



INTERNATIONAL SAW AND KNIFE ASSOCIATION

# Cutting Times

Fall 2010

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## Winter Meeting

Friday March 11, 2011

Palm Springs, CA

Featuring....

Bob Hogan

**HIPEREON FINANCIAL TRAINING**

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Analyzing Your Profits

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Analyzing Cash Flow

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The Stages of Business Life

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Being Creditworthy in 2011  
and Beyond

•

Growth: The Silent Killer

•

Analyzing Financial Statements

are some of the  
topics for discussion.

## Annual Meeting - Atlanta, GA

The annual meeting was called to order by President, Mike Lindsay (Eastside Saw) at 7:00pm at the Marriott Hotel. The following BOARD members were present: Vice President, Cheryl Rinicella (Saw Systems, Inc.); Treasurer, Steve Bergerson (Western Saw), Acting treasurer, Sheldon Warrick(3 B's Saw & Tool); and Secretary, Paul Muscat(Skarpaz).



The minutes from the 2009 Annual Meeting Las Vegas, Nv. were read and approved.

Acting treasurer, Sheldon Warrick reported a balance of \$92,928.00 total in all of the accounts. The record books were transferred to current treasurer Steve Bergerson. Since there were no questions, the report was approved as read.



Nominations were presented to the membership of Paul Muscat and Tim Rief (Tim Rief & Associates) to fill the open Directors positions. There were no further nominations and the voting was unanimous. Congratulations Tim and Paul!

Special thanks were given to Equipment Ltd. and Southeast Tool for sponsoring our reception.

The meeting was adjourned which was immediately followed by the reception.

## Atlanta IWF Show Exhibiting Members

Amana Tool Corporation  
Carolina Specialty Tools  
CERATIZIT  
Colonial Saw Company  
Eagle Superabrasives  
Fahringer Bandsaw Blade Welders  
Freud America  
FS Tool Corporation  
Great Lakes Custom Tool Mfg.  
H3D Tool Corporation  
Hickory Saw and Tool, Inc  
Kanefusa USA Inc.  
Leitz Tooling Systems, Inc.  
Lenox / American Saw  
Moon's Saw and Tool, Inc.  
NAP Gladu  
Peerless Saw Company  
Popular Machinery and Tools, Inc.  
Molemab Abrasives  
Riverside Tool Corp.  
Royce // Ayr Cutting Tools, Inc.  
SKARPAZ Tooling Systems, Inc.  
TIGRA USA, Inc  
Vollmer of America Corp.  
Vortex Tool Co., Inc.

What a great representation for our organization !!  
Hope it was money well spent and a  
profitable situation for all.

The reception attendance was exceptionally good, food was great, and everyone had fun. The following past presidents attended:

Dick Vadnais – 1984-85 Pengar Tool  
Jerry Brillhart – 1990-91 Saw Systems, inc.  
Einar Gustafson – 1998-99 Keen Edge  
Sheldon Warrick – 2004-05 3 B's  
Natalie Brillhart – 2002 – 03 Saw Systems, Inc

Thank you all for making the evening such a success.



## The grinding process

It is as important as a good grinding wheel to know the main influences on the grinding process. There are rules, or better dependences, in the grinding operation. They do not appear directly but they can be detected in the grinding process when we take closer look.

There are **direct parameters** like the peripheral speed or the infeed rate and **indirect parameters** like the speed ratio.

It is very important to understand the grinding process in detail to be able to optimize a grinding operation.

The chip formation process decides whether a grinding process will be efficient or inefficient with a lot of problems. Hence it is very important to know the target of the process. The specification of the wheel is determined by the required quality of the work-piece and the cutting properties of the material of the work-piece. The number of active cutting

edges, their distribution, and the self sharpening process of the grain are responsible for the material removing process and for the efficiency of the grinding process.

The heat formation during the grinding process is the key to success, the lower the temperature the better the grinding performance. If you consider that at the cutting edge a temperature up to 1500°C is generated, which is quite above the melting temperature of steel, you can imagine the stress on the grain and the ground work-piece. The friction within the chip formation is mainly responsible for the temperature generation.

This is possible for a given specification of a wheel by changing the **grinding parameters** and hence the size of the chip. The grinding operation can be optimized knowing the dependences of the chip formation.

