

UniqueTek “Tips” File #27: “Cleaning Powder Funnels”

Rev. 1; 11/2025

The Powder Funnels used on Dillon presses and the Powder Through Expanders (PTX™) used on the Hornady Lock-N-Load® AP™ press do require periodic cleaning ... both inside and out. Just how often cleaning is required depends on many factors. But the recent popularity of wet brass cleaning processes, that clean the inside of the case to an “as new” condition, has increased the need for frequent cleaning due to galling (transfer of brass to the steel powder funnel tip).

The following quote is from Dillon Precision Technical Support.

"It is common for new, once-fired and sonically-cleaned brass to stick to the funnel. Until the brass has been internally smoothed from firing, plus the carbon-coating lubricates, preventing the sticking. If loading new brass in particular, use a Scotch-Brite pad or steel wool to wipe off the funnel every 25-35 cases."

— As posted on the DillonPrecision.com forum; August 2008.

Outside Cleaning:

Cleaning the tip of powder funnels can significantly reduce case sticking by removing the accumulation of brass residue that has smeared off the cases and onto the powder funnel. This is particularly common with new brass and with brass that has been wet cleaned. Previously fired brass that has been cleaned in corn cob media, still has carbon residue on the inside surface that acts as a lubricant ... virtually eliminating sticking. The photo at right shows a .45 caliber pistol powder funnel with heavy brass accumulation from loading wet cleaned cases.

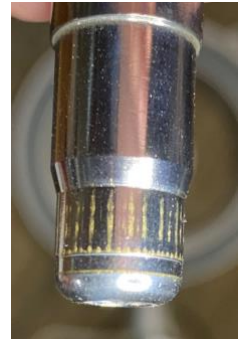


Photo courtesy of Peter vK.

As noted earlier, Dillon Precision recommends cleaning powder funnels with steel wool or Scotch-Brite™. But cleaning by hand is a tedious task ... especially if the brass buildup is as heavy as that shown in the photo at right. You can greatly speed up the cleaning process by spinning the powder funnel in an electric drill. The only problem is that the OD of both Dillon and Hornady powder funnels is too large to fit in a 1/2" drill chuck. Of course, if you own or have access to a drill press with a 5/8" or 3/4" Chuck, or a lathe, you are good to go. Short of that, there are only few of options for getting the job done.

DIY Approaches:

Wooden Arbor:

The photo at right shows an arbor I made some years ago next to a Dillon .45 caliber Pistol Powder Funnel. I cut a 2.5" length of 3/8" wooden dowel and sharpened one end in a pencil sharpener. I chucked it in a benchtop drill press and jammed the powder funnel up onto it. You can see how the wood has compressed a bit and taken on the shape of the powder funnel interior. I drew a line on the arbor to show how far it inserts into the powder funnel.

Unfortunately, wood just can't get much grip on the steel. And, because the wood compresses, the arbors typically won't grip after just one or two uses. Applying a single wrap of "Friction Tape" or "Grip Tape" to the sharpened end can help get some traction.

Note: The friction tape was removed from the arbor shown at right to better show its shape in the photograph.

In the final analysis, this got the job done but left a lot to be desired ... especially if the powder funnel needs frequent cleaning. Or, worse yet, multiple powder funnels need



cleaning as you'll need a to make a new arbor or each caliber.

TIP: Clean the inside of the power funnel before inserting the arbor. Any powder residue on the inside of the powder funnel will greatly reduce the grip that the arbor can attain.

Note: Cleaning the inside of powder funnels is addressed later in this Tips file.

TIP: Just in case the powder funnel slips off the arbor, always place something soft beneath to catch it.

I investigated using polyurethane rod. But I couldn't find a polyurethane formulation that had the right combination of grip and stiffness. To get better grip requires a soft (low durometer) material but to keep it from flopping around requires a more rigid and harder (high durometer) material. There just didn't seem to be a middle ground that worked.

Hardware Arbor:

While writing this revision (Rev1) I had a new idea and set off to ACE Hardware to look for the parts I had in mind. Here is what I got for just \$2.39.

- 1, #10-24 x 3" Flat Head Phillips Machine Screw
(The conical base of a flat head ensures Powder Funnel centering and the Phillips head won't Snag on steel wool)
- 1, #10-24 Coupling Nut
(The 3/4" length of a coupling nut ensures it is gripped straight in the drill chuck.)
- 1, 5/32" x 7/8" Fender Washer
(5/32" is a closer fit around the treads of the screw than a #10 or 3/16" washer.)

The Machine Screw is passed up through the powder funnel and the Fender Washer placed on top followed by the Coupling Nut (see photo at right). Once tightened, the assembly is clamped in a 3/8" (or larger) Drill Chuck via the Coupling Nut.

