for on the trail application, a great way to make new friends! Includes built-in applicator sponge, just rub-on allow to dry and away you go.
100ml



Item #TOK-9265 \$12.95

Waxless Skis Need Wax Too!

The term “waxless” describes Nordic skis with a mechanical grip cut or pressed into the base at the factory. Often referred to as a kick pattern or fish scales, this pattern grabs the snow when the ski is depressed providing traction for forward motion, when the ski is unweighted it again glides freely. Nordic skis without a pattern cut into the base require special grip waxes to create traction. Hard kick waxes or soft klister waxes are chosen as conditions warrant. It takes a bit of practice to choose the correct wax to provide just enough traction but also allow a good glide. Most recreational folks use waxless skis, these tend to kick and glide well in all conditions, and while they don't require grip wax, they do benefit from glide wax. A liquid or paste wax applied to the pattern of the ski will prevent snow from sticking and provide better glide and control. The tip and tail sections of the ski (the smooth areas without a pattern) can also be waxed with a liquid or paste wax, or hot-waxed and scraped (never hot wax the pattern!).

WEND WAX

WEND

WEND has been making waxes in California for over 40-years. We love the minimal packaging and easy-to-grasp product line. The Meadowfoam waxes are phenomenal and a valid non-fluoro option for racers and speed enthusiasts alike.

WEND BASE PREP WAX

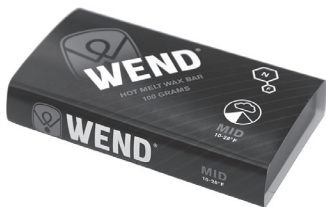
WEND Base Prep is a very soft wax with a low melt temperature, these characteristics allow it to penetrate deeply into the base ensuring complete saturation. Wax jobs tend to last longer if a base prep wax is used first. Base prep wax should definitely be used on new skis or boards to open up the bases, saturate them with wax and get them used to the iron. Prep wax is also an excellent choice for cleaning bases using the "hot scrape" method Made in the USA. 100g bar.



Item #WND-BP100 Base Prep \$7.50

WEND NF WAX

WEND performance NF is a non-fluorinated wax with excellent glide. It is a great choice for an everyday workhorse wax. NF wax contains a small amount of Meadowfoam (see below). WEND NF waxes are offered in three temperature ranges to help you dial in your glide. Made in the USA. 100g bar.



Item #WND-NFC100 Cold \$7.50
Snow 10°F and below (-12°C and below).

Item #WND-NFM100 Mid \$7.50
Snow 10° to 28°F (-12° to -2°C).

Item #WND-NFW100 Warm \$7.50
Snow 25°F and above (-4°C and above).

What even is Meadowfoam?

Meadowfoam is a substance derived from the seeds of commercial Meadowfoam flowers (*Limnanthes alba*) grown in Oregon's Willamette Valley. Meadowfoam Seed Oil is a fully refined triglyceride composed of over 98% fatty acids with chain lengths of 20 carbons or more. So what does that do for you? The addition of Meadowfoam to a wax formula greatly enhances the wax's ability to penetrate into the base, it also increases durability, resistance to contaminants (like dirt and Cat grease) and most importantly...provides better glide. Pretty darn cool!

WEND MF WAX

WEND claims this is the fastest non-fluoro race wax out there and we would have to agree! The addition of Meadowfoam (see below) noticeably improves the glide of this wax over WEND's standard NF waxes. Great penetration (you can actually see it happen) and excellent durability. If you like great glide but prefer not using fluorocarbon waxes, give this a go. Made in the USA. 100g bar.



Item #WND-MFC100 Cold \$34.00
Snow -5° to 14°F (-20° to -10°F).

Item #WND-MFM100 Mid \$34.00
Snow 14° to 28°F (-10° to -2°C).

Item #WND-MFW100 Warm \$34.00
Snow 28°F and above (-4°C and above).

WEND HF WAX

WEND's three-temperature line of High Fluoro race waxes are simple to use, relatively affordable and very effective. Use these waxes on race day to get the most out of your skis or board. Made in the USA. 100g bar.



Item #WND-HFC100 Cold \$82.00
Snow -5° to 14°F (-20° to -10°F).

Item #WND-HFM100 Mid \$82.00
Snow 14° to 28°F (-10° to -2°C).

Item #WND-HFW100 Warm \$82.00
Snow 28°F and above (-4°C and above).

WEND MF CLEANER

WEND's MF Cleaner/Conditioner is designed to thoroughly clean the base of any contaminants including emulsions from grinding, dirt and old wax. This cleaner also contains a conditioning agent to help prepare the base for waxing. It is pretty amazing how much junk this stuff pulls out of a base. Great base cleaner post stone grind and definitely in dirty Spring snow conditions. Made in the USA. 4oz.



Item #WND-NC04 4oz. \$16.00

GENERAL SURGERY TOOLS

The idea of performing surgery to repair a delamination may sound complicated, but don't be intimidated...armed with a few of the tools and goodies shown here, you can cure a lot of those ills yourself.

DELAM CLAMPS

These small C-clamps are just the right size for clamping up a delaminated ski after you've applied epoxy with your oyster knife. They open to 1 1/2" and have a deep throat to reach half-way across an alpine ski. Use a steel scraper and release paper on both outer surfaces of the ski before tightening these down so you don't mar the ski base or top finish. Buy several to apply even pressure over large areas. Made in USA.



Item #ACE-CC2 \$5.95 ea

OYSTER KNIVES

The sturdy but thin blades of these puppies are ideal for prying open delaminations wide enough to get inside and clean out gunk, dry out water, slip in epoxy and spread it around. Naturally, they're pretty good for prying open oysters, too.



Item #TOG-OYST \$14.95

CLEAR EPOXY TUBES

This 2-hour epoxy is a good compromise between the speed of the 15-minute packet and the strength of the 24-hour epoxy. Mixed properly, this epoxy produces good strength and flexibility for delaminations, top surface nicks, etc. Contains 25ml.



Item #ACE-31345 \$6.95

HYSOL EPOXY

These extremely flexible epoxies are ideal for delaminations, edge replacement and P-Text base patches. We offer two types. EC (608) is a quick set, working time is 5-10min, 50% strength in 10-20min. Good for small repairs, topsheet delams or folks in a hurry. EB (11C) is slow set, 25min working time, 90% strength in 24hrs, full cure in 3 days. This is a good choice for tricky edge replacements and P-Text base patches. EC is clear, EB is black. EC is 2.8oz total. EB is 4oz total.



Item #SPK-EC Clear 608 \$21.95
Item #SPK-EB Black 11C \$21.95

QUICK-SET EPOXY

These little "double-bubble" epoxy packets are handy for those fast simple repair jobs (like up on the hill or trail) when just a little doppel of goo is all that you need. The curing time of this stuff is 15 minutes at 70°F. Work time is 3-5 minutes so don't dally. Mixes up 3.5g.



Item #SPK-FE \$2.95

URETHANE GLUE

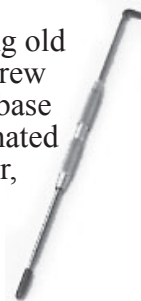
Since urethane glue is more flexible than epoxy, it's ideal for repairing delaminations near the flexible tips and tails of skis and snowboards. It can also be used for some polyurethane boot modifications. These little two-part packets contain just the right amount of glue for most repair jobs. The curing time is 60 minutes. Mixes up 3.5g.



Item #SPK-D50U \$2.95

NEEDLE PICK

These steel picks are handy for picking old glue or plastic plugs out of binding screw holes, extracting grit and grime from base gouges, cleaning out between delaminated layers before gluing skis back together, etc. They feature both a straight and right-angle pick and measure 8" long.



Item #KOB-80 \$5.95

EPOXY PIGMENT

Mix this coloring pigment with epoxy or urethane to match the color of the tops or sidewall of your skis or snowboard when making repairs. You can also intermix pigments to create different colors. If pigment hardens, loosen cap and microwave for 10-seconds it will be good as new. Sold in 2oz bottles.



Item #SPK-EPBL	blue	\$8.95
Item #SPK-EPR	red	\$8.95
Item #SPK-EPY	yellow	\$8.95
Item #SPK-EPW	white	\$8.95
Item #SPK-EPB	black	\$8.95
Item #SPK-EPBR	brown	\$8.95
Item #SPK-EPGN	green	\$8.95

MIXING STICKS & CUPS

How many times have you gunked up a good screwdriver using it as an epoxy stir stick? Or goofed up measuring out puddles of epoxy so that it never hardened or set up right? We offer these wood paddle sticks with 5cc increment measuring cups in packs of 10.



