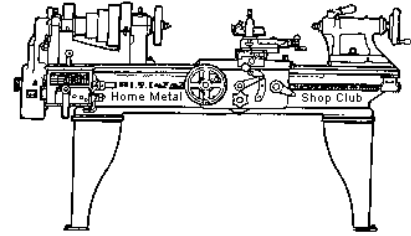




**August 2021**  
Newsletter

Volume 26 - Number 08



<http://www.homemetalshopclub.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 <i>Vance Burns</i>	Vice President <i>Ray Thompson</i>	Secretary <i>Joe Sybille</i>	Treasurer <i>Gary Toll</i>	Librarian <i>Ray Thompson</i>
Webmaster/Editor <i>Dick Kostelnicek</i>	Photographer <i>Jan Rowland</i>	CNC SIG <i>Martin Kennedy</i>	Casting SIG <i>Tom Moore</i>	Novice SIG <i>John Cooper</i>

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 11 September 2021 Meeting

The next general meeting will be held on 11 September 2021 at 1:00 P. M. on-line at Zoom.us and in person at TxRxLabs, [6501 Navigation Street, Houston, Texas 77011](#). A week before the meeting invitees will receive from the webmaster the meeting ID and passcode to join the on-line meeting.

## 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 that 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.

## Recap of the 14 August 2021 General Meeting

By Joe Sybille



Two participants attended the in-person meeting at TxRxLabs. They live streamed the meeting to eight participants attending virtually. There was one visitor, Wilfred Nijs, of Brussels, Belgium. Vice-President Ray Thompson led the meeting (right photo).



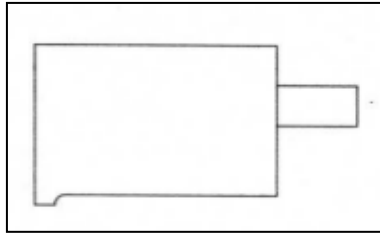
## Presentation

There were two presentations today. One presentation described a method to make clamps for a mill vise; the other shared the experience of attending a local auction of machinery tools.

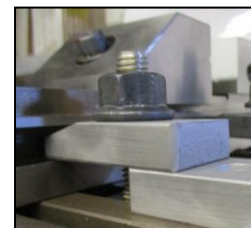


Club member Joe Sybille gave a presentation on making clamps for a 3" screwless precision mill vise. Clamps with the typical clamping set did not fit the vise to his liking, so he decided to make a set of his own. If the clamps holding one's mill vise is unsuitable, consider following along to discover a method for making clamps.

Sybille began by showing several photos depicting different views of the screwless vise and describing how he wanted the clamps to fit the vise. On each side of the vise is a channel along nearly the length of the vise base. Spaced equidistant apart in the channel are 3/8 inch diameter holes. These holes extend from one side of the vise to the other and are spaced about 3/8 inches apart for the length of the channel. Initially, he thought about making clamps having a pin to fit in the holes, but decided against that design because the pin may bend from the clamping force of the stud used to fix the clamp to the mill table. Instead, he made a smaller version of the clamps that came with the typical clamping set.



After selecting the appropriate stock, Sybille cut to size several blanks for the clamps. Afterwards, he used a 15 degree angle plate in a mill vise to mill a bevel on the clamp blank. The beveled end of the clamp fits in the channel along the base of the vise. The thickness of the clamp end without the bevel equals the distance from the vise base to the bottom edge of the channel. He chose this thickness to match that of a support piece. A support piece enables the vise clamp to remain horizontal when holding the vise fixed to the mill table. He believes vise clamps work best when held horizontal. Each clamp as made can serve as a support piece or a vise clamp. After the bevel step, holes for anchoring studs were drilled using a pilot starter followed by the drilling of several successively larger holes to the final size. A run through the sand blaster to remove mill scale from the clamp blanks is followed by a coating of bluing to minimize the formation of rust. A test fit assures the clamps work well.





Club member John Cooper shared his experience of attending an auction at Langham Creek Machine Works in northwest Houston, Texas. The business closed recently and sold off its equipment inventory and customer identification list. The closing put seventy-five employees out of work. Items made for the offshore drilling industry and onshore down-hole drilling industry formed a major part of the company's business. Below are photos of an aerial view of the company site and a few items sold at the auction. Among the items sold were a Hardinge lathe, straightening press, laser welder, honing machine, assorted measuring instruments, and a large granite plate. See photos below.



