



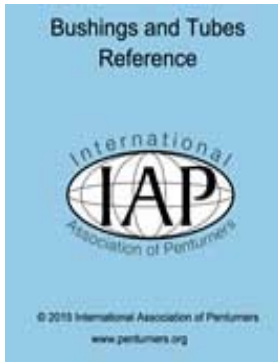
International Association of Penturners

Using the International Association for Penturners (IAP) “Bushings and Tubes” App for Apple iOS

Developer: Edgar Dohmann aka: Edgar

Revised 6-24-23 for v1.15

Downloaded from www.penturners.org



Please note: This Apple App is an adaptation of the IAP Bushings & Tubes charts developed since 2009 by the IAP librarian, Wayne Racinowski. All data in those charts and this app was compiled from suppliers published kit, tube and bushing information. IAP and its app developers assume no responsibility or liability for any errors in the suppliers published information or any transcription errors. Please report any errors or discrepancies to one of the following, the App Developer appfeedback@penturners.org or the IAP System Administrator. admin@penturners.org

About the App

The Bushings & Tubes app was originally written for Apple iOS devices (iPhone & iPad) by Edgar Dohmann in 2015. It is distributed with a set of data from the IAP Bushings & Tubes charts and it has the ability to automatically download updated chart data from the IAP Server.











Instructions, Photo and Bushing information files are not embedded in the app itself. Instead, the app will automatically download those files from the IAP Server (if auto-updating is enabled) and store them in the app's local data memory area.

The app will run on any iPad, iPhone or iTouch with iOS 12.0 or later. It includes a drill bit converter and a calculator. It also allows you to create a "Favorites List" of your favorite kits from your favorite suppliers and you can change the supplier order of the database.

Navigating the App

The app starts up in portrait mode, but all app screens may be viewed in either portrait or landscape mode. The app uses a number of iOS navigation features including navigation bars, buttons and swipe gestures. The user is encouraged to experiment with common iOS gestures for a full app navigation experience. Note: a right swipe will dismiss most screens, including pdf information, photo & bushing drawings. PDF views may be zoomed and panned. If such a view has been zoomed, double tap anywhere on the screen to return it to normal size before attempting to dismiss the screen with a right swipe.

Pen photos can also be zoomed and panned. Use pinch-in and pinch-out gestures for gradual zooming. Use double-tap gestures for rapid in-out zooming. Right swipe outside the image frame to dismiss the view.

Bushings & Tubes		
	Sierra Vista Twist BP - Tropical and Circuit Board (Berea)	BHWD ⓘ
	Sketch 5.6mm Pencil (Berea)	BHWD ⓘ
	Slimline Click Pencil - Deco and Greek Key (Berea)	BHWD ⓘ
	Slimline Click Pencil (Berea)	BHWD ⓘ
	Slimline Stylus Twist BP (Berea)	BHWD ⓘ
	Slimline Twist BP (Berea)	BHWD ⓘ
	Slimline Twist BP - Deco and Greek Key (Berea)	BHWD ⓘ
	Slimline Twist BP - Sleek (Berea)	BHWD ⓘ
	Slimline Twist Pencil (Berea)	BHWD ⓘ
	Soft Grip Twist BP (Berea)	BHWD ⓘ

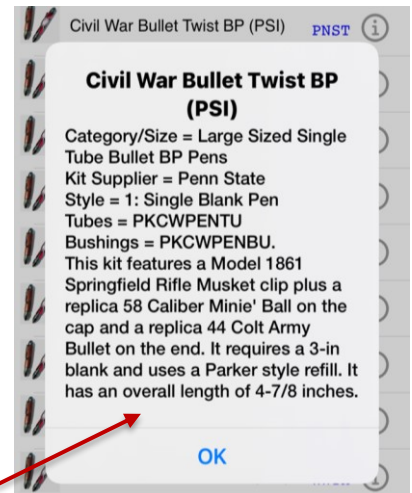
The primary app screen is a searchable table view displaying a scrollable list of all the **Kit Names** listed in the IAP Bushings & Tubes charts. This table also shows a Supplier abbreviation (see list at the end of this guide) and an info icon for each kit.

Photo of a pen may be available for a kit, if a thumbnail image is shown to the left of the Kit Name.

If instructions are available for a kit the **Supplier abbreviation** will be shown as **Blue** text.

If instructions are not available for a kit it will be shown as **Red** text.

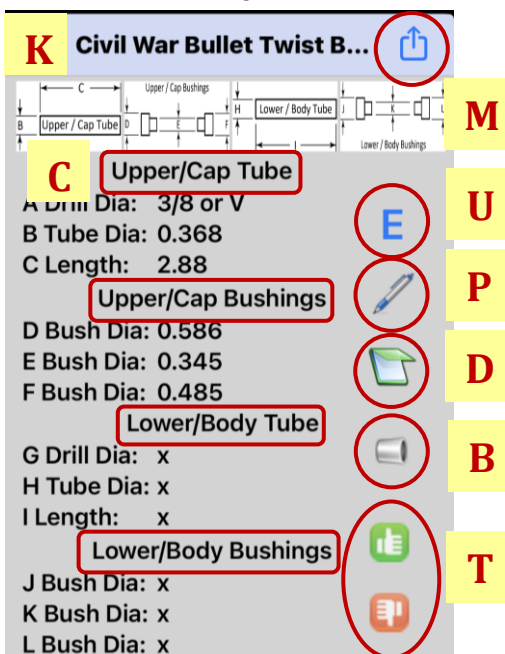
Tapping on any **info icon** will pop up a small window as shown on the right, summarizing that kit.