Item #SPK-EMC \$1.95 pack

GENERAL SURGERY TOOLS

EPOXY SYRINGE

This 10ml syringe is handy for sidewall repairs, delaminations, mounting bindings... anywhere you require pinpoint application of epoxy or glue. Keeps mess to a minimum!

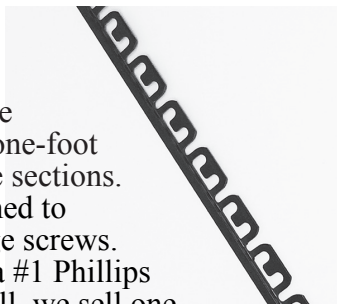


Item #SPK-S310

\$1.95 ea

REPLACEMENT STEEL EDGE SECTION

For the expert ski and snowboard surgeons in the audience, we offer these one-foot lengths of solid steel edge sections. The inside tabs are designed to accept the SPK-ES10 edge screws. The edge screws require a #1 Phillips Head screwdriver to install, we sell one but you can also find them in those tiny screwdriver kits. Screws are sold in bags of 10.



Item #SVT-EDGE 12" edge section \$9.95 ea

Item #SPK-ES10 edge screws \$2.95/bag

EDGE SCREW SCREWDRIVER

This cute lil' puppy is just the right size to wrangle those teeny tottering edge screws into place. #1 Phillips Head made in Germany by Wiha, who we think make some of the best drivers out there.

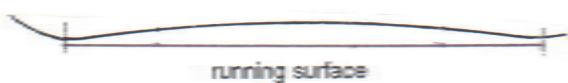


Item #SPK-201032

\$9.95

Definition - RUNNING SURFACE

The portion of the ski or snowboard base that contacts the snow when you stand on it. This is practically all the base except where it turns up at the tip and tail.



CONTACT POINT

This is where a ski or snowboard base contacts the snow. To find these points, lay your ski or snowboard down on a flat surface and see where the base rests at the tip and tail. Between contact points is the running surface of the base where steel edges should be filed, beveled and polished. Past these contact points, where tips and tails curve upwards, edges should be slightly dulled so they don't grab and make a ski or board "hook" unpredictably.



TOOLWORKS SHOP APRON

Establish yourself as a real-world mechanic and save on your laundry bill at the same time. Strap on one of our midweight cotton shop aprons and you'll be ready for anything the cat drags in. Apron features three large tool pockets, taped seams, and screened logo. One size fits all. Made and printed in USA.



Item #TOG-MA1 Black

\$16.95

Item #TOG-MA2 Royal Blue

\$16.95

SWIX BLACK WOLF SHOP APRON

This 100% nylon apron features a bunch of pockets to keep tools close at hand. It is machine-washable. Primarily red with black pockets and sports the famous Black Wolf and Swix logos.



Item #SWX-R271

\$21.95

TOKO SHOP APRON

Keep wax off your pants and metal shavings out of your pockets with this 100% nylon apron. Adjustable neck strap and two big pockets to hold your tools. The color is bright Toko yellow.



Item #TOK-2805

\$21.95

DULL EDGES T-SHIRT

What says it louder and prouder in a world where 97% of our riding brethren never bother to tune or wax their gear? Proclaim your true feelings about those techno losers by donning one of our 100% cotton t-shirts! They come in good ol' basic black with white snowflake logo and print.



Item #TOG-TS1M

Medium

\$16.95

Item #TOG-TS1L

Large

\$16.95

Item #TOG-TS1XL

Extra large

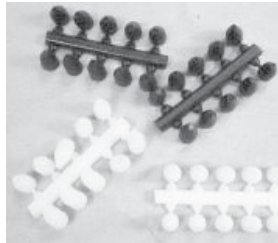
\$16.95

DON'T GET IN A BIND

Most skiers and snowboarders buy their equipment with bindings already mounted. We recommend you do the same to guarantee safe binding installation. But bindings sometimes work loose with use, or binding screws strip out. We offer a variety of screw inserts to put 'em back in their rightful place, as well as other products to keep bindings working efficiently.

WOOD & PLASTIC HOLE PLUGS

Sometimes a screw pulls out of a ski without fracturing the top surface. Then what do you do? Fill the hole with fast-setting epoxy and drive one of these wooden plugs in. Trim off the excess and let sit for 15 minutes. Then redrill the hole with 3.1mm (1/8") bit and you've got a good repair job. We also have smaller plastic plugs for filling binding screw holes you won't be reusing.



- Item #SPK-100216 \$2.95 bag/10
• wood plugs
- Item #SPK-SPW \$2.95 bag/20
• white plastic plugs
- Item #SPK-SPB \$2.95 bag/20
• black plastic plugs

HELICOIL SCREW INSERTS

These kits are designed to repair stripped or ripped-out binding screw holes in skis. They utilize aluminum spiral inserts that thread into the damaged screw holes after enlarging and tapping them. Repairs made with this tool are confidence inspiring, as strong, if not stronger, than the original mount. All necessary parts are included in the kit...a drill bit, tap, handle, insert tool and 100 spiral inserts...you just need to supply an electric drill. Extra helicoil inserts are also available in bags of 20.



- Item #SHP-150032 Complete kit \$119.95
- Item #SHP-100188 20 extra inserts \$9.95

KEEP WAX CLEAN

Be careful how you store wax after opening a new pack, or where you set it on your workbench when hot-waxing...it's all too easy to let it get contaminated with steel filings, dust or other grit. One simple way to keep wax clean is store it in ziplock bags. It's not a bad idea to have a dedicated box to store your wax in, we sell fancy boxes for this purpose, but a trip to your local hardware store can turn up some pretty cool options too.

PLASTIC INSERTS

If you encounter a stripped-out ski binding screw hole, you have several repair options. You can mix up some epoxy and steel wool, and put it in the hole as you reinstall the screw...or you can re-drill the hole with a 1/8" (3.1mm) drill bit, hammer in a wood plug, then redrill and reinstall the screw. If these approaches fail, try these plastic inserts. Drill out the screw hole using a 5/16" drill bit, then tap in one of these inserts before reinstalling the screw. They don't have the holding power of helicoils, but are usually more than adequate if you only have one or two stripped screw holes per ski. Sold individually.



- Item #SPK-530416 \$.45 ea

BINDING GLUE

Use this glue when installing binding screws in any skis. It is a flexible, water resistant acrylic adhesive designed to bond porous material to non-porous material. Keeps water out of the core and helps reduce vibration that can loosen screws. 2oz bottle.



- Item #SHP-100036 \$8.95

BINDING DRILL BITS

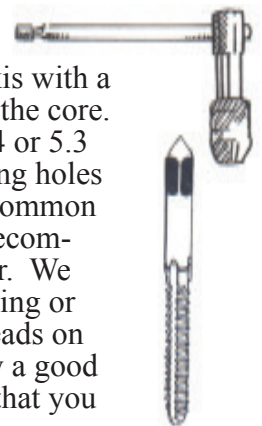
These steel bits are ideal for mounting bindings. They fit mounting jigs, are a full 3" long, and will countersink the holes so you don't "bubble-up" the top ski surface when you tighten down the screw. The 3.6 x 9mm bit is for adult alpine skis with non-metal topskins, the 4.1 x 9mm bit for alpine skis with metal topskins, the 3.5 x 7mm bit for children's alpine skis, and the 3.6 x 14.5mm bit for adult nordic (x-c) skis.



- Item #SPK-100310 3.6 x 9mm bit \$14.95
- Item #SPK-100330 4.1 x 9mm bit \$14.95
- Item #SPK-100315 3.5 x 7mm bit \$14.95
- Item #SPK-100314 3.6 x 14.5mm bit \$14.95

SCREW TAP & HANDLE

You should tap screw holes before mounting bindings on skis with a metal topsheet or hard insert in the core. Use the #12 AB tap (.216" X 14 or 5.3 X 1.8mm) to thread these binding holes on skis with a metal topsheet (common on GS race skis) or whenever recommended by the ski manufacturer. We also offer a 6x1mm tap for tapping or cleaning damaged machine threads on snowboards. Tap handles allow a good grip on the tap and help insure that you thread it in straight.



