Carbide Processors, Inc.

Northwest Research Institute, Inc.
Newsletter July, 2002
3847 S. Union Ave. Tacoma, WA. 98409 (800) 346-8274
tomwalz@email.msn.com www.carbideprocessors.com

30,000 cermet saw tips per month for just one customer

$12,000 - $15,000 additional profit

Cermet Tipped Saws

Customers Love Them
You Can Make Them

Customers Love Them
Cabinet shops
"The ripping speed is FAST. Quality of the cut is very very good." "You couldn't sand a cut to be any smoother than the cuts made by the ceramic tip blade." "I was able to feed solid cherry lumber and plywood through the Cermet blade as fast as I could and the Cermet blade took it all in stride."

Table saws home users
Rory Bean
"It was like I was pushing the board through air, no resistance at all compared to what I was used to." I cut a piece of oak that is only .081" thick, thinner than the blade. Cross cuts are glassy smooth. On 4/4 rips, the surface is as good as my jointer makes."

Rick Schmalzreid "It is very easy to feed the boards through. I haven't been able to slow down my saw with 4/4 material at all. I can't wait for several years when cermet is the standard. This is a GREAT blade."

Sawmill Successes – see insert
You Can Make and / or Sell Cermet Tipped Saws See P. 2

Tuffco Surface Treating

5 years, millions of parts – No Problems

Treated Untreated

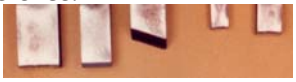
The tip on the right didn't stay on. Once we treated them they worked beautifully.

Our Tuffco line is in production and it really works well. **"The brazing went very well" "We sent the Tooling to our customer and the test ran great." Willie P, S.C. Corp.**

We have a process to treat carbide, cermet and ceramics so that they braze beautifully. We took advantage of 40 years of technology since the last process to make ours more effective and less expensive. Our process works very well while similar processes don't work very well. We have an excellent magazine article explaining this which is free for the asking. (800) 346-8274

Our process works much better than similar processes because we made several important changes to create a more robust, forgiving and dependable process. Fifteen years of research does make a difference.

Get This



Not This

Very Reasonable Licensing Fees

Buy Or Sell Carbide? Save Money!

We Have Everything You Need

1. Order The Material
2. Braze Treating
3. Pretinning
4. Surface Treating
5. Special Surfaces For Electric Eyes
6. Packaging
7. Labeling
8. Bar Coding
9. Precision Counting
10. Email Notification

And a Real Guarantee
Our guarantee has always been a customer satisfaction guarantee. If you are not happy for any reason we will repair, replace or refund as you wish.

Buy Saw Tips Here
A lot of you have wanted us to sell saw tips. We never wanted to because our customers do it. Now we have several customers that have inventories here so we can fill your orders through them. We don't make any money on the tips but it makes it easier for you and we figure we'll sell more pretinning.

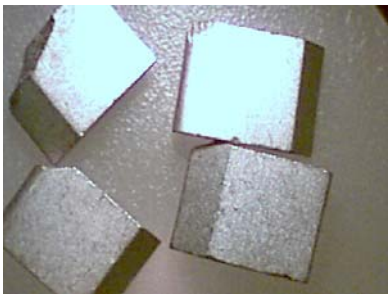
Order tips the way you usually do or call us and we'll pass the order on. We work with suppliers of the finest U.S. European, Canadian and Chinese carbide. We do not sell anything we don't like. We have had carbide suppliers tell us we are too fussy but we have never had a customer tell us that.

Defective Carbide

Chipped and rounded tips

It's Not Your Fault

Chipping and rounding happen when carbide is being made. Some companies stand up and admit it while some try to shift the blame.



It takes several different steps to make carbide saw tips. In one stage it is very, very soft. This is where chipping and rounding happen.

