

## Bronze-Liner Tooling



GUIDE SIZE	BORING REAMER	REAMER KIT	INSTALLER	BALL DRIVER	TRIM TOOL	PILOT	REMOVAL TOOL
5mm	2028-C	2004	3610	4454-P	5602	5636	7356
5.5mm	2026-C	2002	3600	4452-P	5602	5634	7354
6mm	2024-C	2003	3600	4452-P	5602	5634	7352
6.6mm	2006-C	2001	3566	4446-P	5600	5626	7342
7mm	2007-C	2001	3507	4446-P	5600	5626	7344
8mm	2008-C	2000	3500	4444-P	5600	5620	7320
9mm	2018-C	2000	3512	4444-P	5600	5630	7348
5/16"	2005-C	2000	3500	4444-P	5600	5620	7310
11/32"	2012-C	2000	3504	4444-P	5600	5622	7330
3/8"	2014-C	2000	3506	4444-P	5600	5624	7340

**NOTE:** Carbide Sizing Ball Part Numbers:  
 Insert the number "5" in front of the size.  
 For example: A .344" Sizing Ball would have the Part Number 5344.



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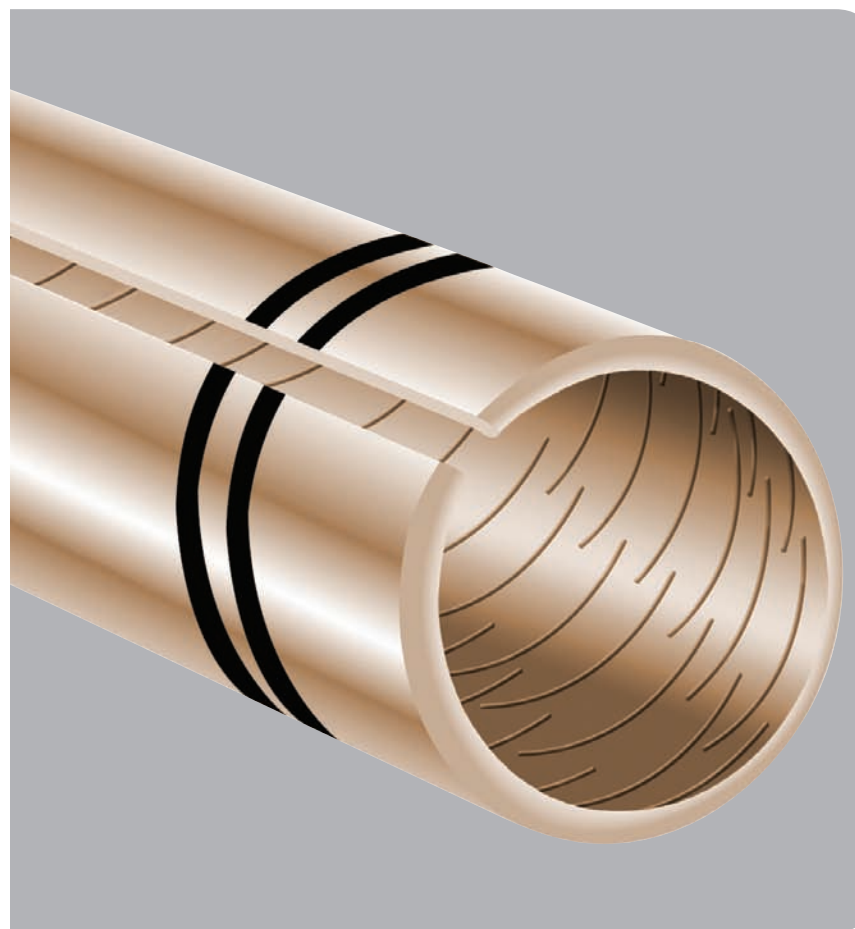
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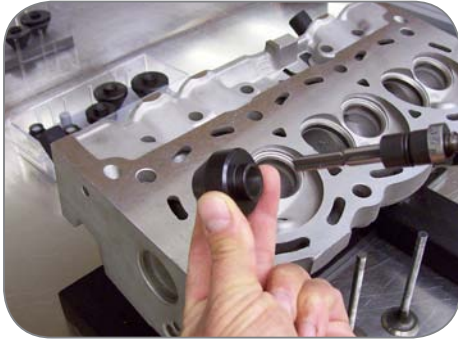
## Bronze-Liners for Valve Guides



