

A***nnealing*** ***M******ade*** ***P******erfect***



CAUTION

- Read and understand this manual before operation.
- For use with brass ammunition cartridge cases only.
- Do not attempt to anneal loaded or primed cases. Injury and/or damage could result.
- Annealed cartridges are hot! Exercise caution when removing them from the shell holder.
- Do not place liquids on or near annealer. Spillage could cause a short circuit.
- Ensure correct program before starting. An incorrect case in too high a program can melt the brass.
- Do not obstruct air vents. These are vital for cooling.
- Use in a well ventilated room. Any residues on the neck and shoulder of the brass will be burnt off.
- No user serviceable parts inside. Do not attempt to open the annealer. It uses very high voltages and currents. Warranty will be voided if tampered with.

GENERAL WARNING

Reloading should be performed only by trained adults. It is always recommended that eye and ear protection be utilised when reloading and shooting. Check cases before reloading. Discard split or damaged cases.

Since reloading is beyond our control, we disclaim all liability for any damage that may result from reloading or the use of this product.

FCC REGULATION

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC Rules and as a consumer ISM device pursuant to part 18 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.**
- Increase the separation between the equipment and receiver.**
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- Consult the dealer or an experienced radio/TV technician for help.**

Using this equipment in accordance with the user's guide will ensure safe, reliable and long lasting performance.

Changes or modifications to the equipment not expressly approved by equipment manufacturer will void the user's authority to operate the equipment.

Welcome

Congratulations on your purchase of an ANNEALING MADE PERFECT annealing system. We are confident you will have as many hours of satisfaction using this machine as we have had creating it. ANNEALING MADE PERFECT has been designed from the ground up as a system which eliminates human error and the need for re-calibration between cartridges, giving you the confidence of accurate, repeatable results every time.

The Annealing Made Perfect annealer is ready to use right out of the box with no assembly required. No tools are necessary for the operation of the annealer except for cartridge specific shell holders (not provided) to insert the cartridges into the machine. When using the annealer ensure the machine is on a level surface free from dust or debris, preferably in a cool, dry and well ventilated room. Do not use in direct hot sunlight.

Plug in the supplied cable into the power socket on the rear of the machine and turn on using the red switch on power cable socket. Also supplied is a USB cable. When future software updates are available, this can be plugged into the port on the left hand side of the annealer to connect with a computer.

The annealer has preloaded programs for each cartridge and care must be taken to ensure the correct program is used to prevent damage to cartridges and or property. The annealer is designed to anneal BRASS CARTRIDGES ONLY. Nickel plated brass cases are fine.

All program/pilot combinations can be found on our website:

www.ampannealing.com/settings



SELECTING THE PROGRAM

When selecting the correct program to use, refer to the 'settings' page on the website as before, the correct programs for all cartridges are listed.

Programs are based on three things: Calibre, Brand and neck wall thickness. Ensure you choose the correct program based on your cartridge.

Enter the correct program number into the machine using the blue - and + buttons on the machine. Holding down the buttons will rapidly cycle through the programs. As soon as the "Start" button is pressed the first time, the program lock is activated. This prevents accidentally changing the program during an annealing run. To unlock, just hold either + or - buttons down for two seconds.

CARTRIDGE	PILOT NUMBER	BRAND OF BRASS	STANDARD PROGRAM	NECK TURNED PROGRAMS: w thickness reduction		
				(-0.001")	(-0.002")	(-0.003")
Fireball						
222 Rem.	4					
222 Rem. Mag.	5					
22 PPC	1					
223 Rem.	3	Remington	28	24	21	18
	"	Hornady	32	28	25	22
	"	Norma	39	35	32	29
	"	ADI	39	35	32	29
	"	Lapua	44	40	37	34
	"	Lake City	29	25	22	19
	"	Lake City- Ni plated	30	26	23	20
5.6x50 Mag	6					



MY CARTRIDGE IS NOT LISTED?

If you have a cartridge or a brand of brass that is not listed, simply send us the cases for calibration. Download the "Contributor's Form" and follow the instructions. Do not attempt to calibrate cases yourself. We use highly accurate micro-Vickers hardness testing equipment to ensure accuracy.

SELECTING THE PILOT

When selecting the correct pilot to use for any cartridge, refer to the 'settings' page on the website listed previously, the correct pilots for all cartridges are listed. Some pilots can be used for multiple cartridges.

Insert the correct aluminium pilot into the boss on the machine until it has bottomed out. Do not over tighten. Take care to avoid cross threading the pilot when inserting as damage to the thread may result.



SHELL HOLDER GRIP

Your cartridge specific shell holder is used to insert the cartridges into the machine. Provided is a brass grip which attaches to the shell holder to

make it more comfortable to use. Insert the shell holder lug end into the grip and tighten.