The **chip formation** is dependent on the grit

size and the peripheral speed.

If we look at a wheel with a given specification the chip size can be changed through the process parameters.

One of them, the peripheral speed, has significant influence on the **dynamic hardness**.



Chip formation

## Peripheral speed Vs – Workpiece speed Vw

Big chips are formed with low **peripheral speeds**, small chip with high peripheral speed.

Hence big chips create a high force on the grain, so the wheel wears more and acts softer. In contrast small chip give less force on the grain and the wheels lasts longer but acts harder. So the interaction between grain and chip determines the wheel behavior.

**Big chips increase the fracture behavior, small chips decrease the fracture behavior.**

**Softer** acting wheels grind cooler because the grains have freshly created sharp edges to grind. This enables chip formation with less friction and less heat formation. But you

have to keep in mind that the wheel wear is increased.

**Harder** acting wheels have a longer life but the danger of overheating in the grinding zone is increased. If the chips are too small burning and clogging of the wheel may occur. This is a damage of the workpiece which can be avoided.

The chip formation process is strongly dependent on the **workpiece speed**.

This parameter has the largest influence on the grinding process because here the **efficiency** of the grinding process can also be increased or decreased.

As explained in the dependency on the peripheral speed, the chip formation process creates **smaller chips at lower workpiece speed and bigger chips with higher workpiece speed**.

With higher workpiece speed the wheels are acting **softer**, in contrast with lower workpiece speed the wheels are acting **harder** with the danger of burning the material.

It is not possible on many machines to get a display of the workpiece speed but by marking the movement of the workpiece and measuring the time it can be easily calculated.

## Infeed $a_e$

The **infeed** describes the **depth** of cut or depth of penetration of the grinding wheel into the workpiece during the grinding operation.

This parameter changes the type of grinding operation by changing the contact **length**.

For **very small** values of infeed like 10µm we speak about surface grinding or cylindrical grinding, depending on the grinding opera-

tion.

These operations show low contact length.

For **very large** values like 1mm the grinding operation turns into a creep feed grinding operation and plunge grinding.

An **increase** in the infeed increases also the material removal rate and the wheel acts **softer**.

A **decrease** in the infeed decreases the chip size, therefore the wheel starts to perform **harder**.

These trends can be influenced by the power and the mechanical stability of the machine.

## Dressing process

There is a very important grinding process in the precision grinding process which is often seen as constant.

The **dressing** process can be described as a grinding process where one grinding tool (most of the time a diamond tool) is conditioning the grinding wheel.

The conditioning process includes the **geometric shape** and the **surface** topography of the grinding wheel. The influence of the dressing parameters is severe on the behavior of the grinding wheel.

Therefore it is necessary to know the basic principles of the dressing process.

It should be noted that the dressing process should always occur at the **working speed**.

If the dressing process is performed at lower peripheral speeds than the working speed, dynamic processes can interfere with the grinding process severely.

These problems, like **higher wheel wear**, **low surface** quality and **vibrations**, cannot be solved by changing the grinding parameters

and arise from the dressing process.

Stationary and roller dresser are used. For both types the overlap rate determines the surface topography of the wheel, almost independently from the grain size. The **overlap rate** shows how often the dressing tools is going over the same grain on the wheels surface.

$$\text{Overlap Ud} = \frac{\text{bd (actual dresser width)}}{\text{Fad (dressing feed per revolution)}}$$

## Influence of grinding parameters on the results of the grinding operations

	Increase workpiece speed	Decrease workpiece speed	Increase working speed	Decrease working speed	Increase infeed	Decrease infeed	Increase wheel diameter	Decrease wheel diameter	Coolant oil	Coolant emulsion
Chip size	↑	↓	↓	↑	↑	↓	≈	≈	≈	≈
Stress on the grain	↑	↓	↓	↑	↑	↓	↓	↑	↓	↑
Stock removal	↑	↓	≈	≈	↑	↓	≈	≈	≈	≈
Effective hardness of the wheel	<b>SOFTER</b>	<b>HARDER</b>	<b>HARDER</b>	<b>SOFTER</b>	<b>SOFTER</b>	<b>HARDER</b>	<b>HARDER</b>	<b>SOFTER</b>	<b>HARDER</b>	<b>SOFTER</b>

Sufficient chip formation is a requirement that all types of grinding operations have in common. The dependences listed above can be applied to nearly all grinding operations (except very fine grinding operations). The wheel specifications for the different grinding operations are very different, also the type of grain used and the grain sizes.