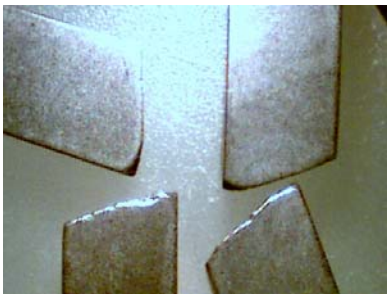
How tungsten carbide is made

1. Mix Carbon black, Tungsten metal and metal oxides
2. Then heat the mixture until the carbon bonds with the tungsten (carburises)
3. You get tungsten carbide powder
4. Mix the tungsten carbide powder with wax and cobalt
5. Take this and mix very thoroughly using a ball mill
6. This gives you a final powder
7. Put the final powder in a mold and press it to the desired shape
8. Heat (presinter) the pressed, final powder enough so that is sticks together like soft chalk
9. Take the soft chalk and do your final machining / shaping
10. Put the soft chalk pieces in a very hot, high pressure, special atmosphere oven and do the final sinter
11. The powder cooks, shrinks and gets very hard
12. Now you have the final piece

Soft as Chalk

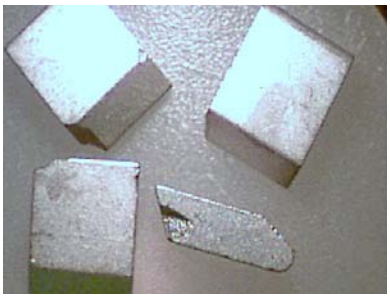
"The presintered preform has roughly the consistency and strength of chalk, and can be cut or shaped with little difficulty. For very short runs and 'one-off use, high-speed steel - or even a thumbnail! -is sufficient to work presintered carbide."

World Directory and Handbook of Hardmetals and Hard Materials - Sixth Edition
Kenneth J A Brookes
Published by:
International Carbide Data



Sidewalk Chalk has a rupture strength of 4 to 6 pounds per square inch. Tungsten carbide is supposed to have a rupure strength of 200,000 to 400,000 pounds per square inch.

Chalk figures from Binney & Smith for dustless chalk both U.S. & French manufacture.

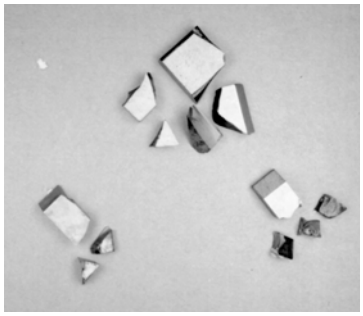


How to Break Carbide

We designed our processes to be very gentle to carbide. The worst that happens is that they get dropped about one foot into a bowl then they get tumbled. If it is good carbide there is just no way this can hurt it.

How to break carbide # 1

Wrap it in a cloth so the pieces don't fly. Put the cloth on a concrete floor and beat the tips hard with a steel hammer.



How to break carbide # 2

Braze the carbide to a piece of steel. Clamp the tip in a vice and push on the end of the steel bar. You can break bad carbide with a light push. With good carbide you have to beat on i

Who Are they Kidding

The salesman came in and told you that you could put his carbide on a saw. It would stay sharp through a lot of cutting. Then he tells you it is your fault it breaks. You cannot damage good carbide by cleaning it, tinning it or dropping it on the floor. It is very hard to round the edges of carbide even in a sandblaster.

How you can damage carbide

1. Heat stress - Carbide and steel grow and shrink at different rates. If you do not allow for this you can put great strain on the carbide and it will break easily once it is on the saw.

2. Too little braze alloy. The braze alloy (silver solder) is softer than steel or carbide. It takes up a lot of strain caused by the difference in expansion rates. It also cushions the tips against impact damage.

More information at
www.carbideprocessors.com

Cermet Tipped Saws

Things Proven

- They can be brazed the same way you braze tungsten carbide once we treat them.
- They can be successfully ground on good carbide equipment with slightly different wheels.
- They can be sold for twice the price of carbide.
- They can deliver results five times as good as carbide or better.
- They are tough enough to cut steel and tough enough to use in sawmills, cabinet shops and lots of manufacturing operations.
- Kennametal in Victoria, BC can deliver excellent quality in a short time and offers three grades proven in metalworking.
- It is easy for you to get started.
- We have three ways to work with you and we are open for suggestions. We will sell you pretinned or treated tips. We will treat your tips or we will license the technology to you.

Things People Are Working On

- We have just scratched the surface of the cermet market. We have dozens and dozens of requests for saws, tools, etc. We are brazing people so we only have a vague idea of what most of these are. We need more experts in making and using saws and tools.
- There are many grades of cermets and we don't know yet which to use where.
- Cermets need to be run faster than carbide but we only have a vague idea of feeds and speeds.
- The time to grind cermet saws is longer than carbide but that time is getting shorter rapidly.