This will work on Dillon Pistol Powder Funnels from 9mm to .45 caliber. It may also work on .30 cal. and .50 cal. Powder Funnels but has not been tested as I don't have die sets for any pistol cartridges in those calibers. It will also work on Dillon style powder funnels from other manufacturers as well as Powder Through™ Expanders (PTX™) for the Hornady Lock-N-Load® AP™ press.



The Off-The-Shelf Approach:

I could find only two off-the-shelf products that would get the job done. Both are far better than the DIY arbor approaches. Of course if you happen to have a lathe (or access to one), you won't need a holder as most small to medium size lathes will have jaws with enough range to hold both Dillon Powder Funnels (0.555" OD) and Hornady Powder Through Expanders (0.620" OD).

5/8" Drill Chuck Conversion:

I found this 5/8" Jacobs Chuck and Drill Chuck Arbor that, together, would allow you to simply mount a 5/8" chuck in your drill's existing 1/2" chuck (see photo on next page). But the Drill Chuck and Powder Funnel assembly adds at least 4-1/2", which may be a bit long to use in a small benchtop Drill Press. Of course you can swing the Drill Press Table out of the way to give you more room.

If your drill press happens to have a Jacobs #3 arbor (JT3), you could simply replace your 1/2" drill chuck with this 5/8" chuck ... in which case you don't need the Arbor. But the 1/8" minimum drill diameter that this 5/8" chuck can hold is a drawback. HHIP does make a 1/32" to 5/8" Drill Chuck but

it's almost double the cost.

Chuck: HHIP 1/8" to 5/8" JT3 Drill Chuck (HHIP #3700-0105) = \$35.51

Chuck: HHIP 1/32" to 5/8" JT3 Drill Chuck (HHIP #3700-0085) = \$63.72

Arbor: HHIP 1/2" to JT3 Drill Chuck Arbor (HHIP #3700-0178) = \$10.77

Note: Prices shown are MSRP as of this revision. Prices on the Internet are usually lower.



The main advantages of this approach are that, the 5/8" jaws will allow you to polish both Dillon Powder Funnels and Hornady Powder Through™ Expanders (PTX™). And you can use it for other bits that require a drill chuck larger than 1/2". One limitation is that the JT3 Drill Chuck Arbor is not available in 3/8", so you must have a drill with a 1/2" chuck.

Powder Funnel Cleaning Adapter:

In August 2021, UniqueTek launched the Powder Funnel Cleaning Adapter. It is an all-metal part that fits any 3/8" or larger drill chuck and securely holds a powder funnel for cleaning. Instead of jaws it uses a brass set screw to secure the powder funnel. It is both less expensive and more compact than the Drill Chuck Conversion but is available in only one size to hold Dillon Powder Funnels.



UniqueTek Powder Funnel Cleaning Adapter: Item # T1758 = \$24.95

Although both of these products are significantly more expensive than the DIY approaches, I consider them to be much better choices because;

- 1) One size fits all Dillon style Powder Funnels of all calibers from all manufacturers.
- 2) They'll last forever so you won't need to make bunches of Arbors.
- 3) You won't have to worry about the Powder Funnel coming loose during cleaning.
- 4) Considering the cost of replacing just one damaged powder funnel that falls off an arbor, they'll essentially pay for themselves in just one or two uses.
- 5) The "Hardware Arbor" masks the very tip of the powder funnel.

Cleaning the Powder Funnel:

1. Install the Adapter, Chuck Conversion or Arbor into an electric hand drill or drill press.

TIP: When using a hand drill, you may want to clamp the drill in a vice or other fixture so that both your hands are free to do the polishing.

2. Insert the Powder Funnel.

- Adapter: Insert the powder funnel and tighten the set screw.
- Drill Chuck Conversion: Insert the powder funnel and tighten using the chuck key.
- Screw Arbor: Assemble the parts to the Powder Funnel as described previously.
- Wood Arbor: Jam the powder funnel firmly onto the tip of the wood dowel.

TIP: Just in case it slips off the Arbor, place something soft beneath to catch it.

3. Turn on the drill and set to a medium-slow speed. (A faster speed doesn't seem to help.)
4. Hold fine steel wool against the tip of the powder funnel until all traces of brass are gone.
5. Follow up with some Flitz or similar metal polish.
6. Lastly, wax the tip of the powder funnel with Imperial Sizing Die Wax (or equivalent).

Note: Perform Steps 5 and 6 with the power funnel still in the drill.

What About Using Sand Paper Instead of Steel Wool?:

I do not recommend using any type of sand paper as it will inevitably scratch the powder funnel. And any scratches will result in faster brass residue build up. Since the goal is to remove only the brass and other residues, steel wool is the safer choice ... although it may take longer.

What About Chemical Cleaning?:

Multiple sources on the web describe using Easy-Off™ Heavy-Duty Oven Cleaner Spray (which contains sodium hydroxide – aka Lye) to strip brass plating for DIY projects. Just apply to the tip of the Powder Funnel, let stand a couple of minutes, then scrub with steel wool. You can use it in conjunction with the procedure described on the previous page to accelerate cleaning. But be sure to rinse thoroughly with plenty of water after cleaning (Step 4) and before polishing (Step 5) or applying wax (Step 6).