- Item #SPK-TAP #12 AB ski tap \$14.95
- Item #SPK-SBTAP Snowboard tap \$15.95
- Item #UBT-21916 T-Tap handle \$ 9.95

BINDING TOOLS

VIBRA-TITE THREADLOCK

Unlike traditional liquid lockers which cure to form a hard bond, VC-3 is a blend of resins designed to remain flexible and absorb vibration. Use on any bolts to keep them put. Very long shelf life.



Item #VIB-21305	5ml	\$5.95
Item #VIB-21330	30ml	\$24.95

POZI 3 SCREWDRIVER

It's not a good idea to use a standard phillips head driver on your binding screws as you risk stripping them out.



Use this burly #3 pozi-drive screwdriver instead to adjust alpine bindings and to install or remove ski binding screws. Overall length is 10.5", it has a hardened tip for long life. Made in Germany by Wiha.

Item #SAN-BE8830	\$21.95
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POZI SCREWDRIVER BITS

These longer insert bits will reach those elusive binding screws located deep down in holes. They are very stout and feature a standard hex fitting to work with all cordless screwdrivers, drills, etc. We still recommend final tightening be done by hand, to avoid stripping the hole or under-tightening.



Item #SPK-POZIB6	\$12.95
• #3 Pozidrive bit - 6" long	
Item #SPK-POZIB2	\$7.95
• #3 Pozidrive bit - 2 3/4" long	

ALPINE BINDING SCREWS

We offer an assortment of common alpine binding screws. All screws with the exception of the 28mm are measured from top of the head to tip. All screws are Pozi #3 heads. See our website for more photos and description. Sold each.



#3 Pozidrive Binding Screws

Item #SVT-ABS095	5.5 x 9.5mm	\$.50 ea
Item #SVT-ABS115	5.5 x 11.5mm	\$.50 ea
Item #SVT-ABS13	5.5 x 13mm	\$.50 ea
Item #SVT-ABS15	5.5 x 15mm	\$.50 ea
Item #SVT-ABS16	5.5 x 16mm	\$.50 ea
Item #SVT-ABS18	5.5 x 18mm	\$.50 ea
Item #SVT-ABS215	5.5 x 21.5mm	\$.50 ea
Item #SVT-ABS28	5.5 x 28mm*	\$.50 ea

*Length of this screw is measured from bottom of head to tip.

SNOWBOARD BINDING SCREWS & WASHERS

We offer an assortment of #3 pozidrive flat-head screws, and #3 pozidrive panhead screws. All screws are 6mm diameter...just choose the length and type you need. 6mm flat washers are also available. Sold each.



#3 Pozidrive Flathead Screws

Item #SPK-200121	M6 x 10mm*	\$.30 ea
Item #SPK-200122	M6 x 12mm*	\$.30 ea
Item #SPK-200123	M6 x 16mm*	\$.30 ea
Item #SPK-200124	M6 x 20mm*	\$.30 ea

*Overall length of bolt.



#3 Pozidrive Panhead Screws

Item #SPK-200126	M6 x 10mm*	\$.30 ea
Item #SPK-200127	M6 x 12mm*	\$.30 ea
Item #SPK-200128	M6 x 16mm*	\$.30 ea
Item #SPK-200129	M6 x 20mm*	\$.30 ea

*Length of threads.



6mm Flat Washers

Item #SPK-M6FW	\$.30 ea
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POWDER LEASHES

Ski brakes work great when skiing packed slopes...



but if your bindings release in deep powder, you may need a metal detector to find 'em again. Attach one end of these bright 4' long nylon leashes around a ski brake arm and tuck the rest under your pant cuff. If you tumble out of your bindings in deep powder, the leashes will stream out and flag where your ski lies buried under the snow for faster, easier retrieval. Sold as pair.

Item #CSA-PC	\$7.95 pr.
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MOUNTING NEW SKIS

Because alpine skis are still mostly handmade objects, don't assume they'll always have identical side-cuts on each side...even if they are supposed to. Before mounting bindings on new skis, determine which should be the left and right ski to maximize the sidecut they offer. To determine this, set the two skis down on their bases side-by-side on a workbench so they touch at the tip and tail, and measure the gap between them at the waist. Make a note of this. Then reverse their positions on the bench and measure the gap at the waist again. Any different? If so, pick the best left/right ski arrangement to take advantage of the more pronounced sidecut for greater turning ease.

SCREW & DEPTH CALIPER

Wanna protect your bases, pride and reputation? Use these calipers to check screw hole depths, as well as screw, T-nut and insert lengths before screwing 'em into skis or snowboards. It'll help avoid such woes as drilling through bases, premature delaminations, ripped-out bindings, snide wisecracks from other mechanics, and withering gazes from less-than-happy clients who don't appreciate a perforated or dimpled base. These steel calipers feature metric and English scales to read depth, inside and outside diameters.

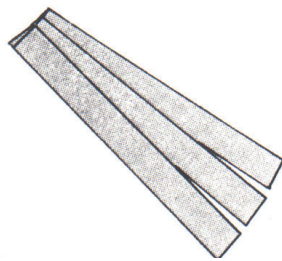


Item #UBT-541

\$12.95

CANT STRIPS

We offer six different thickness cant strips for your boot/ski alignment needs. Each cant is 19.5" long enough to insert under the binding toe and heelpiece on a single ski (not pair).



They are 2.25" (58mm) wide. Always trim and drill these strips to match binding patterns, and make sure your binding screws are long enough to accommodate the extra cant thickness...especially on cants greater than 1-degree. 1° of cant equals .05" (1.3mm) of lift. Sold each.

Item #CCO-CS5	0.5° cant	\$14.95 ea
Item #CCO-CS1	1.0° cant	\$14.95 ea
Item #CCO-CS15	1.5° cant	\$14.95 ea
Item #CCO-CS2	2.0° cant	\$14.95 ea
Item #CCO-CS25	2.5° cant	\$14.95 ea
Item #CCO-CS3	3.0° cant	\$14.95 ea

TOKO POCKET DRIVER

This ratcheting tool is a great choice for boarders, it contains most of the tools you might need for on-hill binding repairs.



Handle contains #2 & #3 Phillips, #3 Pozi, #6 flat, #4 Hex and a 10/11mm wrench. Round profile is pocket friendly. Don't leave home without it!

Item #TOK-4440

\$10.95

SIDECUT

The hourglass shape of most any ski or snowboard. It's wider at the tip and tail, and narrower in the middle (waist). This curved shape along each edge helps the ski or board distribute full-length pressure in the snow and carve a turn.

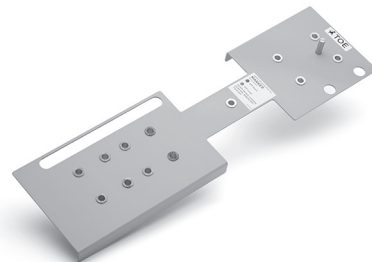


JIGAREX BINDING MOUNTING JIG



This is a great tool for garage ski techs and pros alike. Once you invest in the JigaRex mounting frame the world is your oyster, well the binding mounting world anyway. Simply buy the relatively inexpensive Binding Plates as you need them, no need to purchase a whole new jig everytime you change bindings! Say goodbye to paper templates, scotch tape and frustration. If you have a group of ski buddies, or a team, this is a great group purchase. Self-centering. Fits skis from 60mm to 185mm wide.

The JigaRex frame does not include mounting plates, you'll need to choose the appropriate plates for the bindings you're mounting and add them to your cart. At the time of printing there are 28 plates to choose from (too many to list here!) Please visit our website for the current list.



Item #REX-JIG Jigarex (frame only) \$239.00

Item #REX-JIG Jigarex Plates \$32 to \$36

(Price depends on model)

BRAKE RETAINERS

It's essential to keep ski brakes up and out of the way when tuning and waxing, these retainers are long-lasting, easy



to use, non-finger-pinching works of genius. We recommend buying two so you don't have to fiddle around switching one from ski to ski. Sold each.