Your Costs

- Figure roughly cermets are twice the price of carbide.
- The cost to treat a tip is about $0.05 and pretinning is about $0.025 each.
- Figure $12 total over the cost of carbide for a 48 tooth saw
- Those saws are selling for twice the price of carbide. Maybe $30 to $80 more in sales for $12 more expense.
- A set of diamond wheels is about $1,000
- It typically takes a couple hours shop time to get set up.
- Figure $2,000 total to get started.

Our part

- We own U.S. patent 6,322,871, with additional patents pending.
- We want this technology spread widely and inexpensively.
- We will guarantee prices for as long as you wish.
- We are offering quantity discounts.
- We will guarantee not to make any future contract with anyone that cuts out our other customers. If you start with us now you can continue to build and sell no matter how much money someone else offers us.

We have been pretinning carbide for twenty years. Now we also pretin cermets and ceramics. Pretinning is all we really want to do. We are selling saw tips and finished saws only to prove it can be done. We started running ads and selling saws in magazines and on the Internet because it is the best way to reach saw manufacturers and distributors.

We are now selling very expensive cermet tipped saws faster than we can have them made. One of our saw-manufacturing customers uses as many as 20,000 tips a month. He supplies his own tips and we treat them.

You may buy saws and / or tips from us or you may buy them directly from someone who uses our technology. You must use us to make these tools but we will be happy to work with you as you wish.

1. Buying saws

To buy a cermet tipped saw for ferrous and non-ferrous metal cutting
Cermet Saws c/o Tru-Cut Saw Inc.
2903 Interstate Parkway
Brunswick, Ohio 44212 USA
(330) 225-4090 ~ 1-800-878-8761
Fax (330) 225-4741
Email: trucutsaw@hotmail.com
http://www.cermetsaws.com/

To buy a Cermet tipped saw for wood, plastics, etc.
Maureen Scherz
Universal Saw & Tool
10518 34th Ave. E.
Tacoma, WA 98446
Ph (2530 539-8122
Fax (253) 539 - 8124
Toll free for Universal (877) 438-7427

2. Buying tool tips

Gerry Shanks
Kennametal
873 Station Ave.
Victoria, B.C. V9B 2S2
Ph. (250) 474-1225
Fax (250) 474-2800

3. Technical help on using cermets

Dave Vale
Kennametal
1600 Technology Way
Latrobe, PA 15650
Ph (724) 539-6807
Fax (724) 539-6551

4. Grinding cermets

Grinding Cermet Tool Materials
Ceramic Industry magazine June 2002
Dr. Kris Kumar ph 614-438-2484
GE Superabrasives
Call for complete article

To order wheels

1. Greenlee Diamond Tool Co.; Ben Silverman, Ph: (708) 803-7366
2. Regal Diamond; Bob Gray, Ph: (440) 339-8329
3. Wendt Diacraft; Kevin Thomas, Ph: (248) 926-2500
4. Norton Co.; Len Pukaite, Ph: (508) 795-5437
5. Citco Diamond Tool Co.; Joyce Kilmer, Ph: (440) 285-9181

Not Miracle Saws

Cermets work very well in many applications. As with any other tool they do not work equally well in all applications. It is just another kind of saw to make except that it has higher profits and greater customer benefits.

You're Already Late

More saw suppliers are getting into cermets all the time. One of our customers uses as many as 20,000 tips a month. We don't want to sell saws and want to get out as soon as we can. We are only doing this because people told me that it was impossible one too many times.

Buy Or Sell Carbide?
Save Money! (cont.)

These are all top quality. Our customer is the end user including many of the very best in the industry. They want parts that work. We have lost work because we won't make bad tips look good. Some carbide suppliers don't like dealing with us because we're too fussy. We have never had an end user tell us we are too fussy.

Cascade Southern and SystiMatic are now part of the IKS family. They tested carbide for years to find the best quality at the best price. They went with Multi Metals. We will routinely do a million Multi Metals tips in a row and they will all be good.

U. S. Diamond Wheel and Standard Diamond Wheel buy tips from China PacifiCarbide as well as Multi Metals. The Chinese have made big improvements in their quality in the last ten years. We are much happier and have less trouble working with their carbide than we do tips from some other sources. It is good carbide.

Peerless Saw Co. is now selling carbide from Plansee Tizit. This is one of the best names in the world for carbide. We have only seen a couple million tips so far but we definitely haven't seen any problems.