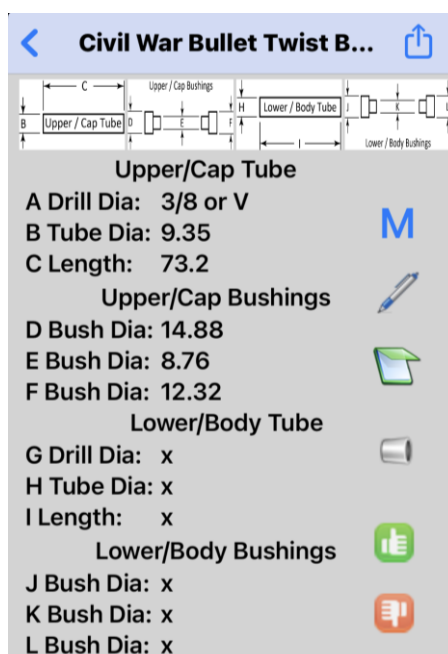
The **Bushings & Tubes** title in the table view header is a clickable target to quickly return the table view to its initial state with a visible search bar. This is the same action as the standard iOS feature of tapping the status bar. *However, the status bar is not visible when the device is rotated to landscape mode.* Making the title clickable permits this action to be performed in both portrait and landscape orientations.

Selecting a **Kit Name** will switch to a Detail Screen showing the specific bushing and tube information for that kit. An **E** or **M** icon specifies English or Metric **Units**. A **Pen icon** will appear if a pen photo is available for that kit. A **Document icon** will appear on the detail screen if Assembly Instructions are available for that kit. Tap on the document icon to view the instructions in a window that can be zoomed and panned. A **Bushing** icon will appear if a bushing drawing is available.

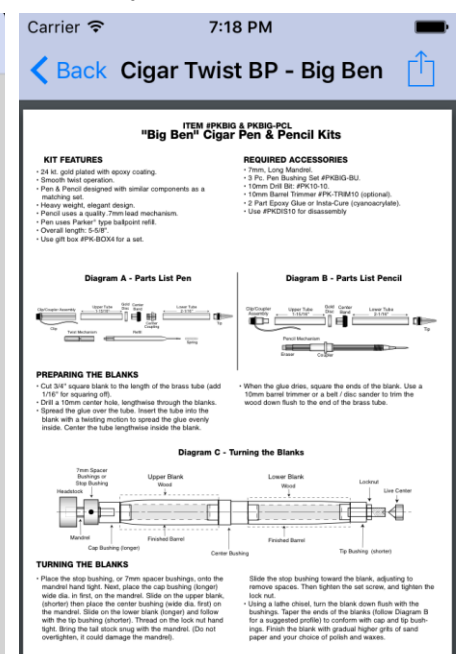
Detail Screen English



Detail Screen Metric



Assembly Instructions



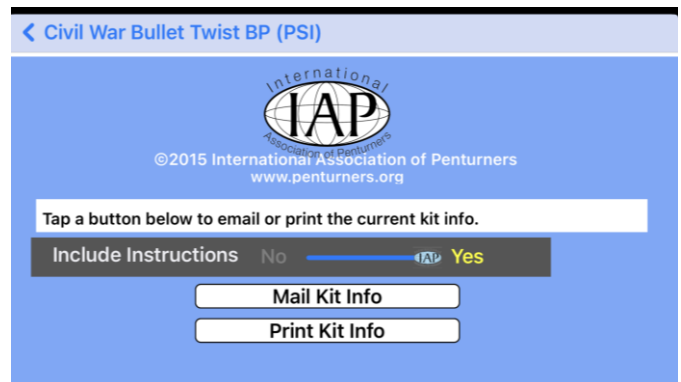
The bushing and tube dimensions are available in English (**E**) or Metric (**M**) units. Tapping on the **E** or **M** icon will switch the display to the alternate units. English is the default app setting, but you can use the Settings app to specify English or Metric as your preferred default setting as you wish.

Tube and bushing diameters will be shown to 3 decimal places in English mode and (2) decimal places in Metric mode. Tube lengths will be shown to 2 decimal places in English mode and (1) decimal place in Metric mode.

Inches and Millimeters are the implicit units of measure. Drill sizes are stored in a combination of English and Metric units in the database, so those do not change when the display mode is switched.

The **Thumbs Up** and **Thumbs Down** icons on the detail screen provide a means for adding or removing kits from your Favorites List.

From the Detail Screen, it is possible to **eMail** or print (via Air Print) both the summary and detailed information about the kit. If assembly instructions or bushing drawings are available, they may optionally be included when emailing or printing kit information.