Item #MTK-3333

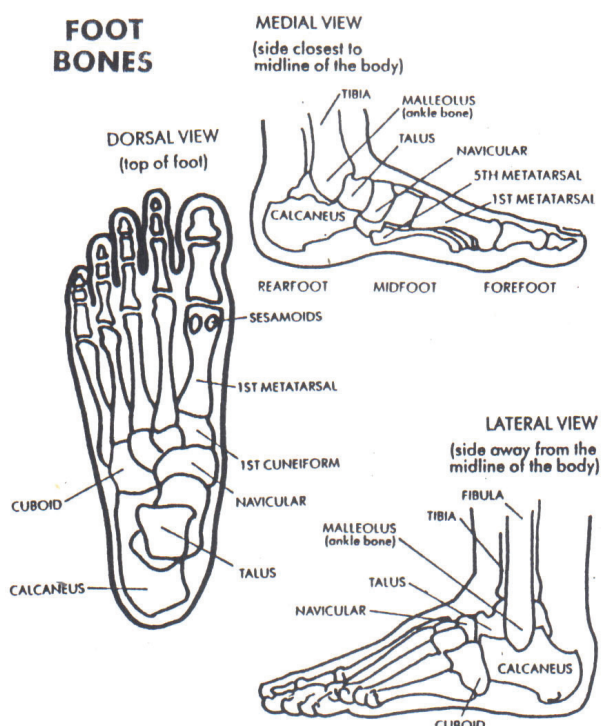
\$2.50 ea.

TEMPERATURE CONVERSION

Converting Celsius to Fahrenheit: Take the temperature in Celsius and multiply 1.8 - Add 32 degrees - The result is degrees in Fahrenheit
Converting Fahrenheit to Celsius: Take the temperature in Fahrenheit subtract 32 - Divide by 1.8 - The result is degrees in Celsius.

BOOT FITTING TIPS

85% of bootfitting is simple cause and effect... problem solving which can be accomplished with well made footbeds and/or basic boot fit aids. The remaining 15% may require some special tools, fit aids or diagnostic skills (such as recognizing the cause of the problem to be a railed ski, mismounted ski binding, or other cause not actually involving the boot or foot).



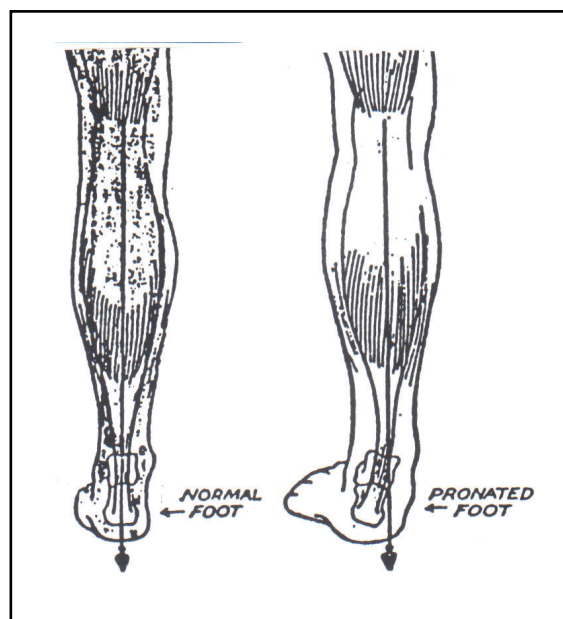
PRONATION- THE BIGGEST CULPRIT

The most common bootfitting problem is pronation of the foot. Being able to recognize and handle pronation will resolve 80% of fit problems. Although pronation appears to be simple problem of a flat foot...where the foot rolls to the inside and the instep nearly disappears...there is, in reality, much more going on. First, the bottom of the foot tries to turn to the outside while the front of the foot moves to the outside and up. These motions rotate the lower legs to the inside and put additional lateral stress on the knees. You are now confronted with a foot that is both misaligned and misshaped...and this creates misfunctions. Some pain may appear behind the small toe. The long toe can also hurt, because pronation makes a foot not only wider, but longer as well, and the long toe may jam against the end of the boot. Three bones on the inside of the foot...the ankle, navicular and talus can be a problem- the latter only sticking out during pronation. The arch may cramp, irritation at the back of the heel is common, there can be shin bite because of the leg rotation, and cold feet are not uncommon due to pinched vessels.

When confronted with a pronated foot, the boot you purchase becomes more critical. You want a boot that holds the foot snug and in alignment. If the boot lacks some containment, it can be augmented with side pads (narrowing pads, c-pads, etc.) on the inside of the foot, and heel wedges placed under the heel and metatarsal heads, positioned thick side to the inside under the insole. The ultimate aid is a well-built orthotic or custom insole.

SUPINATION

At the opposite end of this spectrum is the foot that has rolled to the outside. Unlike the loose pronated foot, it is locked and rigid. It can't be reshaped, so the boot has to be reshaped instead. Start with the footbed to redistribute pressure, then reshape the tongue to accommodate the high instep. This is one of the toughest problems to take care of. Fortunately, however, it is much more uncommon and not encountered nearly as frequently as a pronated foot.



BOOT SIZE STANDARDS

Ski boot sizing can sometimes be confusing since there's several standards. Mondopoint is an international metric sizing system.

US SIZE - MONDOPOINT - EURO SIZE

3-4	21.2	34 2/3
4-5	22.0	36
5-6	22.8	37 1/3
6-7	23.6	38 2/3
7-8	24.5	40
8-9	25.3	41 1/3
9-10	26.0	42 2/3
10	27.1	44
11	27.9	45 1/3
12	28.7	46 2/3
13	29.7	48
14	30.4	49 1/3
15	31.2	51 2/3

DOWNUNDERS FOOTBEDS



These unique footbeds are designed to self-mold to your foot shape, the longer you wear them, the better they fit. We offer the BO1 (blue) version that is designed for edging sports (like skiing & boarding). Inserts under the forefoot create greater comfort and a solid platform for turn initiation. The deep heel cup securely cradles the heel and helps absorb shock. Proprietary Active Arch helps keep the foot neutrally aligned and centered. Topped with a moisture wicking hypoallergenic material that does not absorb odors. If needed, simply trim to fit using current insoles as a guide. Mens sizes listed, women choose one size down (for example, if you wear a womens size 7 order a mens size 6). Sold as a pair, one right and one left!

Item #DWN-B03	Size 3	\$39.95 pr
Item #DWN-B04	Size 4	\$39.95 pr
Item #DWN-B05	Size 5	\$39.95 pr
Item #DWN-B06	Size 6	\$39.95 pr
Item #DWN-B07	Size 7	\$39.95 pr
Item #DWN-B08	Size 8	\$39.95 pr
Item #DWN-B09	Size 9	\$39.95 pr
Item #DWN-B10	Size 10	\$39.95 pr
Item #DWN-B11	Size 11	\$39.95 pr
Item #DWN-B12	Size 12	\$39.95 pr
Item #DWN-B13	Size 13	\$39.95 pr
Item #DWN-B14	Size 14	\$39.95 pr
Item #DWN-B15	Size 15	\$39.95 pr

TAKE CARE OF YOUR BOOTS

When you get home from a day on the hill pull your liners out of your boots and your insoles out of your liners and let those suckers air out! Doing this everytime will prevent nasty things from growing and help your gear last longer. Spray some boot juice in them when they're dry if you have some...we sell it on P.57. Keep your boots buckled when not in use to help them keep their shape.

BONTEX INSOLE SHIMS



These mildew-resistant shims are inserted under footbeds to remove excess roominess in a boot. Their hefty fiber composition resists compression, provides additional insulation and they can be trimmed to fit any boot. Offered in two thicknesses, even the 1/16" takes up a surprising amount of volume, if in doubt order both thicknesses. Sold as a pair.

1/16" Thick Shims

Item #SPK-S01	Size 6-7	\$2.95 pr
Item #SPK-S02	Size 8-9	\$2.95 pr
Item #SPK-S03	Size 10-11	\$2.95 pr
Item #SPK-S04	Size 12-13	\$2.95 pr

1/8" Thick Shims

Item #SPK-S11	Size 6-7	\$3.95 pr
Item #SPK-S12	Size 8-9	\$3.95 pr
Item #SPK-S13	Size 10-11	\$3.95 pr
Item #SPK-S14	Size 12-13	\$3.95 pr

BOOT FITTING AIDS

Fit aids should be viewed as tools. Don't be afraid to modify them or use them in areas that they weren't specifically designed for.

The heel lift should normally be glued in under the boot insole or footbed. Used this way, it lifts the foot and changes the fit in several places... including the ankle bones, instep, arch, and the calf at the top of the boot. Heel lifts can also be used as a metatarsal pad, tongue pad or forefoot wedge.

The heel wedge is usually used for pronation under the heel, positioned thick side to the inside. It can also be used under the big toe and first metatarsal head to take up slack there for better edging.

Tongue pads and insole shims are used to cut down on boot volume.