Kennametal in Victoria doesn't have an inventory here but they are close and fast. They also just delivered some of the best cermet saw tips we have ever seen. The chemistry and surface condition were incredibly good. (Isak says "perfect"). They are not in the big volume business but they have tooling for maybe 30,000 separate items and a full machine shop to make anything you want. They also have "sintered sharp" technology which is definitely worth looking at.

<u>Other Very Good Suppliers</u>
We also work with other very good suppliers. They just don't have inventories here. The following companies will send the parts to us if you ask: Carbide Alloys, Carmet, Duramet Eagle International Carbide, Metal Carbides, Pacific Hardmetals, Rogers Tool Works, Sandvik, Sintex, Teleldyne Firth Sterling.

"Super Filers" and what they're doing

I have run across some really impressive saw filers lately. Here saw filer means people who work with saws.

Byron Richards of Weyerhaeuser is working on better filtering for knife grinders. Charles Lee at Cascade Woods sent me one of the prettiest saws I have ever seen. He wanted to know if I had any ideas on how to make it better. He also asked Brian Wallinger of West Coast Saws and Paul Duclos of Peerless Saw Co.

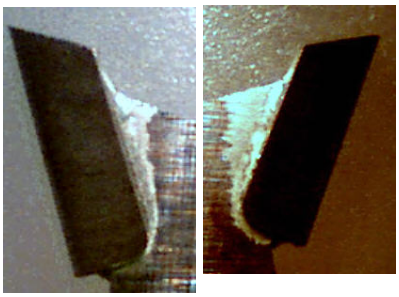
Mike West at Cascade Hardwoods is working on quieter saws with our cermets and "Quiet saw" plate from Western Saws. John Gammelgard of Weyerhaeuser gave me a tour of his filing room and apologized for the way it looked. He says they only paint it once a year and it was coming up to time to do it again. Here I was thinking how clean and bright it was. John is incredibly good at record keeping. He is definitely one of the best if not the best. John really knows what goes on in his mill and uses the information. If you think that record keeping isn't important enough then you have no idea what John has done for quality and profits.

David Weathers of Bruce Hardwood Floors is very good at analyzing production performance and Gord Jarabek of Jayrod is doing nice things with ordering and on-time delivery. Gord was one of the first to use Unishippers.

These folks are always looking for a way to make things better and they are not afraid to ask.

Good filers work hard and they are not afraid to work their suppliers hard. I think your supplier owes you help making your operation better. Even if you are buying purely on price then they still should help you when something doesn't work.
I left out a lot of folks who could be included. As they tell me what they are working on I will pass it on.

A Really Good Braze

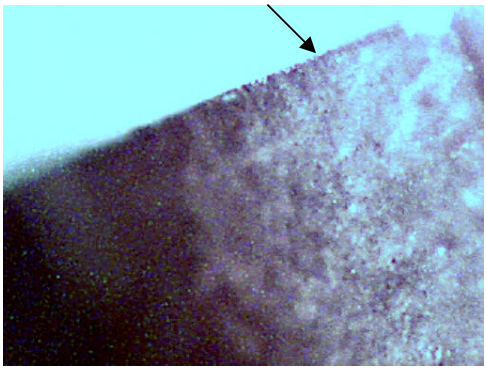


How to check for braze quality
Two sides of the same tip.

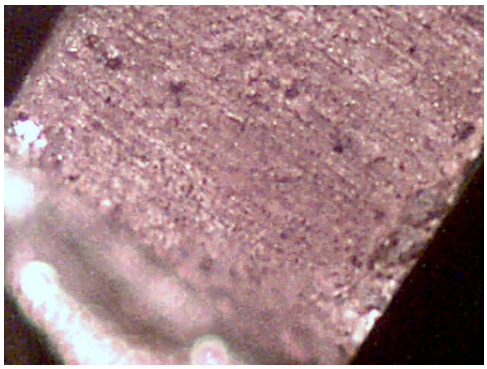
Charles Lee brazed this. This is a really good job because:

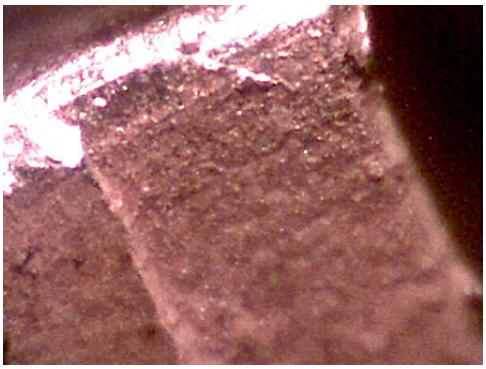
1. The tip is on straight and square.
2. There is nice even flow all the way down and around the base of the tip.
3. There is just a little bit of braze alloy on the plate behind the shoulders. The fillets or shoulders add maybe 25% to the strength.
4. The flow onto the plate means the plate was clean.
5. There is very little flow and it is right behind the tip so the steel was not overheated. A flow too far back can mean a heat affected zone big enough to cause ripped shoulders.
6. The amount of alloy out of the joint means that the braze joint was about .003" - .005" thick , which is pretty much the best combination of bond strength and impact protection.
7. There is just about the same amount of flow on each side.
8. The braze alloy is a nice gold color so it was not overheated.
9. There are no voids or holes so the tip was moved just a bit to let the flux escape out of the joint.
10. There is a smooth, even, complete flow around each tip so the carbide was properly pretinned.
11. The brazing is regular with little difference between one tip and another.

Saw Failure From Underbrazing



This is the first shoulder. This was a good braze. However there is one tiny area where you can see a few of the grind lines in the steel which indicates a lack of braze alloy.





Pictures of two shoulders where tips came out. Here you can see the lines in the steel all the way across on both shoulders. I think the braze alloy got just hot enough to color the steel but not hot enough to fully bond. There is a point in the metign range where the braze alloy is like thick grease. It is liquid enough so that you can push it out of the joint but it is not hot enough to fully bond to the steel.

The brazing is very good and the saw would not have failed if there had not been machine problems.

The brazing varies just a bit and I think tip loss may have been caused by under heating. In this case you could almost say the brazer was "too good". He was accurate enough to catch the braze alloy just as it started to flow. If he had been a half second to a second slower to react I think he might have gotten better results.

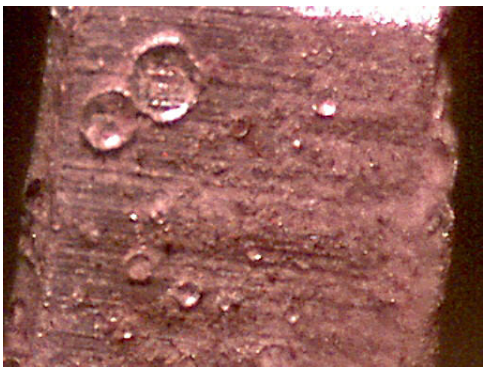
The flow onto the steel is good but not all the tips have the alloy "feathered" back onto the steel.

As the braze alloy melts it does several things. First it gets gummy or sludgy. Then it takes a bit more heat to get it to full melt. If you drop an ice cube into boiling water it takes a little bit of time for it to melt.

This is more time at the brazing temperature and not more heat. One technique used is to slowly draw the torch away from the tip as soon as it starts to flow. You don't want get it any hotter but you want it at the flow temperature for 1- 2 seconds. My guess is that this just barely hit the bottom of the flow range (1120 F) and never quite got to full temperature (1205 F).

I think the braze joints could be a bit thicker in some cases. A braze joint of about 0.001" is the strongest but it doesn't provide much impact protection so we recommend something between .003" to .005".

You can see the grinding marks on the shoulder through what braze alloy is left. This indicates that there was not enough braze alloy in that area or most of the braze alloy came off with the tip because it was not bonded to the steel well enough.



This is the fourth shoulder and this one may have been marginal. The lines are very prominent especially on the left side. There are also the bubbles. Obviously bubbles weaken the braze joint. This could have been from overheating the braze alloy to the point where the zinc boiled out but I don't see any other evidence of that. My guess would be that these are trapped flux bubbles. It is common for the brazer to move the tip out and then back in when the braze alloy reaches the proper temperature. This opens up the joint and allows any flux bubbles to escape.

Moves and changes In The Industry

Steve Bergerson is now with Western Saw in California. Western has been huge in concrete saws and is now expanding into wood. They supplied the "Quiet Saw" plate that Mike West is testing.

Kim Peterson at IKS SystiMatic in Kirkland WA. is now IKS West Coast customer service manager. Kim is a real straight shooter who "tells it like it is". She is dead honest, genuinely wants to help customers and has an incredible store of knowledge. For years we have been telling people to call Kim Peterson because she knows everything. It is nice to see it made official.

