June 2022

Newsletter

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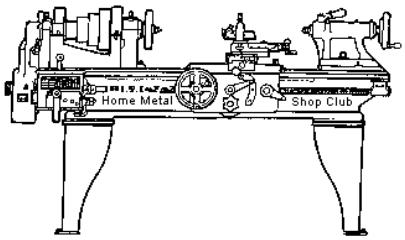


ttp://www.homemhetalshopclub.org/

The Home Metal Shop Club has brought together metal workers from all over the Southeast Texas area since its founding by John Korman in 1996.

Our members' interests include Model Engineering, Casting, Blacksmithing, Gunsmithing, Sheet Metal Fabrication, Robotics, CNC, Welding, Metal Art, and others. Members enjoy getting together and talking about their craft and shops. Shops range from full machine shops to those limited to a bench vise and hacksaw.

If you like to make things, run metal working machines, or just talk about tools, this is your place. Meetings generally consist of ***general announcements***, an ***extended presentation*** with Q&A, a ***safety moment***, ***show and tell*** where attendees share their work and experiences, and ***problems and solutions*** where attendees can get answers to their questions or describe how they approached a problem. The meeting ends with ***free discussion*** and a ***novice group*** activity, where metal working techniques are demonstrated on a small lathe, grinders, and other metal shop equipment.

President	Vice President	Secretary	Treasurer	Librarian
Vance Burns	*Ray Thompson*	*Joe Sybille*	*Gary Toll*	*Ray Thompson*
Webmaster/Editor	Photographer	CNC SIG	Casting SIG	Novice SIG
Dick Kostelnicek	*Jan Rowland*	*Martin Kennedy*	*Vacant*	*John Cooper*

This newsletter is available as an electronic subscription from the front page of our website. We currently have over 1027 subscribers located all over the world.

About the Upcoming 09 July 2022 Meeting

The next general meeting will be held virtually on-line at Zoom.us on 09 July 2022 at 1:00 P. M. Log-in credentials are: Meeting ID 863 8930 5472. Pass code 808703.

General Announcements

Videos of recent meetings can be viewed on the HMSC website.

The HMSC has a large library of metal shop related books and videos available for members to check out at each meeting. These books can be quite costly and are not usually available at local public libraries. Access to the library is one of the many benefits of club membership. The club has funds to purchase new books for the library. If you have suggestions, contact the Librarian *Ray Thompson*.

We need more articles for the monthly newsletter! If you would like to write an article, or would like to discuss writing an article, please contact the Webmaster Dick Kostelnicek. Think about your last project. Was it a success, with perhaps a few 'uh ohs' along the way? If so, others would like to read about it. And, as a reward for providing an article, you'll receive a free year's membership the next renewal cycle!

Ideas for programs at our monthly meeting are always welcomed. If you have an idea for a meeting topic, or if you know someone who could make a presentation, please contact Vice-President Ray Thompson.

Members are requested to submit to the club secretary the name, address, telephone number, and website address, if any, of any metal or other material stock supplier with whom the member has had any favorable dealings. A listing of the suppliers will appear on the homepage of the club website. Suppliers will be added from time to time as appropriate.

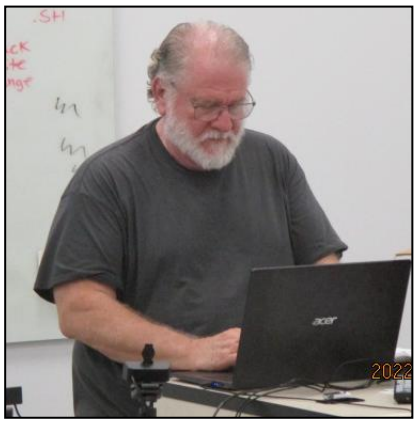
Club officer elections were held and current office holders agreed to remain in their respective offices for another year. Thanks to the current office holders.

John Hoff, a long time member, club treasurer, and vice president of the club died July 26 from complications of recent surgery.

Recap of the 11 June 2022 General Meeting

By *Joe Sybille*

Thirteen participants attended the meeting, seven were in person at TxRxLabs and six attended via Zoom.us. There were two visitors, Joseph Davis and David Trevas. President Vance Burns led the meeting (right photo).



Presentation

Club members Martin Kennedy (left) and Richard Douglas (right) gave a presentation on cutting tool Inserts. Inserts are to shape metal. Machine cutting tools may be made from tool steel, carbide, or ceramic. The focus of the presentation was on tungsten carbide inserts.

Kennedy and Douglas began by describing some of the history of the development of tungsten carbide. From there, they provided sources of tungsten. Currently, about 85% of the world's tungsten ores come from China, about 10% of the ores come from Russia, Canada, Bolivia, and Vietnam. The density of tungsten is a little less than that of gold. Tungsten carbide is made in two basic forms, WC and W2C. WC contains about 6% carbon. W2C contains about 3.5% carbon and is made by sintering (heating at high temperatures) tungsten and carbon together. WC has an estimated tensile strength of over 1 million pounds per square inch and is considered one of the strongest materials on earth.

Carbide inserts are made from WC mixed with cobalt in a sintering process that binds hard carbide grains together. The sintering is done under vacuum and takes two days. A short six minute video describes in general how the inserts are made.

Inserts come in different shapes to serve the task at hand. There are inserts shaped round, rectangular, triangular, and other shapes in between. These inserts have surfaces of varying designs to form chips to break into manageable sizes the material being machined. The more one engages the insert in to the material to be cut the likelihood there will be an increase in chatter.

Inserts are held in tool holders. From Kennedy's experience, it is best to purchase the insert first then the tool holder. Purchasing the tool holder first one may discover there are no inserts available to fit the tool holder. A good source for inserts is the local salvage yard. Companies making high precision parts use an insert once and then discard the insert. Barely used inserts are worth their weight in 'tungsten'. US made inserts range in price from $8-$15 with holders ranging from $60 to $100. Imported inserts from the far east range in price from $0.50 to $2.00 with holders ranging from $10-$15. For the typical home shop machinist, the far east tools may prove adequate. When purchasing tool holders, it is best to purchase extra screws for the inserts. Looking for a dropped screw to fix the insert in the holder waste time and may never be found among a heap of metal chips.

When compared to HSS inserts tungsten carbide inserts offer several advantages. Among them are maintaining a sharp edge longer, making a better finish, and cutting faster. Disadvantages include purchase cost and embrittlement.

The slide presentation can be viewed here.

Show and Tell

Dick Kostelnicek showed parts he made to modify his toilet paper holder to accommodate larger rolls of toilet paper. See photo at right.

John Cooper discussed his recent visit to an air show in Redding, Pennsylvania. The show featured vintage military aircraft.

Richard Douglas showed a boring bar he purchased recently. See photo at left.

Safety Moment

Several videos were shown depicting unsafe practices resulting in injuries and near misses. Scenarios depicted individuals both on/off the job failing to observe generally accepted safety practices such as paying attention to the task at hand.

Problems and Solutions

A participant wanted to know the best way to drill 9/16” holes in quarter inch thick steel plating. It seems the drill bits were becoming dull after making two or three holes. The participant revealed the use of water as a coolant for the drill bit. Other participants recommended cutting fluid to both cool the drill bit and extend the cutting performance of the bit. Using a cutting fluid washes away chips, reduces friction, and promotes faster cutting speeds.

Another participant required a method to hold different diameter boring bars in a quick change tool holder. Sleeves made of copper pipe slit lengthwise were recommended as an inexpensive solution to the problem.