NOTE: A customer just tried this and reported back to me. He sprayed the oven cleaner into a finger cut from a Nitrile glove, dropped in the powder funnel and tied off the top to contain the fumes. He then let it sit overnight. He said brass didn't simply dissolve but, what was left, was much more easily removed with steel wool.

CAUTION: Wear safety glasses, Nitrile gloves and have plenty of ventilation when using!!!

NOTE: I would caution against leaving a powder funnel soak any longer than overnight without inspecting.

Inside Cleaning:

Powder residue can and does accumulate on the inside of powder funnels. The amount of accumulation isn't usually much but keeping it cleaned off can improve powder flow. How frequently you need to clean will depend on both the type of powder and the quantity of ammo loaded.

Fortunately cleaning the inside is easy. I simply use some ammonia-free window cleaner sprayed onto a bore patch and push it through several times until it comes out clean. Glass cleaners often contain some isopropyl alcohol, which seems to aid cleaning as well as speeding up drying once finished.

What About Ultrasonic Cleaning?:

Even an ultrasonic cleaner is unlikely to remove any brass residue but will do a great job on removing powder residue from the inside of the powder funnel. It is also an excellent way to do a final cleaning after performing all the cleaning steps previously described. Don't forget to apply wax to the powder funnel tip after ultrasonic cleaning (as described in Step 6).

More Relevant Tips:

Below are a few tips I found repeated many times on various forums. How well any of them work is open to question, but they are worth exploring.

TIP: Run all new brass and wet cleaned brass through your tumble or vibratory brass cleaner filled with clean corn cob that has been charged with a liquid brass polish (e.g., Dillon Rapid Polish 290 or Flitz® Tumbler/Media Additive). These two polishing products (and possibly some others) contain silicones that leave a thin film on the brass to retard tarnishing. But the silicone film also acts as a lubricant that can help reduce powder funnel sticking. With new brass, this additional cleaning step also removes any residual brass particles left over from the manufacturing process.

TIP: Lubricating the tip of the powder funnel frequently ... especially when loading new brass or wet

cleaned brass ... can significantly reduce sticking and brass buildup. Simply keep a tin of Imperial Sizing Die Wax (or equivalent) at your press and apply to the tip of the powder funnel every so many rounds. Just how frequently will depend on many factors so you'll need to determine the correct frequency by trial and error. If there is already brass residue on the powder funnel you must first remove it for the wax to be of much help.

TIP: Lubricate pistol brass with Hornady One Shot Case Lube ... making sure that you also spray inside the case mouth. Lay the brass on a cookie sheet and spray at an angle such that the lube spray not only on the outside of the brass, but also sprays inside the case mouth.

TIP: Carnauba Wax has been used for DIY bullet lube and for tumble coating lead cast bullets. I can't speak to its effectiveness as I've never tried either application. But Carnauba wax is harder compared to other waxes.

Wax Type	Melting Point (° F)	Shore D Hardness
Carnauba Wax	122.9	81.9
Paraffin Waxes	123.6 / 167.0	64.0 / 70.9
Bees Wax	143.1	71.0

Data sourced from ResearchGate.net.

The higher hardness of Carnauba Wax might make it a more effective and/or longer lasting lubricant for powder funnels. It is soluble in mineral spirits so you could make a very thick paste (the consistency of shoe polish) and use it the same way as Imperial Sizing Die Wax as described in the TIP above. And, being harder, it may work better as a lubricant than silicones as described in the first tip on this page.

It also might work as an additive to corn cob media ... either as wax chips simply blended in with the corn cob or dissolved in mineral spirits to a consistency similar to that of case polishes.

CAUTION: To the best of my knowledge, Carnauba Wax has never been tested as a case lube for Sizing Dies, so I would caution against trying it for that purpose.

TIP: Lubricate the tip of the powder funnel with "Lampblack" (aka Soot) from a candle. Light a candle and hold the tip of the powder funnel within the flame.

NOTE: This is the most recent one I've heard of and I haven't tried it yet. And it makes some sense as carbon is an excellent lubricant. But lampblack is soft and unlikely to adhere well to the powder funnel, so you will likely need to repeat application very frequently. And, since fire and gunpowder don't mix, you'll need to remove the powder funnel and apply the lampblack far away from your reloading bench. So, the inconvenience may outweigh any potential benefit.

A Final Word

I hope you find these tips helpful.

If anyone finds information from other shooters using carnauba wax, or does any experimentation with carnauba wax, please let me know.

Disclaimer: UniqueTek, Inc. assumes no liability for damages or personal injury that may be incurred as a result of using the information contained in this document. It is your responsibility to ensure that your reloading equipment is properly assembled, is maintained in proper working condition, and is used according to the manufacturer's instructions and safe reloading practices.