Gary Miller is Now Doing Business as Pengar Tool

Gary was the first diamond wheel person who really helped us grind cermets successfully.

Gary Miller, Pengar Tool
5743 Yosemite Drive
San Bernardino, CA 92407
Ph (909) 883-1440
Fax (909) 886-5123
Cell: (909) 312-4166
pengar@compuserve.com

Carbide Alloys

Johann Holm is new and in charge of sales. Johann was with Sandvik for a lot of years. Pete Sandell is now in charge of quality at the Carbide Alloys plant. I have known both these men for years and I have always been impressed by their knowledge, honesty and their total dedication to making things better.

Toney Green has retired and George and Carmen Morgan will be retiring shortly. These three are all unique individuals and no one will ever replace them.

IKS SystiMatic Kirkland has an incredible new piece of machinery. It is definitely worth seeing if you can get a tour. They have now invested have a couple years, several million dollars and a lot of work by intelligent people and it is really starting to show.

Turn hazardous waste into $

Recycling can be easier than illegal dumping and it can actually make you money.

We designed the filter units so that disposal is cheap and easy. The following is what US federal law says. Each locality has its own laws.

The filter is full of carbide, diamond, binder, oil and grease. There are two good choices for disposal. 1. Classify it as carbide grinding swarf and sell it wherever you sell scrap carbide. There is typically enough cobalt in it to make it saleable especially if it is with the scrap tips. 2. Call it an oil filter, (which it is since it does filter oil) and dispose of it as a service station would dispose of an oil filter from an automobile.

I would suggest that you let it air dry as much as possible and put it in with the scrap carbide. I would also suggest a sign on the side saying something like:

Carbide Grinding Swarf
Held for Recycling

In most places material held for recycling is not a hazardous waste since it is not waste at all. The sign can be made from a sheet of plain 8 1/2 x 11 paper using a magic marker and scotch taped to the container. We use peel & stick sheets we run through the printer.

Consulting Charges

$150 for saw failure analysis

$175 per batch for Tuffco treating

$250 per batch for lab work

I do charge for some consulting but I do a lot of it for free. If it is something small and interesting and if I am doing it for nice folks than I generally don't charge. I like it, I learn from it and it helps me write the newsletter. I am always willing to talk about a problem without charge.

Tip Loss Tips Radiata pine in New Zealand

Dear Mr. Walz,

I have been reading your book on braising carbide with a lot of interest. I have had on going problems with tip breakage I wonder if you can help. Your description of long sweeping curves from heat stress leads me to think this is one major cause. There is another typical type of breakage, which is the tip coming out leaving a thin and relatively even strip of carbide on top of the alloy. Is this a typical symptom of some poor workmanship, which we can remedy?

Thank you for being generous enough to share your knowledge on braising carbide on the Internet. I would send my saws to you for contract braising if you were a little closer!

Go the USA in the World Soccer Cup and keep using New Zealand grown radiata pine.

Yours faithfully
Hamish Aitken

Is the thin strip carbide or would it be a plating / coating on top of the carbide that came off. If the surface treatment is not done properly the tip comes off and leaves a thin, pretty even and flat layer. If the carbide breaks you usually see a rough surface and you usually see chunks of carbide and bare spaces with the braze alloy showing.

Check for braze joint thickness. You should have between .003" - .005". You might try the 49% silver braze alloy with manganese. We did tests with SystiMatic and Weyerhaeuser and it makes a difference as much as 30%.

We don't actually braze tips onto saws. We pretin. We do work for Thode in New Zealand. You might check with them.

If you could email some pictures it might help.

Tom

Camillus EDC in Talonite®
This is a sister alloy to our Talonite saw tipping alloy. This isn't really a new business for us but knives are fun and we have an in so we get a good price. For more information call 800 346-8274 or our web site at www.carbideprocessors,com

The following are all quotes from the Knives Illustrated and other magazine articles.

Folding Knife

Camillus EDC in Talonite®

"Camillus® "Every Day Carry", has a hairsplitting, 3" recurved blade.

The 3" blade is housed in a 3-7/8" stainless steel handle which forms a super strong integral frame lock. Features dual thumb studs for easy opening with either hand, and deep pocket carry clip. Thumb studs, screws and pocket clip are all coated with gold colored Titanium Nitride. Weighs only 3 oz. Made in U.S.A. Steel handle and integral frame lock to provide the ultimate in usability and strength for a midsize pocket knife. The EDC comes standard with a deep-pocket carry clip designed specifically.