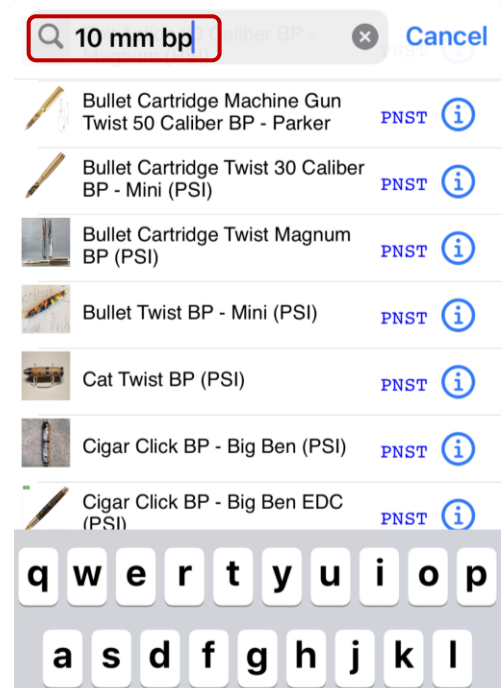


Search Feature

Tap inside the **Search** field of the main table view to initiate a case-insensitive search. You can enter multiple search items, separated by spaces, such as "10 mm bp". Such a search will find all kits that contain all of your search items somewhere in the kit information.

Each item entered in the search field is treated as a substring element and the app will search all data fields of each kit to look for matches with your items. Only those kits that have substring matches to all of your search items will be displayed.

For example, the app may find a "10" match in the bushing part number (such as 104759001), a "mm" match in one or more of the Drill Diameter fields and a "bp" match in the Kit Name or Category/Size fields. This type of matching may or may not provide the degree of filtering that you are looking for. If not, try more or less terms or different terms in your search to narrow or expand your search results.



When the Detail Screen is visible, the four detail **Category titles** are clickable targets. See Page 2.

Upper/Cap Tube

Upper/Cap Bushings

Lower/Body Tube

Lower/Body Bushings

When you select one of those categories, the app will automatically perform a search on those dimensions and return to the main table view to display the search results. (Duplicate dimensions will be omitted from the search.)

Note that these targets are only clickable when the detail view is entered from the main table view and not when entered from the Favorites List.

Note that dimension searches initiated from the detail view will always search in English units, even if the detail view is currently displayed in Metric units. For example, if the Upper/Cap Bushings are displayed in Metric mode as 12.06 9.07 14.60, tapping on that header button will actually initiate a search for 0.475 0.357 0.575. This is because all data is stored in English units in the database.

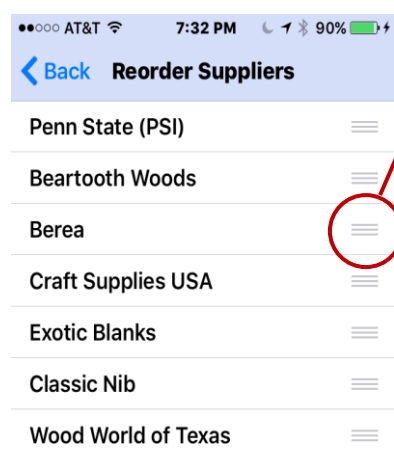
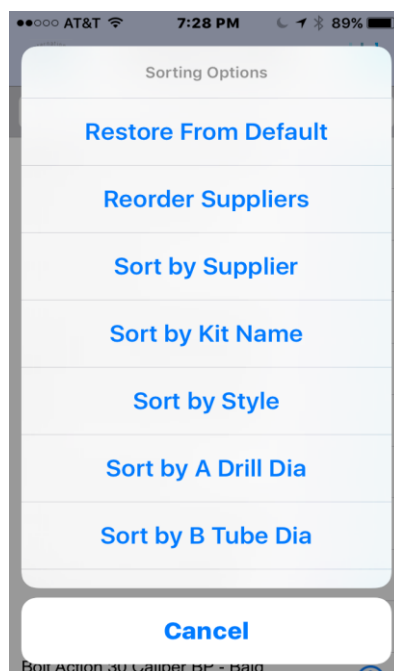
Sorting

The app database initially contains a list of kits, arranged in an arbitrary supplier order. A "left swipe" across the face of the table listing will pop up a list of sorting options. Note that this feature is only available while searching is inactive. (Tap the Cancel button next to the search field to dismiss an active search function).

You can sort the app database by any data category listed in the Sorting Options. Your sorted list will be saved in the app's user preference area and you can restore the list to its original state by selecting the "Restore From Default" option.

This sorting feature is independent of the "Favorites List" and has no effect on your current Favorites List.