For precision applications **vitrified** bond suites very well whereas in the rough grinding opera-

tion the main bond types are **resinoid**.

**Brown corundum**, **semi friable** corundum and **Zirkonium** corundum are used for the rough operations in grain sizes between 12 and 60 mesh.

In precision applications **white**, **mono crystal** or **SolGel** corundum in finer grid size like 36 mesh up to 120 are preferred.

The **superabrasive** grains (diamond and CBN) are used in both bonds. The **vitrified** CBN wheels mainly are used in the cylindrical and surface grinding. **Resinoid** CBN and diamond wheels are often used in the tooling industry for creep feed grinding and sharpening operations.

In the last years **metal bonded** wheels for creep feed grinding became more and more important.

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# Meet A New Member...Piper's Saw Shop

Just over 25 years ago (around 1978), Jimmy Piper - owner of Piper's Saw Shop, Inc., ventured out into the sawmill service industry. As an ex-coalminer and ex-welder, he risked everything his family had hoping that he could make it as a sawsmith. In his own backyard he set up the equipment to begin hammering saws, a process of tensioning circular saw blades in such a way that compensates for stresses placed on the saw during use.

But this was only the beginning of something which was to become much greater. With only a few customers, he began renting a room in the old icehouse in Central City, Kentucky. Then slowly, the fledgling company began adding other services and products for sawmills. One of the earliest, and perhaps the most successful additions was the carbide saw bit. Carbide had been used in the coal mining industry for years, but Piper's was one of the first to apply this material to the sawmill industry. The life span of these new bits was several times that of its predecessors and greatly increased running time between sharpening, thereby reducing down time for their customers.

Early on Jimmy and his wife Brenda put in a lot of road time picking up saws and delivering supplies. This eventually lead to a steady increase in demand and business for their young company. Eventually this allowed for the hiring of a full time salesperson.

In time, other products such as gang saws, edger saws, narrow and wide band saws and much more were added. That further increased their customer base until today, there are literally hundreds of loyal customers. Piper's Saw Shop services customers from coast to coast is the US market as well as many customers in foreign markets. Eight trucks provide pick-up and delivery services in Kentucky, Tennessee, Indiana and Illinois. Customers in all other areas of the country and abroad receive their products and services via freight providers.

Today Piper's Saw Shop, Inc. is still a family owned business located in Muhlenberg County, Ky. Using the techniques perfected by blacksmiths years ago (i.e. a hammer and an anvil), Jimmy has built Piper's Saw Shop into a thriving business from the humble beginnings of that small shed in his back yard. Piper's has grown over the years to about forty employees and eight trucks that service routes covering four states.

Even though Piper's customer base is geographically spread all across the country, they are still very concerned about the local economy and the welfare of their local community. This is evidenced by Piper's contributions to various charities and cooperation with other local businesses and civic organizations.

With distributorships from all the major industry suppliers, they are very proud of the wide range of services and products they offer. But even more so, they are proud of their loyal customer base. Many sawmills that they service and supply today are original customers that Jimmy served 25 years ago. Loyalty such as this is the result of years of hard work, building trust and assuring customers that they are given top priority.

Piper's is the largest distributor in the United States for Simonds® Industries sawmill supplies. Piper's has also become an innovator in equipment design and manufacturing by producing the Piper® Rail Carbide Bit, grinders for knives and chippers and does a healthy business in repair work and upkeep on saws for hundreds of sawmills.

In February of 2002 Piper's moved into its new \$350,000 facility on Phillip Stone Way (Hwy. 189 By-Pass North) in Central City. Now with approximately 11,500 square feet under roof, Piper's has the the capacity to better meet the production needs of their customer base with plenty of room to grow. With customers from California to New York and a work force second to none, Piper's has become an industry leader.