Side pads such as narrowing pads, C-pads, L-pads, modified heel wraps, etc. are used to take up slack and support the foot in cases of narrow heels, pronation, etc. Most pads should be customized (with sanding, etc.) to give space to ankle bones, naviculars, etc. If only one per foot is used, place it on the inside of the foot. Taper the edge, and glue it in position on the outside of the boot liner.

Instep pads can be fashioned from foam sheets and are used to hold the foot down and back. It will help take pressure off of the surf bump, shin and toes. After they have been tested, build them into the tongue if possible.

BOOT FITTING

HEEL WEDGES

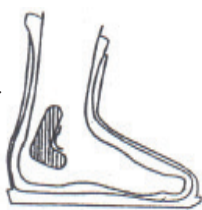
Although good footbeds are the best solution, you can slip wedges under your heels to correct for a foot that rolls to the inside (pronation) or outside (supination). Correcting pronation will make the foot seem shorter and narrower for less pinching in the boot. It will also aid in edging, slow down rotation causing shin bite, and cut down on arch cramps. All our wedges create 1/4" of lift.



Item #SPK-HWS	Size 5-7	\$4.95 pr
Item #SPK-HWM	Size 8-10	\$4.95 pr
Item #SPK-HWL	Size 10+	\$4.95 pr

ANKLE L-PADS

Use L-pads to fill the void between the Achilles tendon and ankle bone. They provide better security and heel hold-down. They are self-adhesive and can be sanded or trimmed to fit as necessary. Attach them to the outside of the boot liner.



Item #SPK-LP3	\$4.95 pr
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BOOT FITTING FOAM

Sometimes pre-cut pads don't fit exactly as you need. We offer firm-density closed-cell neoprene foam that you can cut with scissors and/or sand to any desired shape or thickness. It's available in 1/8" thickness, has a self-adhesive coating on one side, and comes in a 10" x 10" sheet. Sold each.



Item #SPK-BFF8	\$6.95ea
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ELIMINATOR TONGUE PADS

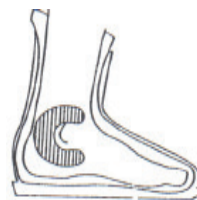
It's no secret that most boot fit and performance problems stem from oversized boots. The Eliminator is a large, semi-soft foam pad with a smooth inner face that's molded to fit snugly behind your existing boot tongue. It easily attaches in seconds with supplied fasteners (or permanently with contact cement) and can help cure a myriad of ills. These include shin bite relief, greater grip in the heel pocket and elimination of instep pain from overbuckling... particularly in snowboard boots. It also reduces or eliminates excess room in upper boot cuffs... especially valuable for folks with thin legs or calves who have previously not been able to enjoy all the control boots were designed to deliver without cranking boot buckles impossibly tight, which usually has the undesirable effect of overly stiffening the forward boot flex. Two sizes are offered...small fits boots up to mens size 9, while the large is for mens size 9 and larger.



Item #MFT-ES	Small	\$29.95 pr
Item #MFT-EL	Large	\$29.95 pr

G-PADS

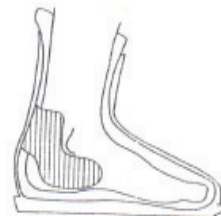
These pads snug up the fit around your ankle bone. It's good for heel and ankle retention if the hindfoot is loose in a boot. These pads are self-adhesive and are attached to the outside of the boot liner.



Item #SPK-CPD3	\$6.95 pr
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ANKLE WRAP PADS

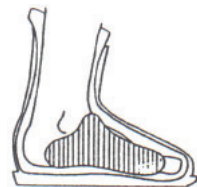
Use this pad behind and around the ankle for snug-ging up the ankle area and creating a good heel pocket. They are self-adhesive to attach to the outside of the boot liner and can be sanded and trimmed for a precise fit.



Item #SPK-MWA	\$6.95 pr
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NARROWING PADS

Do you have narrow feet? If so, these pads are designed to narrow the boot for a more secure fit. They can be sanded and trimmed as necessary, and are self-adhesive to attach to the outside of your boot liner.



Item #SVT-188245	\$6.95 pr
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HEEL LIFTS

Heel lifts have many uses. They can help stop heel lift, reposition the ankle bone, take pressure off the arch, cut down on the leg diameter at the boot top, etc. They are offered in different sizes, and can be further trimmed or modified as necessary. The small size creates 3/8" of lift, medium 7/16" lift, and large 1/2" of lift.



Item #SPK-HLS	Size 5-8	\$4.95 pr
Item #SPK-HLM	Size 8-10	\$4.95 pr
Item #SPK-HLL	Size 10+	\$4.95 pr

TONGUE PADS

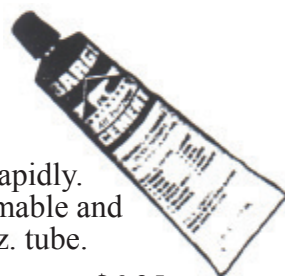
No, don't use these puppies to check for sore tonsils...instead, stick 'em to the inside of boot tongues to protect against shin "bang," to fill voids if the fit is too roomy there, or to push the heel back and help hold it in place. They're felt-covered for comfortable shin contact with a self-adhesive backing on the other side. One size can be trimmed (if necessary) to fit any boots.



Item #SPK-TPNL	\$4.95 pr
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BARGE CEMENT

Use this strong contact cement to glue heel wedges to an inner-sole, or boot fit pads to a boot liner. It sets up rapidly. Use with care... it is flammable and the fumes are potent. 2 oz. tube.



Item #ADV-8425	\$6.95
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SKI BOOT BUYING TIPS

1) Don't be in a hurry. Try on at least several boot models. When you narrow your choice down to two models, wear one model on one foot and the other model on your other foot. Stand and walk around in 'em for 15-20 minutes to see if the boots loosen up or pressure points develop.

2) Since feet tend to spread during the day, try boots on in the afternoon when they are largest. Don't try boots on after skiing that same day in your old boots because your feet may be sore and give you incorrect pressure point feedback.

3) To make sure you get the right size, pull out the inner boot and stand in the boot shell...this provides more accurate sizing than any foot-measuring device. Shell sizes do not usually get smaller with every shoe size, only the inner boot does...so see if you can fit comfortably in the next smaller shell size.

4) Wear your regular ski socks, long underwear and ski pants when trying on new boots.

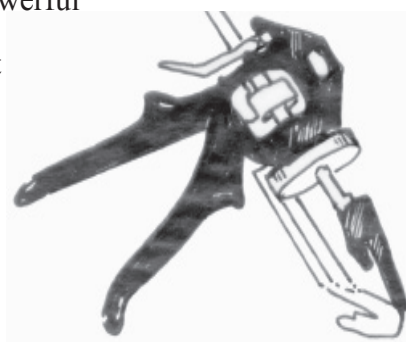
5) To help determine if you should get custom insoles or footbeds, remove the inner boot, slip the new boot footbed in the shell and stand on it. If you have a hard time balancing on one foot in the boot shell, you're a good candidate for custom insoles. Remember, bootfitting is the art of marrying a soft-flexible foot to a hard-rigid shell...the footbed plays a critical part in helping to make a foot more rigid in a supportive, comfortable way.

Definition - CANTING

Canting could be considered the final phase of stance alignment for a skier. If, after good boot fitting and upper boot cuff adjustments have been made to align the skier's knees over their toes, they still stand predominantly on either the inside or outside edges (instead of on a "flat" ski), then cants (or wedges) should be installed to correct it. Although some skiers grind their boot soles to achieve this, most install cants under their bindings to do the job.

BOOT SHELL SPREADER

This simple but powerful tool spreads even the stiffest ski boot shells wide open so you can easily remove or install boots liners, insole shims, boot fit aids, replace buckles or grind off shell material.



It's an indispensable part of any serious bootfitters workshop tool arsenal, plus it's portable so you can pack it along for boot repairs or adjustments on the road.

Item #SHP-165085

\$159.95

BOOT BUCKLE & CARRIER TOOL

This handy little tool slips over boot buckle latches and provides extra leverage to close them without removing gloves. Compact and lightweight, it doubles as a handy boot carrier...ergonomical for carrying comfort. Assorted colors.