The second item in this list (Reorder Suppliers) allows you to rearrange the default supplier order of the database. Selecting that option will pop up a new display:

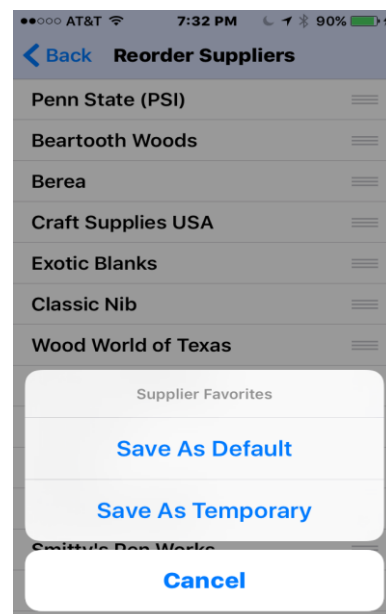


To change the supplier order, touch and drag up or drag down the triple line icon at the far right of the line displaying the supplier(s) you want to move.

When you are through reordering the suppliers, swipe left across the screen to bring up the "Save" display.

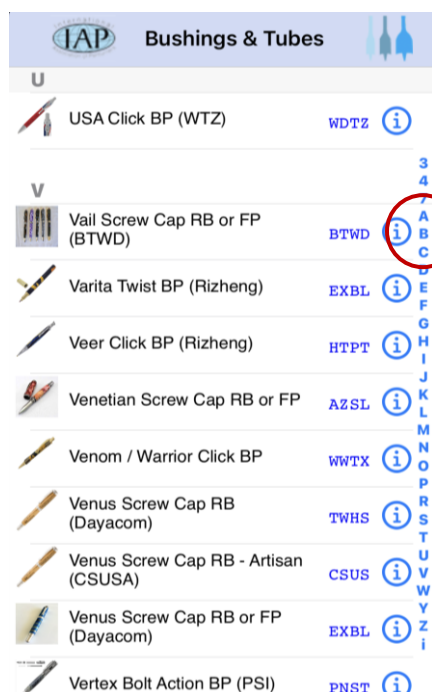
You have a choice of saving your reordered list as the new Default Database file or saving it as a Temporary file.

If you save it as a Temporary file, it will be similar to the general sorting options. Your reordered list will only last until you do another sort or "Restore From Defaults".



Cancel will simply exit the Reorder screen without making any changes. You can also exit the Reorder screen without making any changes by using a swipe right gesture as well as tapping the Back button.

If you choose any of the 15 “Sort by” options, the kits database will be sorted by that selection and the results will appear in an indexed table list with the first letter (or number) of each element appearing in a vertical list on the right side of the screen.

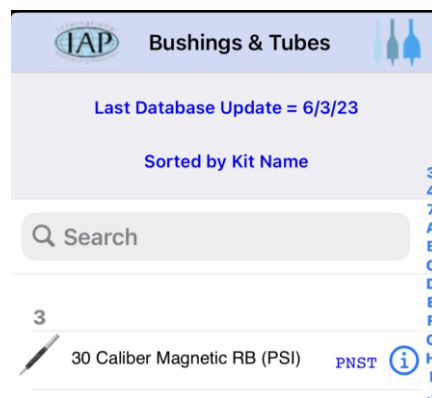


IAP Bushings & Tubes		
U	USA Click BP (WTZ)	WDTZ
V	Vail Screw Cap RB or FP (BTWD)	BTWD
	Varita Twist BP (Rizheng)	EXBL
	Veer Click BP (Rizheng)	HTPT
	Venetian Screw Cap RB or FP	AZSL
	Venom / Warrior Click BP	WWTX
	Venus Screw Cap RB (Dayacom)	TWHS
	Venus Screw Cap RB - Artisan (CSUSA)	CSUS
	Venus Screw Cap RB or FP (Dayacom)	EXBL
	Vertex Bolt Action BP (PSI)	PNST

Tapping on an index letter will quickly scroll the display to that section of the kits. The example shown here is the result of tapping on the letter “U” in the index list.

The list can be scrolled in the normal manner by swiping up or down, but the index can help you get to an area of interest much faster than scrolling through a long list.

The app displays the current sort mode and the date of the most recent database update in a viewing area above the search bar of the table view. This viewing area is normally tucked away under the table view header to avoid screen clutter. Simply touch-drag the table view down a half-inch or so to view this information.



IAP Bushings & Tubes		
Last Database Update = 6/3/23		
Sorted by Kit Name		
Search		
3	30 Caliber Magnetic RB (PSI)	PNST

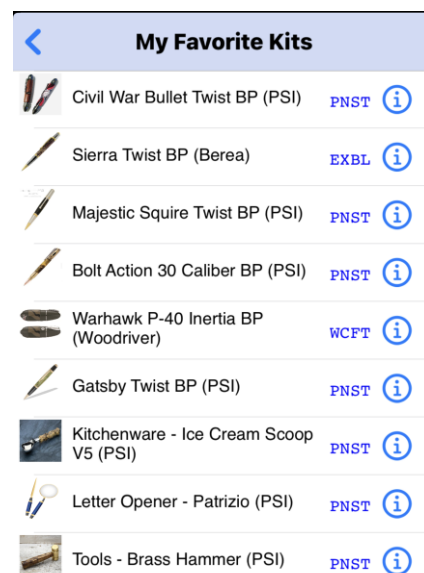
Favorites List

Scrolling through the complete list of kits in the app can be tedious task and even the search feature might sometimes yield a very large number of kits. The app supports a Favorites List to simplify access to those kits that you use most frequently.