## 2011 Calendar

<b>Winter Meeting—Financial Seminar</b> <b>Palm Springs, CA</b> <b>March 11 2011</b>
<b>Band Saw Seminar—M.K. Morse Co.</b> <b>Canton, Ohio</b> <b>May 5 and 6, 2011</b>
<b>AWFS Show and Meetings</b> <b>July, 2011</b>
<b>Tooling &amp; Machine Maintenance</b> <b>St. Louis, MO</b>

# Meet A New Member...

## Toolco

### *Our Mission Statement:*

Toolco Industrial Corporation provides quality cutting tools and services to foster long-term business relationships through the strategic association of our manufacturing operations with the marketing capabilities of well-established distributors.

We achieve our mission by our resolute commitment to:

- Provide Diverse and Cost Competitive Products
- Offer Personalized Customer Service
- Strive For Continuous Improvement Of All That We Do
- Communicate Honestly and With Integrity Which Is To "Say What We Do and Do What We Say"
- Work Together To Enhance Profitably

### *ABOUT US*

#### *Founded - year/by:*

Toolco Industrial Corporation began manufacturing woodworking tools in 1975 in Marion, North Carolina. James Braswell Sr. purchased the assets of the company in 2001, and manufacturing operations continue as Toolco Industrial Corporation in Marion, North Carolina.

#### *Description of Business and Key Product Lines:*

TOOLCO Industrial Corporation manufactures cutting tools. We have invested in state-of-the-art manufacturing and inspection equipment. Our equipment purchases have enabled us to produce diverse lines of cutting tools. We produce slot cutters, carbide tipped router bits, and solid carbide router bits. We have manufactured over 1100 SKUs of solid carbide router bits, 600+ SKUs of carbide tipped router bits and slot cutters. Our cutting tools are made for industrial applications, professional and hobbyist woodworkers and for manufacturers of plastic products, furniture, RVs, mobile homes, boats, cabinets, solid surfaces, and doors. We have been selling under private labels to national and international OEM tool and OEM equipment manufacturers. These companies have sold our tools to nationwide home improvement stores, hardware stores and lumber stores in large volumes for many years. We also sell to other well-known distributors and well-known catalog companies.

## Used Equipment Connection...

<p><b>Smithing Stands priced from \$6,495.00 to \$7,495.00</b> Please call Karl Schmidt 802-334-6365</p>
<p><b>Weinig Model 931 Profile Grinder, recently reconditioned w/ extra top tooling</b> Price:\$9,900 Please Call: 602-269-7783</p>
<p><b>2008 Vollmer demo CX 100 4-axis CNC top and face grinder</b> Price: \$48,500 Please call: 412-278-0655 x235</p>
<p><b>2002 Vollmer CHD 251R2 with ND 230 robot Completely rebuilt w/ 6 month warranty</b> Price \$155,000 Please call: 412-278-0655 x 235</p>
<p><b>1970's Vintage Vollmer Finimat B face grinder</b> Price: \$7,500 Please call: 412-278-0655 x 235</p>
<p><b>1970's vintage Vollmer Finimat A top grinder</b> Price: \$7,500 Please call: 412-278-0655 x 235</p>
<p><b>1984 Akemat U ATB carbide saw grinder with steel relieving Option \$14,500</b> Please call: 412-278-0655 x235</p>
<p><b>Utma. AP800 Face Grinder 1998 Rebuilt, 6 Month Warranty \$13,900</b> (781-) 585-4364</p>
<p><b>Rekord Control KS 2004 Rebuilt, 6 month Warranty \$15,000</b> (781) 585-4364</p>
<p><b>Schneeberger Norma 1985 Rebuilt, 6 Month Warranty \$12,900</b> (781) 585-4364</p>
<p><b>Steel Reliever \$ 15,000</b> (781) 585-4364</p>
<p><i>To List your used equipment Please Fax Cheryl Rinicella @ 330-963-2985 or email crinicella@sawsystemsinc.com</i></p>

### Contact Information:

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**E-Mail: toolco@toolcobits.com**

**Website: www.toolcobits.com**

**Download Catalog:**

<http://www.toolcobits.com/catalog.php> (19.3 MB)

**Key contact: James E. Braswell Sr.**

**Title: President/Owner**