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Precision Expanding Die

The Precision Expanding Die offers the handloader unparalleled control over the I.D. of their case necks (neck tension).



Precision Expanding Dies are machined on CNC Lathes and heat-treated to ensure dimensional integrity and durability for a lifetime of use. The unique angled alignment surfaces of the Die Body and Mandrel ensure perfect alignment when assembled and secured with the threaded retention plug and lock ring.

Precision Expander Mandrels are machined from high-quality tool steel which is then hardened and precision-ground to their final diameter (size marked on head). They are available in .0005" diameter increments ranging from .0005" thru .0030 below nominal bullet diameter so that neck tension can be fine-tuned to suit the handloader's preference.

The Precision Expanding Die is factory-assembled with one mandrel that is .0010" below nominal bullet diameter per caliber (22-338). Other Precision Mandrel Sizes are available separately. (see chart).



Fired Brass NEEDS to be Full Length Resized OR Neck Sized prior to Mandrel use.

Assembly & Set-Up

Use the following procedure to assemble the Precision Expanding Die:

1. Remove the threaded Mandrel Retention Plug from the Die Body and remove any excess rust-preventative oil.
2. Select the Precision Expanding Mandrel size that is appropriate for your application and insert it into the top (knurled side) of the Die Body such that the tapered "nose" of the mandrel is oriented downward toward the mouth of the die.
3. Thread the Mandrel Retention Plug into the top of the die body until it makes firm contact with the top of the mandrel and set the lock ring to preserve its adjustment.

Use the following procedure to set the Precision Expanding Die up in your press:

1. Install the appropriate shellholder into the press ram and raise it to its uppermost position.
2. Thread the die body downward into your reloading press until it makes firm contact with the shellholder (**NOTE: For longer case lengths, the press ram will need to be short stroked OR the die will need to be backed away from the shellholder to prevent case crushing.**) Set the die body lock ring against the frame of the press to preserve its adjustment - tighten the lock ring set screw if desired.

1. The Die is now set up and ready to expand case necks.

Note: The length of the cartridge case may require the ram stroke to be halted before its completion so that the case neck does not impact the shank of the mandrel and cause damage. This may be mitigated by adjusting the die body away from the shellholder to suit the user's preferences.

To prevent brass transfer and subsequent buildup of brass on the mandrel, it is recommended to lubricate the case necks before expanding them using Imperial Application Media with Dry Neck Lube. This buildup will worsen over time and cause scratching and damage to the inside of the expanded case necks. Traditional wax or oil-based case lubricants may be used so long as any residual lubricant is completely cleaned from the case before continuing the loading procedure.

Should brass buildup accumulate on the mandrel, it can be removed with a copper-dissolving bore solvent.

Light polishing with a mild abrasive such as a scouring pad will also remove buildup. If this is done, it is highly recommended that the mandrel is turning in a lathe chuck or similar manner during the polishing procedure so that the mandrel's concentricity is not compromised. Care should also be taken to polish as lightly as possible so that the mandrel's ground diameter is not affected. **IMPORTANT NOTE:** damage to the mandrel or a change in diameter caused by polishing is NOT covered under warranty.

Note: For the Expanding Mandrel to be effective, it is important that the case neck I.D. is *smaller* than the O.D. of the mandrel or no expansion will occur. New cases often have severely undersized necks from the factory which make them suitable for expansion.

Fired cases will need to have their necks resized *prior* to expansion. For best results - it is recommended to remove the size button from the resizing die for this operation so that all the neck expansion is done in one operation with the Precision Expanding Die.

Note: The tapered nose and head of the Precision Expander Mandrel are dark in color, which is an artifact of the heat-treating process. This coloration may be worn from use over time, but function and performance will not be affected.

Storage

When the Precision Expanding Die and/or Precision Expanding Mandrels are not in use - store them in a cool, dry place. It is also important that they are coated with a rust preventative oil to prevent oxidation.

Precision Expanding Mandrels

Caliber	Diameter	Part No.	Caliber	Diameter	Part No.
22	.2235	21500	270/6.8mm	.2765	21528
	.2230	21501		.2760	21529
	.2225	21502		.2755	21530
	.2220	21503		.2750	21531
	.2215	21504		.2745	21532
	.2210	21505		.2740	21533
243/6mm	.2425	21507	28/7mm	.2835	21535
	.2420	21508		.2830	21536
	.2415	21509		.2825	21537
	.2410	21510		.2820	21538
	.2405	21511		.2815	21539
	.2400	21512		.2810	21540
25	.2565	21514	30	.3075	21542
	.2560	21515		.3070	21543
	.2555	21516		.3065	21544
	.2550	21517		.3060	21545
	.2545	21518		.3055	21546
	.2540	21519		.3050	21547
6.5mm	.2635	21521	33/8.6mm	.3375	21549
	.2630	21522		.3370	21550
	.2625	21523		.3365	21551
	.2620	21524		.3360	21552
	.2615	21525		.3355	21553
	.2610	21526		.3350	21554

Bolded Part No.= Mandrel size that comes standard with each die body per caliber

If you have any questions regarding the above procedures, please do not hesitate to contact our tech support members.

Email: techline@redding-reloading.com

Phone: (607) 753-3331

Lifetime Warranty Disclaimer:

All Redding Reloading Equipment has been carefully inspected prior to shipment and is fully warranted to be free from defects in materials and workmanship for life.

Any product or parts which prove to be defective will be replaced or repaired without charge if returned prepaid to the factory.

Note: We reserve the right to decline responsibility where misuse or careless handling is evident or where repairs or modifications have been made or attempted by others.