When the Detail Screen of kit info is displayed, simply tap on the **Thumbs Up** icon to add that particular kit from that particular supplier to your Favorites List. A message will confirm that the kit was added. Similarly, the **Thumbs Down** icon will remove the kit from your Favorites List. See Page 2.

A "right swipe" across the face of the main table listing will pop up a similar table view containing only your favorite kits. Note that can only be done while searching is inactive. (Tap the Cancel button next to the search field to dismiss an active search function).

This Favorites List view operates in the same manner as the Main Table view listing of all kits except that searching and sorting is not supported. Selecting a kit will pop up the detail view for that kit and exiting the detail view will return to the Favorites List. Use the "Back" button to return to the main table view.



My Favorite Kits		
	Civil War Bullet Twist BP (PSI)	PNST
	Sierra Twist BP (Berea)	EXBL
	Majestic Squire Twist BP (PSI)	PNST
	Bolt Action 30 Caliber BP (PSI)	PNST
	Warhawk P-40 Inertia BP (Woodriver)	WCFT
	Gatsby Twist BP (PSI)	PNST
	Kitchenware - Ice Cream Scoop V5 (PSI)	PNST
	Letter Opener - Patrizio (PSI)	PNST
	Tools - Brass Hammer (PSI)	PNST

Drill Bit Converter

Tapping on the **3 Drill Bits** icon in the Main Screen navigation bar will present a Drill Bit Converter. Fields are provided for entering a drill bit size in Inch Fractional, Inch Decimal, Metric or Gauge sizes. The app will instantly convert your entries to the other 3 formats as you type.

Conversions to Inch Decimal and Metric (mm) will always be exact to 6 decimal places. Conversions to Inch Fractional will be to the nearest 1/64-inch. If the conversion is not exact, a Fractional Rounding Error will be displayed to indicate the amount of error. Similarly, conversions to Gauge bit sizes will be to the nearest gauge bit (107-1 and A-Z). A gauge drill error will be displayed if the conversion is not exact.

Fractional Rounding Errors and Gauge Drill Errors are displayed in decimal inch format. A positive number indicates that the converted size is slightly higher than the exact size while a negative number indicates that the converted size is slightly lower than the exact size.

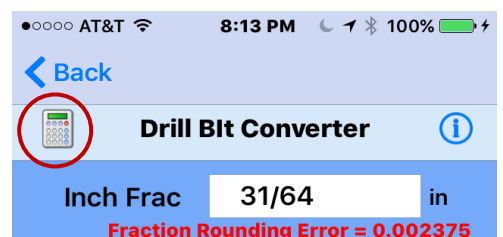
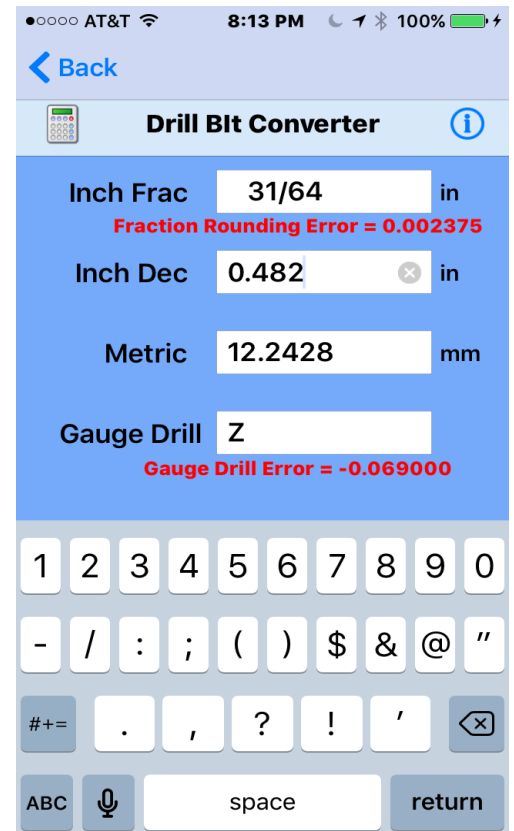
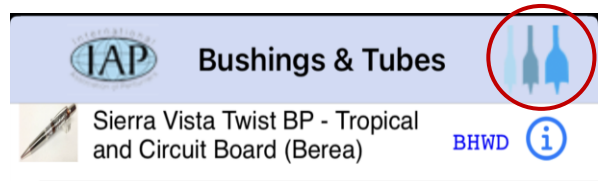
Any number can be entered in the Inch Decimal and Metric fields. Gauge Drill sizes must be in the range of 107-1 or A-Z. Any number can be entered in the Inch Fractional field, but for proper conversion, fractions should be entered in the format **3/4** and mixed numbers should be entered in the format **1&1/4** (specifically, use an ampersand & to separate whole & fractional numbers and a slash / to separate numerators & denominators). You may use a space instead of an ampersand for the separator if you prefer.