Item #SKT-TOOL

\$7.95 ea

BOOSTER STRAPS

These industrial strength, semi-elastic boot-top straps can give most skiers significantly better foot-to-boot response. They wrap around the back of your upper boot shell and the top of the boot tongue in front. When you cinch 'em snug, the tongue becomes virtually glued to your shins whether you find yourself centered, forward or in the back seat... providing constant foot-to-ski response. Booster straps are sold by the pair and can be permanently attached to the back of your boot shell with a pop-rivet or similar. Three models are offered...the INTERMEDIATE uses two semi-elastic bands for slightly softer flex (best for most skiers who weigh 140lbs. or less), while the EXPERT/RACER model uses three bands for stiffer flex (for skiers who weigh 140lbs. or more), and the WORLD CUP uses three elastic bands and plastic stiffeners for the stiffest flex (best for racers and super aggressive skiers with stiff boots). All straps are made of top quality materials with metal strap latches for secure strap retention, and many seasons of use. Sold in pairs.



Item #MFT-INT Intermediate \$36.95 pr.

Item #MFT-EXP Expert/Racer \$41.95 pr.

Item #MFT-WC World Cup \$44.95 pr.

BOOT WARMERS & DRYERS

HOTRONIC FOOTWARMER S4 CUSTOM

When your feet are cold, it's hard to enjoy a good day on the slopes. Keep your tootsies toasty with Hotronic's excellent warmers. Simply install the heating elements to your existing footbeds and plug them into the battery packs. The compact battery packs attach easily to the back of boot shells using a metal clip or with optional screw or strap mounting brackets. Four temperature-heat settings are possible powered by high capacity cold weather batteries. The S4 will run 2.5 to 21 hours depending on setting choice. If you have really cold feet the S4 will run a full day of skiing at heating level 3! Recharges in 3-hours or less with clever global recharger (120-240v includes North American and European plug adaptors). Spare/replacement battery packs are available as well as replacement Cambrelle covers. We also offer a spare heating elements and Cambrelle cover set for folks who own additional boots (saves big bucks over purchasing another complete set).



Item #HOT-1033	Footwarmer S4	\$229.95set
Item #HOT-1133	Battery S4	\$79.95ea
Item #HOT-1500	Screw Brackets	\$9.95pr
Item #HOT-1503	Strap Brackets	\$9.95pr
Item #HOT-1505	Slide Strap Brackets	\$9.95 pr
Item #HOT-1240	Cambrelle Covers	\$9.95pr
Item #HOT-1229	Element (each)	\$19.95ea
Item #HOT-1220	Elements & Covers	\$47.95pr

BOOT JUICE DEODORANT

Stamp out boot stink and mildew. Spray a dash of boot juice in those puppies every now and again to keep 'em smelling sweet as a daisy and keep creepy swamp growth at bay. Big 20 oz. spray can.

Item #SPK-BJ20 \$10.95



WET BOOTS

After a day on the hill take the time to remove the liners from your boots and the insoles from your liners and let them dry completely. This will greatly increase the life of your liners and insoles. Spray them with some Boot Juice after they're dry to keep them smelling fresh.

BOOT GLOVES

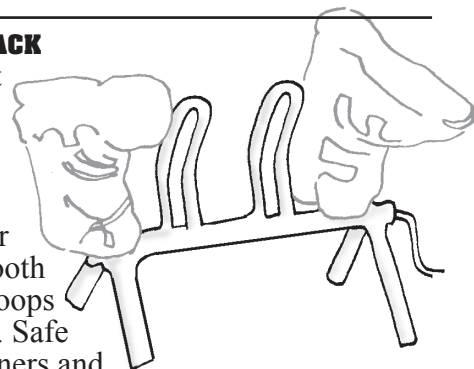
If you suffer from cold feet, slip a pair of these neoprene Bootgloves over your ski boot shells. They help insulate your toes and forefoot, but won't compromise boot fit or interfere with safe binding operation. Simply slip 'em 'over the front of each boot and snug 'em up with the adjustable strap that runs around the back. For optimal efficiency, cut out the neoprene material to expose your lower boot buckles...this can easily be done without harm to the Bootgloves. Three sizes - Sml. fits 3-6, med. size 7 - 11, lrg. fits 11 - 15. Their black color also helps maximize solar heat absorption.



Item #DRY-BAS	Small	\$29.95 pr
Item #DRY-BAM	Medium	\$29.95 pr
Item #DRY-BAL	Large	\$29.95 pr

DRYGUY DRY RACK

A silent radiant heat dryer that accommodates two pairs of boots. Simply slide boots over the dryer's smooth upright metal loops and walk away. Safe for moldable liners and custom footbeds. Footwear dries in 3-6 hours depending on wetness. These sturdy enameled metal dryers can be placed on the floor as a free-standing unit or attached to an interior wall. 6" Depth x 18" Height x 26.5" Width. Standard 120 volt.



Item #DRY-T2 2-pr model \$59.95 ● 8#

SUMMER STORAGE

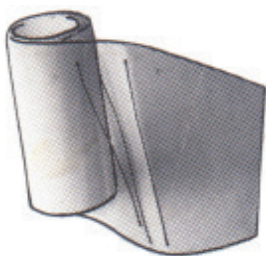
At the end of the season don't just chuck your skis or board into a corner of the shed, take time to put them away properly. Clean the bases, sidewalls and topsheets with base cleaner. Repair any base damage and give the edges tune (or at least remove any oxidation). Perform a Hot Scrape (iron in a base prep or other soft wax and scrape while hot to remove any debris, follow up with a brass brush). Finally apply a generous coat of base prep or other soft wax and don't scrape it, get some on the side edges too, this will protect the bases from drying out and the edges from oxidizing. When next season rolls around all you need to do is scrape the base prep wax and apply your wax of choice for the season and away you go!

PROTECT YOUR WORK!

You invest precious time, energy and money to tune and wax your skis just the way you like them...but what do you do to protect that investment from the ravages of rough handling, road grime or summer storage? Here's an arsenal of protective gear to insure that your skis don't lose that magic touch between the workbench and the snow.

SKUFF SAVER

Protect the tops of your skis or snowboard from scratches and scrapes and keep 'em looking new. This clear and tough Du-Pont Surllyn tape is backed with a self-adhesive film for easy application and bonding. Simply order the length you need and trim it to fit. It's 14.5" wide (enough to span any snowboard, or a pair of even the widest alpine skis) and is sold by the foot.



Item #TYC-7210 \$2.95 per foot

SWIX BASE PROTECTORS



For maximum protection, strap this full-length padded protector to your ski bases after a tune-up or hot-wax. Constructed of thick material, it features a hood at one end to slide ski tips into, the tail wraps for length adjustment. Three closure straps securely wrap the ski. Two sizes to fit skis from 130cm to 215cm long.

Item #SWX-RA45SL 140-175cm \$39.95
 Item #SWX-RA45GS 160-200cm \$39.95

SKI & SNOWBOARD

WALL RACK

Want to simplify life and help protect your valuable gear from unnecessary damage? We offer a handsome wood rack to store any skis or snowboards neatly and safely on a wall. It's made of pine and features a clever pivoting clamp that holds ski tips and tails firmly together. Holds up to 4 pair of snowboards or skis (any type) as well as poles vertically against a wall. Mounting hardware included. Handmade in USA.



Item #WHI-WR \$79.95

SKI STRAPS

These sturdy straps feature a pliable foam cushion that slips between the ski bases so they can't rub or scratch each other during transport or storage. Simple, strong and effective. Multiple lengths are available... measure the width of your skis near the tip or tail to choose the right size.



- Item #TOK-0499 \$5.95 pair
• fit skis up to 120mm (5 1/2") wide- Toko logo
- Item #CSA-TIE \$5.95 pair
• fit skis up to 120mm (4 3/4") wide- Tognar logo
- Item #SWX-R391 \$5.95 pair
• fit skis up to 140mm (5 1/2") wide- Swix logo
- Item #SWX-R402 \$5.95 pair
• fit nordic skis up to 45mm (1 3/4") wide- Swix logo
- Item #SWX-R397 \$4.95 pair
• fit skis up to 120mm (4 3/4") wide- Swix logo
unpadded watchband style.

Rocker Ski Racks

These are some of the finest ski racks we've come across. They differ from other wall-mounted racks because they store your skis (or snowboards) in a neutral position, in other words they don't alter the skape of the camber. This is especially important for skis with early rise or rocker.



It is not necessary to use a ski strap on the tails of the skis either, which can further alter the natural shape. The XL version features 6" (152mm) coated arms, a good choice for wider skis or snowboards (this is our most popular size), the ST version has slightly shorter 4" (100mm) arms but will still retain the widest skis with ease. Racks are sold individually or premounted to a nicely finished piece of wood in sets of 3 or 4. You can designate the number of ST and XL units on the 3 and 4 pack racks to customize them to your needs (just give us a ring or order online at tognar.com). All racks include mounting hardware and instructions. Made in the USA.