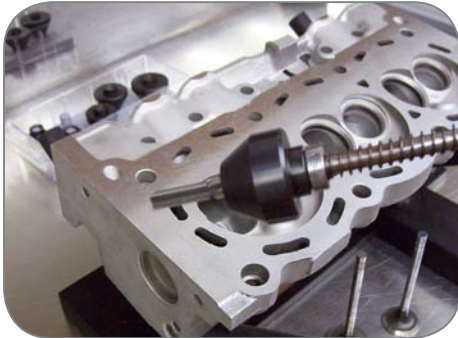
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# CLASSIC Bronze-Liner Installation Instructions

## 1. Boring Operation



**1.1** The first operation is to install the parts from the Reamer Kit onto the Boring Reamer. Install the BUSHING, then the SPRING, and finally the RETAINER. You now have a Reamer Package.



**1.2** Insert the REAMER PACKAGE in an Air Drill. The proper drill should exceed 1000 rpm's, UNDER LOAD. Next, choose the appropriate 60° SEAT COLLAR for your application.



**1.3** Insert the Reamer Pilot into the valve guide to be bored, and hold the 60° Seat Collar down on the valve seat. Ream time should be about 5 seconds. NOTE: CAST IRON GUIDES SHOULD BE BORED DRY.

## 2. Installation Operation



**2.1** Once all the guides are bored oversize, turn the cylinder head over so the "spring side" is up. WET BRUSH each bored guide with a nylon brush and lube, such as WD-40.



**2.2** Insert the Auto-Driver in a "Short Stroke" Pneumatic Hammer (more than 3,000 blows per minute), set the regulator at about half, and install the Bronze-Liner. Installation time should be about 3 to 5 seconds.



**2.3** The Auto-Driver will install the Bronze-Liner "FLUSH", and any excess will be protruding out of the other side. CAUTION: Distortion will occur on the Bronze-Liner if too much power is used, making sizing difficult.

## 3. Finishing Operation



**3.1** Select a Carbide Sizing Ball .001" larger than the desired finished size, as the Bronze will spring back slightly after Ball Sizing.

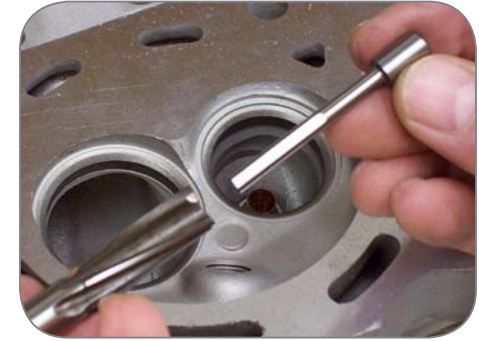


**3.2** Hold the tip of the BALL DRIVER with your finger and thumb, with slight down pressure, start driving the Ball. Once the driver tip is inside, relocate your hand underneath to catch the Sizing Ball.

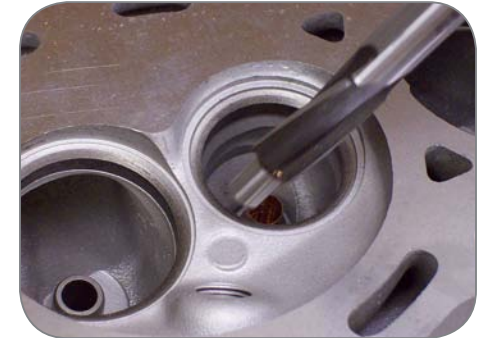


**3.3** Note the excess material protruding. This will be trimmed off in the next operation.

## 4. Trimming to Length



**4.1** Insert the appropriate PILOT into the TRIMMING TOOL. Install the Trimming Tool into a 500 rpm drill.



**4.2** Trim off any excess material.



**4.3** If a "burr" is created during this operation, it can be removed with the CHAMFER TOOL the has been installed in a "T" handle.