## Safety Moment

The safety video emphasized situational awareness. For example, when walking into a new area, one should make a mental note if the flooring has depressions, if there is liquid pooling in spots, and if there is debris that could cause a tripping hazard.



## Show and Tell



*Wilfried Nijs* showed a pair of scoops he made for the end product (flour) that is the result of grinding grain at the windmill on his Belgium farm. Nijs is a retired engineer and an accomplished craftsman in both metal and wood. One scoop is made from the wood of a pear tree and the other is made from poplar.

Together, *John Cooper* and *Joe Sybille* gave a virtual walk-through tour of TxRxLabs.

## Problems and Solutions

A member mentioned he has noticed a significant increase in the cost of chemicals used to 'Parkerize' small metal items.

## Articles

### **Trials of a Drill Mill Part 3**

by Richard Douglas

In this my third and final installment of Trials of a Drill Mill, I discuss programming the variable frequency drive, VFD. The VFD, AT Simple Mini AC, is an import from the far east and is used to drive the 3-phase motor from a single phase 220 voltage input.

There are 99 programmable settings in the AT Simple Mini, but only 10 settings are needed to use basic functions to control the motor. I shall discuss the 10 basic functions. Advanced functions to control the motor will not be discussed. Figure 1 depicts the program keys on the front of the VFD. Figure 2. is a chart with program parameters and other details.



Figure 1. Front of VFD

Programming should be done in stop mode. Programming done in run mode will not be saved. To enter program mode press the Program key. Use the up or down arrow keys to change the Parameter "P" number. Once the parameter is selected press the Function/Data Save key. This brings up the data value. Use the Up or Down Arrow keys to change the data. When you have the value you want press the Function/Data key to save the data. "End" will appear then the next higher "P" parameter.

Let's assume your motor is 220v, so the first parameter you will have to change is P01. Make sure you are in stop mode. Use the Program key to enter the program mode. Use the Up arrow to get to P01. Press the Function/Data key to display the data. It will display 50.0 for 50 Hz. We want 60 Hz. Use the UP Arrow key to change the value to 60.0. Press the Function/Data key to save the value. "End" will appear followed by P02.

Parameter	Parameter Specification	Range	Default	Unit
P00	Maximum Voltage	0-- 220	220	V
P01	Reference Frequency	0--400	50	Hz
P05	Minimum Frequency	0--400	0	Hz
P06	Maximum Operating	0--400	65	Hz
P07	Minimum	0--400	0	Hz

	Operating			
P08	Hidden Password	0-- 65535	00000	
P09	Input Password	0-- 65535	0	
P21	Revolution for 50 Hz	0--8000	2800	
P26	Working Frequency	0-- 400.0	50	Hz
P34	Main Rising Velocity	1--1000	25	Hz/s
P127	Remaining Hours	0-- 65535	65535	H

Figure 2. Program Parameters

Continue in a similar fashion to change other parameters.

P05, the Minimum Frequency, should be set not less than 20 Hz as discussed last month, unless you have a separately run cooling source for your motor. P07 should be set the same as P05.

P06 should be set using the duty factor of your motor.  $60 \times \text{duty factor} = \text{P06}$ . This was also discussed last month.

P08 and P09 work together for setting and entering a password. I would only use this if you have youngsters that might play with the programming. Here is how those parameters work. You set the password in P08. When you want to change the programming you enter the password in P09 to unlock a programming session. **IMPORTANT:** programming will be unlocked until you power off the AT Simple.

P21 RPM at 50Hz reminds again that we sit alone at 60Hz in a 50Hz world. If you want to use the tachometer feature of AT Simple and your motor doesn't have the RPM at 50Hz on the name plate, you will have to calculate or measure it at 50Hz and enter it here.

P26 You want to set your working frequency to 60 Hz, the incoming line frequency.

P34 Main Rising Velocity is like a soft start. It is how fast the AT Simple goes from minimum to maximum frequency on start up. For small motors the default is fine but on larger motors you may want to lower the value to reduce the current in rush.

P127 is an extra parameter just for those who forget often to shut down the VFD when closing the shop. This allows you to set a timer to shut off your VFD. Default is no timer. If a value less than 65535 is set the VFD will time out. So if you never want to run more than 8 hours put in a value of 8 and after 8 hours it will turn itself off.

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The foregoing described how I programmed the VFD to do basic operations, such as starting and stopping the motor, and changing the speed. With the installation and programming done, I now have a working drill/mill. Now, it is time to start thinking about adding an external tachometer, power feed, and maybe a digital readout, DRO.