Twist the small knurl while holding the big knurl to lock holder

USING THE MACHINE

With the correct program and pilot loaded in the machine annealing can now commence. Place a cartridge into the shell holder/grip combination and insert the cartridge into the pilot. Make sure the face of the shell holder is mated square to the face of the pilot.



Press the start button to anneal, the button will illuminate red during heating and will turn off when finished. During normal operation a clicking sound will be made, this is part of the heating process. Depending on how clean the cartridge is a light puff of smoke may be visible emitting from the grip hole. This will only occur if you anneal after resizing.



Once the annealing cycle has ended, remove the cartridge promptly from the machine. Hold the cartridge by the grip and place the cartridge in a suitable heat proof tray. CARTRIDGES WILL BE HOT take care when removing cartridges.



Tap cartridge out using index finger

TIP: For best results let the cartridges cool down without assistance, quenching in water is not necessary.

TAKE NOTE

Cosmetics: The appearance of different cases will vary after annealing. Some cases will show distinct annealing discoloration at the neck and shoulder, while other cases will show virtually no signs of being annealed. This is not limited to any particular brands. Do not mistake appearance for successful annealing. Some cases which appear heavily discoloured are actually not fully annealed. Our settings are reached by extensive and accurate testing of the annealed hardness.

Dropped Cases: If a cartridge falls out of the shell holder and into the machine, simply turn off the power at the back of the machine, remove the pilot and retrieve the cartridge. If already annealed, it will be HOT. For extremely short cartridges, a pair of long nosed pliers can be used to retrieve them.

TIP: Placing the thumb over the slot in the shell holder during insertion and removal ensures the cartridge is properly held in the shell holder during use. Keep the opening slot in the shell holder facing towards the front of the machine, and when withdrawing the case, keep light pressure in that direction. To remove the cartridge hold the shell holder with cartridge over the cooling tray on its side with the slot facing downward and push the cartridge out using a finger. Don't use the other hand to remove the cartridge as the cartridge will be hot.



Hold thumb over opening during handling

Thermal cut out: In common with any induction heater, with extended use, the output inductor will gradually heat up. Multiple fans are installed in our annealer to keep the circuitry and inductor cool. After 40 – 50 cases have been annealed, the top of the unit behind the pilot will start to feel warm to the touch. This is normal.

For cartridges using Program 50 and below, the annealer can be used continuously for 35 minutes or 200 cases. After that, leave the annealer turned on with the fans operating for 30 minutes to allow the inductor to cool. Annealing for a further 35 minutes/200 cases can then recommence.

For cartridges using Program 50 and over, continuous use for 20 minutes/75 cases is available before a 60 minute cooling break.

In the event that the output inductor should reach 190F/90C (inside the annealer), a thermal cut out will activate to protect the unit. If that occurs, leave the annealer turned on so the fans continue cooling. It will automatically reset after 30 minutes, once cooling is complete.

The ability of the annealer to run for extended time depends partly on the ambient room temperature. Avoid using in direct hot sunlight or high temperature conditions. A room temperature of 70°F/20°C or below ideal.



When not in use, we suggest placing the provided dust cover over the annealer.

Filter element: Ensure that the air filter element on the right panel is regularly cleaned or replaced.

How often should brass be annealed?

The short answer to this question is: **every reload.**

Here is a little more detail:

As the shooting and resizing cycle progresses, the percentage increase in hardness diminishes, simply because brass can only get so hard. The important thing is that the **biggest** increase is in the first reload. Different chambers, dies etc. will give some variation, but the trend is the same. We have now tested a wide variety of brass from our contributors, and invariably the necks as received are well in excess in hardness compared to virgin brass. Many which are only 2 – 3 reloads old are as much as 60% harder than virgin brass.

In summary, each reload makes a significant increase in hardness (until terminal hardness is reached). The only way to get consistent neck hardness reload to reload is to anneal every cycle.

What is the correct sequence - anneal/resize or resize/anneal?

If annealing brass that has had multiple reloads or is of unknown history, we would strongly recommend annealing first followed by resizing. This is because the harder the brass, the more likely it is to resist conforming to the resizing die and “springing back”.

Our settings target an annealed neck hardness consistent with virgin brass, (some cartridges are a little higher or lower). Because the process anneals both the neck and shoulder, die conformity will be correct when resizing. Note: we have found that the target annealed hardness is reached reliably regardless of the starting hardness i.e. it doesn't matter if it starts at 20% harder or even 70% harder, it will still come back to the same hardness.

If, as we recommend, annealing is done every reload, the brass is always soft enough in the neck and shoulder to resize accurately either before or after annealing. We have, however recorded consistently more uniform hardness test results by annealing **before** resizing, and we therefore recommend that sequence. With all the potential chamber/die/brass variations, we would certainly welcome customer input on this subject.