- Item #RSR-ST Std. Single Rack \$29.00
- Item #RSR-XL XL Single Rack \$39.00
- Item #RSR-3PK 3-Pack Rack \$149.00
- Item #RSR-4PK 4-Pack Rack \$199.00

WIDGETS & GIZMOS

DERMATONE LIP & SKIN PROTECTION

Dermatone is the time-tested Swedish formula we prefer for all outdoor activities...on slopes and rivers, in sand or snow, at elevations high or low.

- .5oz (14g) tin of sunscreen ideal for extreme wind and sun exposure. Popular with mountaineers and ski professionals, this heavier SPF23 formula helps repel frostbite too. SPF23



Item #DRM-TIN \$5.95

- 1oz (29.5ml) tube of sunscreen ideal for all around use. Broad spectrum with moisturizing Aloe and Vitamins A&E. Water resistant up to 80min. Non-greasy formula. SPF30.



Item #DRM-TUBE \$2.95

- .15oz (4.2g) stick of lip balm. Protects against chapping, wind and sun. Moisturizing, broad spectrum. SPF23.



Item #DRM-STICK \$2.95

RETRACTABLE CABLE LOCK

This palm-sized cable lock features a 30" (75cm) long, 1.7mm thick coated steel cable and an easy-to-reset 3-digit combination. Perfect for lunchbreak piece of mind. Sized to fit in any pack or pocket.



Item #SAA-61804 \$15.95

TOKO POCKET DRIVER

This ratcheting tool is a great choice for snowboarders. Handle contains #2 & #3 Phillips, #3 Pozi, #6 flat, #4 Hex and a 10/11mm wrench. Round profile is pocket friendly. Don't leave home without it!



Item #TOK-4440 \$10.95

BOOT BUCKLE & CARRIER TOOL

Here's a handy little tool that slips over the end of boot buckle latches and provides extra leverage to close or open ski boot buckles... without even removing gloves. Whether you're in the lodge buckling up for the day or on the slopes clamping down for a run, this ingenious lever makes even the toughest buckles a cinch to close or open. Compact and lightweight, it doubles as a handy boot carrier... ergonomic for carrying comfort. Assorted colors. Made in USA.



Item #SKT-TOOL \$7.95 ea

CAT CRAP ANTI-FOG CREAM

Apply a dab to the inside of your goggles or sunglasses then buff with a clean soft cotton cloth or chamois for fog-free clarity. Safe for all lens materials and coating. The .25oz tub provides hundreds of applications.



Item #SAA-63027 Anti-Fog Cream \$5.95

SKIGEE GOGGLE WIPER

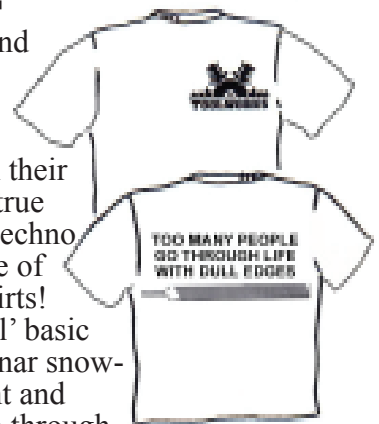
These soft rubber gizmos look like miniature swim fins. They wipe water and snow off goggle lens without scratching, and slide over your glove thumb where they're always ready for use. Cool tool!



Item #SAA-63510 \$2.95

DULL EDGES T-SHIRT

What says it louder and prouder in a world where 97% of our riding brethren never bother to tune or wax their gear? Proclaim your true feelings about those techno losers by donning one of our 100% cotton t-shirts! They come in good ol' basic black with white Tognar snowflake logo on the front and "Too many people go through life with dull edges" on the back. Made in USA



Item #TOG-TS1M Medium \$16.95

Item #TOG-TS1L Large \$16.95

Item #TOG-TS1XL Extra large \$16.95

CHECKING EDGE BEVEL

Before beveling the bottom or side surface of steel edges, color the entire surface of the edge from tip to tail with a black permanent marking pen. As you file, you'll remove the color coating. This technique allows you to visually monitor the amount and uniformity of bevel you're imparting.

BASIC TUNING GUIDE

Step 1- Flatten Your Bases

Ideally, a ski or snowboard base should be flat across from edge-to-edge to perform efficiently, comfortably and predictably. Check it with a true bar to determine this. If it's flat, you're ready to move on to Step 2. If not, and the ski or board is new, take it back to the shop where you purchased it, and ask them to correct this. If your gear is not new, you can flatten the base with tools on pages 10-12. Also, if a base is badly scratched or gouged, you can repair damaged areas with the base repair materials on pages 14-16.

Step 2- Structure Your Bases

A ski or snowboard base should be structured (see page 13). If your gear is new, it should already have a base structure. If not, take it back to the shop where you bought it and ask them to correct this. If your gear is not new, you can create a base structure (or refresh an existing structure) with tools on pages 10-12.

Step 3- Tune Your Edges

The steel edges on skis and boards should be tuned regularly. This greatly contributes to better control and performance. First, the edges should be beveled (see explanation on page 18). If your gear is new, it should already have beveled edges. Ask at your shop for the recommended bevel angles for your gear, or see the ski and snowboard bevel guides on page 18. If it's not new, then you can file and bevel the edges with tools featured on pages 22-23. Next, the edges should be deburred and polished to keep them crisp and rust-free, using tools featured on pages 24-25.

Step 4- Wax Your Bases

Ski and snowboard bases dry out quickly and need to be waxed regularly...otherwise they start losing their gliding ability, become harder to turn, and wear more quickly. The best way is to hot wax...a heated application that melts the wax and allows it to penetrate more deeply into a base. Otherwise, you can rub-on a paste or liquid wax. This doesn't offer the durability of hot-waxing, but serves it's purpose for half a day or so. We offer waxes and waxing tools starting on page 27. Recreational riders should start with 'hydrocarbon' waxes...which are inexpensive but provide good base protection and performance. A 'universal' or 'all-temperature' wax is the simplest approach for most all snow conditions. Racers and competitors should use 'fluorocarbon' waxes whenever snow has enough moisture in it to easily make a snowball. Although more expensive, it can provide faster glide in these conditions.

QUICK FIX CHART

Complaint	Cause	Solution
Skis or Snowboard Feel Hooky Pulls in one direction or the other. Won't move smoothly from turn to turn.	Base Concave	Flatten Base
	No Base Bevel	Edge Tuning
Unstable at Speed Skis swim and clank together at speed.	Rough Base Finish	Scrape Base
	Base Convex	Flatten Base
No Edge Grip When you edge skis or snowboard on steep terrain, they slip out rather than biting in.	Edge Over-beveled	Edge Tuning
	Dull Edges	Edge Tuning
Bases Feel Slow On flatter terrain, skis or snowboard feel sticky, and others pass you easily.	Rust on Edges	Edge Tuning
	Base Damage	Repair Damage
	Base Oxidized	Scrape & Wax Base
	No Wax	Apply Wax
	Wax Too Thick	Scrape Wax
Turn Too Abruptly When you begin a turn, skis or snowboard starts with a jerk.	Fuzzy Base Finish	Scrape Base
	No Base Bevel	Edge Tuning
Edges Feel Grabby After you've turned, the edges don't seem to want to let go.	Edges too Sharp at Shovel	De-tune
	Edges Too Sharp for Snow	De-tune or Resharp
	Burr on Edges	De-burr

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Tögnar Toolworks

280 E. Hersey St. Unit 4
 Ashland, OR 97520
 info@tognar.com

2 WAYS TO ORDER

- 1. WEBSITE:** www.tognar.com
- 2. PHONE:** **800-299-9904**

HANDY TOGNAR WISH/PHONE ORDER LIST

For as long as we can recall this page has functioned as our mail/FAX order form, but a steady decline in mail & FAX orders as-well-as our change from shipping rates based on the dollar amount of the order to one based on order weight, has prompted us to revise it. The page now functions as a convenient place to keep track of item number for a wishlist or prior to calling in a phone order. If you have preferred to FAX or mail your order in the past, please don't hesitate to give us a ring and we'll happily enter your order over the phone. Thanks!

Qty.	Item No.	Item Description	Price Per Item	Total
Total:				

Check for Special Deals and Close-outs at our website: www.tognar.com

BITS & PIECES

OPEN & SHUT

We're open Monday thru Friday from 9am to 4pm (Pacific Standard Time) from October through April. If we don't answer the phone right away don't fret, we sometimes run out for coffee or lunch...or powder...(woohoo!) leave us a message and we will call you back.