The app will actually do its best to make sense of whatever you enter in the numeric data fields, so there is a wide range of valid data entries and this feature is quite useful for general inch-mm conversions.

For example, data entries may be made in either decimal or scientific notation in any of the numeric data fields (including the Inch Fractional field). Fractional notation is only supported in the Inch Fractional field.

Calculator

Tapping on the **Calculator** icon in the Drill Bit Converter navigation bar will present a Four-Function Calculator Screen. It has all the common 4-function calculator features: Add (+), Subtract (-), Multiply (×) and Divide (÷) as well as buttons to change the sign of the current entry (±), backspace through the current entry (⌫) and clear the Entry & Results fields (AC).



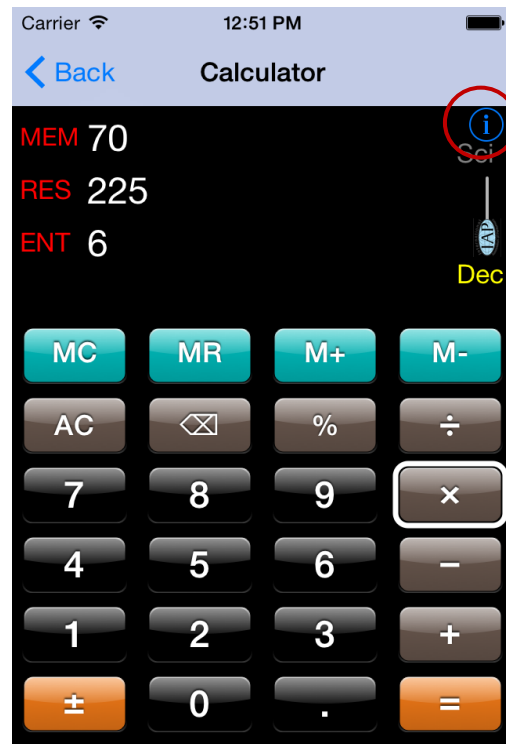
This is a powerful calculator that allows 30-digit numerical entries and performs math computations to at least 30 digits of precision whereas most simple calculators are limited to 10-20 digits. It also has several other unique features.

Most calculators use a single display line for entries and results. This calculator has a separate display line for each. It also has a memory feature, which is not found in most simple calculators. Use the MC (clear), MR (recall) M+ (add to memory) and M- (subtract from memory) to manipulate the memory contents. The calculator memory is also saved to the app's local data space when the calculator is exited so it will be available the next time the calculator appears.

This calculator has a percentage (%) function that is a shortcut method of dividing the current entry field by 100.

It also has a slider to switch the numbers in the Result and Memory fields between Decimal notation and Scientific notation. When using Decimal Notation, the numbers will be displayed with or without separator characters (such as 1000 or 1,000) depending on your user preference settings.

Tap the **info icon** ⓘ in the upper right corner of the display for some general information about the calculator.



Tap on one or more digits to enter a starting number in the ENT field. Then tap a math operator (add, subtract, multiply or divide) button to select the operation you wish to perform. The operator button will be highlighted and your entry will move to the RES field. Then enter the digits for your second number into ENT field. When you have completed your number entry, tap the Equal button to perform the calculation. This performs a simple 2-number calculation.

To perform chained calculations, do not tap the Equal button. Instead, tap the highlighted operator button. You can then enter another number into the ENT field and repeat the same operation by tapping the highlighted operator button, or tap one of the other (non-highlighted) operator buttons to perform that operation instead. Note that chained operations are performed in the sequence they are entered; that is, the new ENT number will be added to, subtracted from, multiplied by or divided into the currently accumulated value in the RES field.

When performing chained operations, tapping the Equal button will terminate the chaining operation, leaving the result of that sequence of operations in the RES field. You can clear the RES field before starting a new calculation by tapping the AC button, but it is not necessary. If you start a new single computation or another chained operation while the RES field contains a value from the previous computation, it will simply be ignored (as if you had cleared it with the AC button).

User Preferences

Several user preferences can be set via the Settings App as shown in the image on the right. These include:

Default Email Address

This entry will be automatically entered in the **TO:** field when you email kit information. By entering a value here, you can eliminate the need to repetitively type a frequently used email address.

Default Instruction Mail/Print Mode

If assembly instructions or bushing drawings are available for a kit, you may include them when you mail or print kit information. This setting determines if the inclusion switch will initially be set to Yes or No when the Mail/Print page is presented. Note that this Yes/No selection applies to both instruction & bushing files together, not individually.

Auto Download Control

The app has the ability to download new Bushing & Tube chart data from the IAP server. You can disable this feature if you wish and you can select the frequency for the app to query the server if you do leave it enabled. You can also enable the app to display an alert notification when it has downloaded a database update. This will let you know that you need to close the app and restart it to install the updates.

The date of the most recent update is shown in a read-only field. This same date will appear at the top of the kit listing page (under the search bar).

Note, if you disable the auto download feature, your database will only be updated when you restart the app or install a new version of the app.