The EDC is characterized by a flowing blade and handle design that is comfortable for users of all hand sizes. The handle is further sculpted by strategically placed cut outs that reduce weight, enhance grip, and add a unique look that Darrel Ralph is known for by knife collectors worldwide.

The classic drop point shape of the TALON is the perfect "user" shape for such an advanced blade material. The ergonomic design and practical profile lend the TALON to a myriad of work-knife chores like skinning, boning, and light utility work.

The EDC is truly a blade designed for every day use from its superb edge-geometry, to the stout frame lock. This is a pocket knife that will meet, and exceed all of your daily expectations."

Specifications

Length, Open: 6.85"
Length, Closed: 3.8125"
Blade Length: 2.95"
Blade Material: Talonite®
Handle Material: 420 HC Stainless Steel
Weight: 3 oz

Fixed blade Knives

Talon belt / sheath knife

These are Simonich designed full tang knives with 3.75" and 2.24" flat ground blades. They are equipped with G10 handle scales and the exposed tang has a lanyard hole.

An integral guard is provided. Along the top are machined ridges for better thumb purchase. A multi-carry Kydex sheath is included with the larger knife, a Kydex neck sheath with the smaller version.

Mini Talon neck knife

The knives are made of "Talonite," which is similar to Stellite, with which many may be more familiar. Talonite is not really a steel, rather it's an alloy of cobalt, chromium and tungsten along with some other elements. Talonite holds a razor edge and will never rust or corrode.

Stellite's reputation for holding an edge is legend, though only a very few custom knifemakers bothered with it because of the expense and the difficulty working with it.

While Stellite is generally cast, Talonite is produced using hot rolling and then is age hardened. This reportedly provides even better wear resistance and increased hardness, along with easier machining characteristics, an important consideration.

A grinding belt at Camillus can be used for 130 to 150 conventional steel blades, they get only six blades per belt with Talonite.

	Talon Folder	**Mini Talon**	
Retail price	$370	$220	$220
Best sale price	$247	$147	$149
Your price	$232	$138	$138

Knives Illustrated magazine

"Best Knife of the Year"

At a big savings

We sell the alloy to Camillus so we get a really good deal. If we get a deal, you get a deal.

Quotes from the article

- "A knife that fits a need for a trusted companion."
- "It has lived up to every chore."
- "Nothing would corrode it"
- "Comfortable to use"
- "The flat-ground, recurve blade cuts phenomenally."
- "Even after most blade materials would go dull, Talonite will keep cutting."
- **"Talonite is a blade material for all seasons and for all reasons."**

See P. 7 inside. Please check our web site at www.carbideprocessors.com or call 800 346-8274 for more information.

Our books on Coolant Management and Carbide and Ceramic Brazing are on the web at www.carbideprocessors.com

In This Issue



Save Money, big money, on shipping

We have started using Unishippers. Many customers like it better. Part of the reason is that it can save you hundreds of dollars a month. We still use any shipper the customer wants us to use but we like the quality and saving with Unishipper.

Kevin Reed 800 631-0608

Automatic Brazers?

Braze treatment

Untreated or poorly treated carbide means tip loss. We have been using our Tuffco system for over three years without a single failure.

Dave & Richard Otter

Tru-Cut Saw, Inc.
Brunswick, Ohio

American Heroes

I don't have anything against people in other countries but I don't like to see The U.S.A. get behind in anything.

The Japanese and especially Kanefusa have been doing a lot more saw research and innovation than we have in this country. Tru-Cut Saw was one of the first to notice how well they were doing with Cermet tipped cold saws for steel cutting.

When Tru-Cut started getting customers who preferred the Kanefusa cermet tipped saw they decided to do something. It took years and lots of hard work but they now make a sensational cermet tipped cold saw. He calls them JKO for Japanese Knock Off. Tru-Cut buys their own tips and we braze treat them here.

The braze treating we do means Tru-Cut can use a better grade of tip because they can braze them and the Japanese can't. Tru-Cut has patent protection in the US because they use our process. He calls them Japanese Knock Off but the real truth is that he does a lot of things new and better than anyone else.

For more people doing new things see "Super Filers" and "New Plate" inside.

Northwest Research Institute, Inc.
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