May through September we continue to ship orders as they come in, during the summer months our phone hours are somewhat limited.

We are closed on weekends and major holidays so we can go ski, snowboard, hike, climb, bike and otherwise goof off. But you can reach us anytime by email at info@tognar.com, or place an order at our website at www.tognar.com. If you leave us a phone message, rest assured we'll get back to you ASAP.

WALK-IN TRAFFIC

We don't have a retail store front, we operate out of a warehouse focused on sending ski wax and tools all 'round the world in a timely manner. We really aren't set up for a leisurely stroll of the aisles. That being said, if you're local, or passing along the I-5 corridor, place your order online or phone ahead, let us know it's a pick-up and we'll have it ready and waiting for you. We'll even have a selection of tools and waxes on display to get your hands on.

REDUCE, REUSE, RECYCLE

We package orders with recycled kraft paper, newspaper, biodegradable peanuts and air bags. We use sturdy boxes collected from local businesses whenever possible to reduce unnecessary waste.

RUSH - RUSH - RUSH

Barring blizzards, white-outs, earthquakes, volcanic eruptions or summer vacations, we endeavor to ship orders we receive prior to 11am PST Monday through Friday the same day...and at no extra charge. So relax, we're pretty fast. Expedited shipping is also available.

CATALOG PRICING AND ITEMS

We print our catalog just once a year and over those twelve months things can change. Occasionally prices go up and sometimes they go down. Items become unavailable and are replaced with new options, etc. Treat it as a pretty accurate guide to what we offer, for real-time stock, prices, descriptions, new and additional product and other info please visit our website www.tognar.com.

WEBSITE/BLOG

Take a look around our website if you get the chance. It contains additional information and images about the products we carry as well as tips on how to use the tools, video links and any other information we can scrounge up to make things easier. We also maintain a blog that functions as a venue for product reviews and how-to information. We update it as time allows. www.tognar.wordpress.com

SPECIAL ORDERS

If you don't see the tool, wax or gadget that you sorely desire in our catalog or on our website, give us a ring or send us an email and we'll do our darndest to get it for you in a timely manner. We specialize in special orders!

REFUNDS/RETURNS

If you end up with an item that you don't want, just return it to the address below within 30 days (and in new condition, please). Please pack it securely (we can't be of help if your returned item doesn't make it back to us), include a copy of your invoice or order number, and let us know if you want an exchange, a credit or refund. Used merchandise is subject to a 25% restocking fee. If you have a customer account with Tognar you can create the return online.

Tognar Returns
280 E. Hersey St. Unit 4
Ashland, OR 97520

TONS OF TUNING TIPS

A whole mess of tuning tips and tricks, advice and articles, videos and photos for the DIY ski tech, check 'em out at tognar.com and at tognar.wordpress.com

MAILING LIST

We respect your privacy and do not make our mailing list, or any other information available to any other companies... ever.

RECYCLE THIS THING

We mail our catalog once a year. This saves paper, trees, ink, water, electricity...plus gives us more time to concentrate on serving your needs and to goof off on the snow. It also means that it'll be a year before you receive another catalog, so don't throw this one out. Our catalog is printed on recycled paper using soy-based inks. Please recycle it when you no longer need it by passing it on to a friend, or pulling the staples and recycling the paper. Thanks.

GIFT CERTIFICATES

If you're looking for a gift for a skier or snowboarder, but are uncertain what to buy, consider a gift certificate. They are available in any amount, can be ordered by phone, mail or through our website.


INTERNATIONAL ORDERS

We ship orders all over the snowy world. Payments can be made by VISA, MASTERCARD, DISCOVER or Paypal. Simply enter your order at tognar.com. We use USPS to ship internationally, you can choose between First Class, Priority Mail or Express Mail during checkout. Shipping cost is calculated based on weight and shipping method chosen. You will be shown the cost of shipping prior to entering your payment information. When we ship your order we'll send you a tracking number, you can track your order at www.usps.com and through your country's postal service once the parcel clears customs. Customers are responsible for any additional duties, customs fees and VAT incurred.

SHIPPING RATES

The shipping cost of your order is based on the weight of the order and the method chosen. Tognar offers a variety of shipping options using FedEx and United States Postal Service. When your order ships you'll receive and email with the tracking number so you can follow it's journey.

PHONE ORDERS
M - F  9 - 5
Pacific Time
800-299-9904

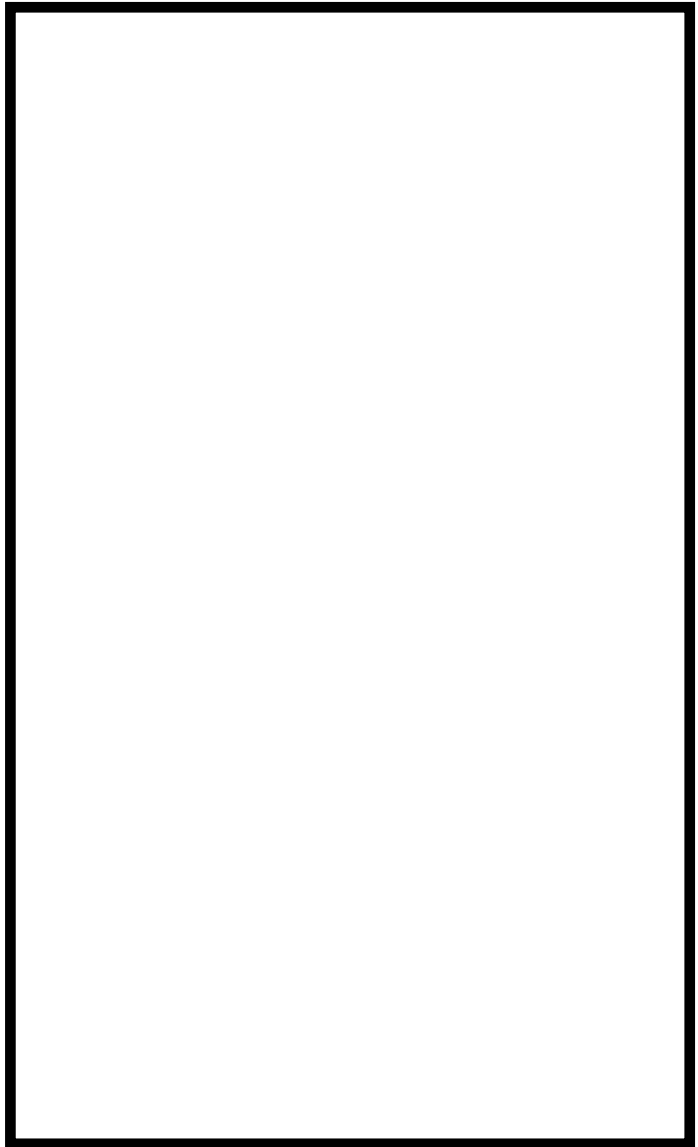

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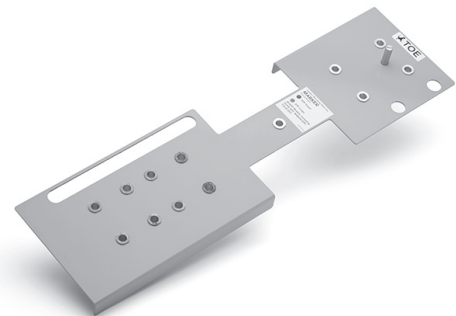


JIGAREX BINDING MOUNTING JIG

This is a great tool for garage ski techs and pros alike. Once you invest in the JigaRex mounting frame the world is your oyster, well the binding mounting world anyway. Simply buy the relatively inexpensive Binding Plates as you need them, no need to purchase a whole new jig everytime you change bindings! Say goodbye to paper templates, scotch tape and frustration. If you have a group of ski buddies, or a team, this is a great group purchase. The body is self-centering and fits skis from 65mm to 190mm wide. The holes on the mounting plates are sized to work with standard ski mounting drill bits (page 50).

The JigaRex frame does not include mounting plates, you'll need to choose the appropriate plates for the bindings you're mounting and add them to your cart. At the time of printing there are 28 plates to choose from (too many to list here!)

Please visit our website for the current list.



Item #REX-JIG	Jigarex (frame only)	\$239.00
Item #REX-JIG	Jigarex Mounting Plates	\$35 to \$40 (Depending on model)