Number Formatting

Use this feature to select a preferred number-grouping format for the Calculator. Your choices are User Region Formatting, No Grouping, Comma Grouping and Space Grouping. This setting will apply to the Result and Memory fields of the Calculator. For example, a number could be displayed as 1234567 (with no grouping); 1,234,567 (with comma grouping); or 1 234 567 (with space grouping).

Detail View Formatting

Use this feature to select English or Metric as your preferred system of units for bushing and tube dimensions in the detail view.

The screenshot shows the 'Settings' screen for the 'BushNTubes' app. At the top, there is a back arrow and the title 'Settings' in blue, followed by the app name 'BushNTubes' in bold. The settings are organized into sections: 'DEFAULT EMAIL ADDRESS' with a 'TO:' text input field (highlighted with a red box) and a description 'The default TO: address for emailing'; 'MAIL/PRINT PREFERENCE' with a toggle for 'Include Instructions:' (which is turned on) and a description 'This is the default setting for including kit instructions when emailing or printing kit info.'; and 'DATABASE UPDATES' with fields for 'Last Update:' (showing '6/20/22'), 'Auto Update:' (a toggle turned on), 'Update Check Interval' (set to 'Daily' with a right arrow), and 'Show Update Notification:' (a toggle turned on).

Auto Download Feature

If the Auto Download is enabled, the app will query the IAP Server at the specified time interval to determine if an updated database is available. If so, the app will download the new database and update its internal database. It also performs this check each time the app is restarted. The downloads are performed in a background thread, but only while the app is active.

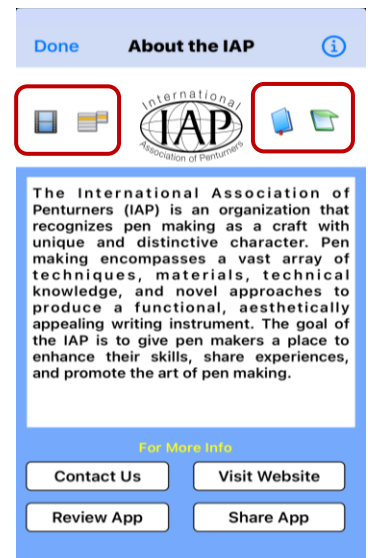
Whenever the app is downloading database updates, it presents a pop-up view to let you know that it has started downloading updates and another when it has completed the download. You can disable these pop-up message via the Settings app if you wish.

IAP Information Screen

Tap on the IAP icon at the top of the main table view to switch to the IAP Information Screen. This screen displays the primary IAP mission statement, a link to the IAP web site and an email link for sending app feedback to the IAP. Tapping on the Visit Website button will exit the app and open the IAP web site in Safari.

The Review App button will take you to the Apple App Store where you can rate the app and leave a review. The Share App button will allow you to send an app link to your friends by messenger, email, etc. If you enjoy the app and find it useful, we would appreciate it if you would take a moment to utilize these handy features and help us spread the word about it.

The IAP Information Screen also has **two icons** to the left of the IAP logo and **two icons** on the right for additional functions. The icon on the far left with a filmstrip icon presents a listing of helpful videos.



Done	Videos	
Using the IAP Forum		
Organizing Conversations	Jeff Brown	
Searchng for Threads	Jeff Brown	
Penturning Basics		
Drilling	Ed Brown	
Drilling	Mark Dreyer	
Trimming	Ed Brown	
Gluing	Ed Brown	
Gluing	Mark Dreyer	
Prepping	Ed Brown	
Turning	Ed Brown	
Turning	Cody Walker	
Squaring	Ed Brown	
Sanding	Ed Brown	
Buffing	Ed Brown	
Turning Tools		
Using a Carbide Tool on Acrylic	Mark Dreyer	
Using a Carbide Tool on Wood	Mark Dreyer	

The videos are arranged by categories and the list shows both the topic and who created the video. When you select a video, a pop up screen will show some information about the video as well as its length. Tap on the View Video button to go to the YouTube site for that video. A convenient return to app button will be displayed at the top of the YouTube screen.

There are many pen turning videos available on the Internet. We have tried to select a few high quality videos by well known and respected, advanced turners for this list. There are many techniques for turning pens, and these videos only represent a few of them.

The icon directly to the left of the IAP logo presents a list of penmaking suppliers, arranged by country. Tapping on a supplier's name will pop up a screen with some brief information about that supplier along with a button that will take you directly to their web site. A 4-character abbreviation will appear to the right of the supplier's name for those suppliers whose kits are included in the app database. If the supplier is not currently in the app database, that field will contain XXXX.

Done	Suppliers	
Australia		
Gary Pye Woodturning (GPW)	GPWS	
Pop's Shed	XXXX	
Steve's Woodcraft	STWC	
Timberbits	TMBT	
Canada		
Jacques Coulombe	XXXX	
KMS Tools	XXXX	
Lee Valley Tools	LVLV	
William Wood-Write Ltd.	WMWW	
China		
Xiamen Rizheng Industry Co., Ltd.	XXXX	
England		
Axminster Tools	XXXX	
Beaufort Ink	BINK	
Penkitz and Bitz	XXXX	
Pen-Kits	XXXX	

This listing is provided as a tool to help penmakers locate suppliers. It lists more suppliers than are included in the app database, but is certainly not a comprehensive list of every supplier in the world.

The IAP and the app developers offer no recommendations or advice about any supplier and whether or not a supplier is included in the list should not be viewed as such.

The icon directly to the right of the IAP logo presents a list of tutorials on various pen turning topics. An info button on the right of the screen will show a brief description of the tutorial and the author.

When you select a tutorial for the first time, the app will download that file from the IAP server and store it in your device. You will need an Internet connection to download the tutorial, but once it has been downloaded, you will be able to view it off-line.

These tutorials are also available via browser from the IAP Library; however, some tutorials on the same topic have been compiled into a single file for the app database. This makes the list shorter and easier to navigate and presents more comprehensive information in a single file. A button at the top of the pdf viewing page allows you to email or print the file.

The button on the far right will present this User Guide in the same manner as the tutorials. A button at the top of the page will allow you to email or print the User Guide.

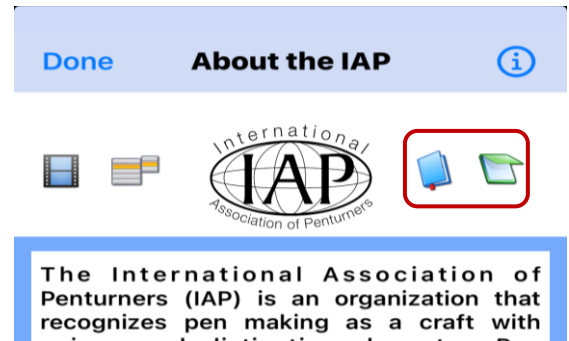
Please report any errors or discrepancies that you might find to one of the following:

- App Developer appfeedback@penturners.org
- IAP System Administrator. admin@penturners.org

We hope you will enjoy using this app and find it useful for your penturning activities.

We also welcome your comments and suggestions for improving this app.

Thanks, Edgar



Done	IAP Tutorials	i
Penturning 101		
	Getting Started in Pen Turning	i
	Tooling Needed to Make Pens	i
	Minimum Basics Pen Turning	i
	Building on the Basics	i
	Choosing a Lathe	i
	Why Pen Turning?	i
Blanks		
	Arrow Shafts	i
	Braided Steel Blanks	i
	Burlap Blanks	i
	Carbon Fiber Blanks	i
	Compressed Fiber Blanks	i
	Copper Wire & Silver Solder Pen	i
	Corn Cob Blanks	i
	Decal Pen Blanks	i
	Deer Antler Pens	i
	Denim Blanks	i
	...	i

Abbreviations Used in the App

This app uses the following 4-character abbreviations for the Suppliers whose data is included in the app or are expected to be included in the future:

<u>Abbreviation</u>	<u>Supplier</u>	<u>Abbreviation</u>	<u>Supplier</u>
AZSL	Arizona Silhouette	PKUK	Pen Kits UK
AXTM	Axminster Tools	PNST	Penn State Industries
BINK	Beaufort Ink	POPS	Pop's Shed
BHWD	Berea Hardwoods	RBCF	R and B Crafts
BTWD	Bear Tooth Woods	RIZH	Rizheng
CLNB	The Classic Nib	RKLR	Rockler
CSUS	Crafts Supplies USA	SILV	Silver Pen Parts
CRML	Crooked Mill	SMPW	Smitty's Pen Works
EXBL	Exotic Blanks	STWC	Steve's Woodcraft
DYCM	Dayacom	STHW	Strand Hardware
GPWS	Gary Pye Woodturning	TMFD	Taylors Mirfield
HUTP	HUT Products	TMBT	Timber Bits
JACQ	Jacques Coulombe	TMTR	Timber Turners
KALL	Kallenshaan Woods	TRET	Turners Retreat
KMST	KMS Tools	TWHS	Turners Warehouse
LLNZ	Lazerlinez	UKPB	UK Pen Blanks
LRCR	Little River Crafts	WMWW	William Wood-Write
LVLY	Lee Valley	WBPK	Wood Blanks & Pen Kits
MCKP	McKenzie Penworks	WCFT	Woodcraft
MRWT	Mr Woodturner	WDPP	WoodPenPro
NTPN	Native Pens	WDPK	Woodpeckers
OZMT	Ozark Mountain	WDSM	Woodsmith Store
PKFT	Prokraft	WTST	Woodturning Store
PKWW	Packard Woodworks	WTEC	Woodturning Tech
PTWW	Peachtree Woodworking	WDTZ	WoodTurningz
PKBZ	Pen Kits Biz	WDWM	Wood N Whimsies
PKTM	Pen Kits Mall	WWTX	Wood World of Texas

Additional abbreviations are also used in the app:

- BP ➤ Ballpoint
- FP ➤ Fountain Pen
- RB ➤ Rollerball
- IAP ➤ International Association of Penturners