

K-line®



**VALVE GUIDE LINERS/
GUIDE LINER TOOLING**

SIMPLE - FAST - ECONOMICAL

#1 REPAIR METHOD FOR ALUMINUM & CAST IRON CYLINDER HEADS

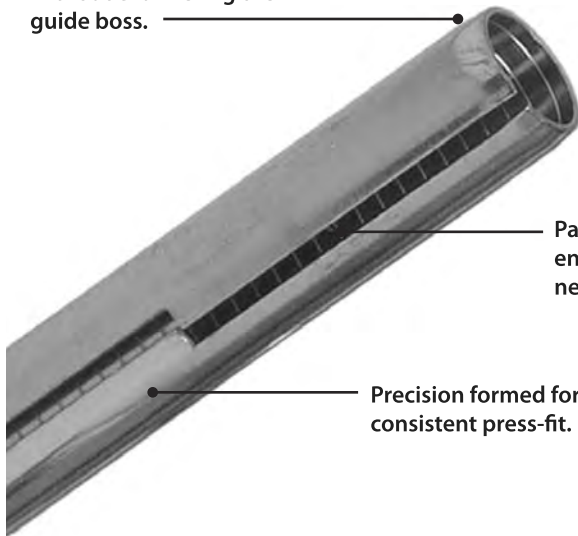
K-Line's® leadership in developing new, cost-effective ways to repair worn valve guides led to the development of the BRONZE BULLET® INTERRUPTED SPIRAL® GUIDE-LINER® more than forty years ago.

Today, the Guide-Liner® is one of the most popular repair alternatives, approved by Ford, GM, Caterpillar, Cummins, among other OEMs for use in rebuilding their engines.

Guide-Liner® Benefits:

- Superior Lubricity - Reduces valve stem sticking and galling.
- Oil control - Interrupted Spiral® reduces the possibility of excessive oil consumption.
- Tighter guide-to-stem clearances for improved performance.
- Improved wear characteristics vs. cast iron (see chart).

Bullet nose feature allows for efficient installation without chamfering the guide boss.

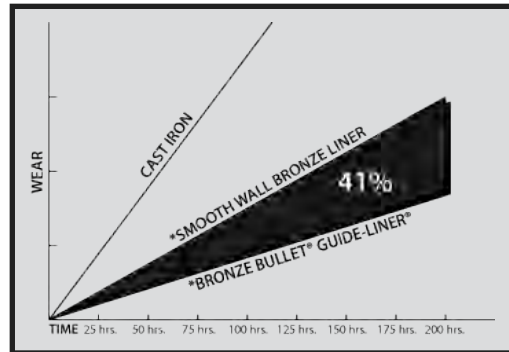


Patented spiral retains engine oil where it's needed.

Precision formed for a consistent press-fit.

Aluminum Cylinder Heads:

- No need to remove original guides.
- No galled or scored guide holes.
- No need for oversize guides.
- Guide-to-seat runout maintained.



Engine Rebuilder Friendly . . . Easy-To-Install

Install in seconds with the auto-installer. Bronze Bullet® Guide-Liners® eliminate the need to chamfer guide bosses, as well as the expense of having to replace valves or guides. The Interrupted Spiral® provides superior lubrication and oil control.

Proven Performance . . .

Performance engine builders love the Bronze Bullet® Guide-Liners® for their race-winning reliability. NASCAR teams use them as well as NHRA and IHRA drag cars, circle track racers, off-road racers and builders of street performance engines.

DON'T SETTLE FOR IMITATIONS!
USE THE ORIGINAL



BRONZE BULLET® VALVE GUIDE-LINER® 5-STEP INSTALLATION PROCEDURE



INSTRUCTIONAL VIDEO.....GUIDE LINER® INSTALLATION

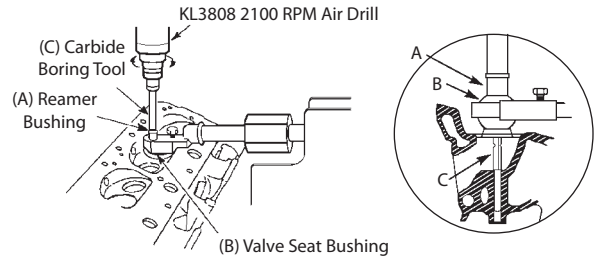


This professionally produced video gives you a detailed look at the proper procedure for installing the K-Line® Bronze Bullet® Valve Guide-Liner® using recommended installation tools and KL9900 Valve Guide Boring Fixture. DVD. 15 minutes in length. Step-by-step instructions include:

- 1) Boring the valve guide
- 2) Installing the Bronze Bullet®
- 3) I. D. finishing
- 4) Trimming excess
- 5) Flex-Honing

STEP 1: BORE

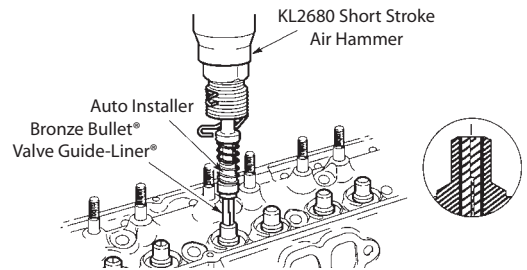
Use a K-Line® Carbide Boring Tool with a high RPM (2,100) Air Drill KL3808 to bore out the original guide. Must use a K-Line® Reamer Bushing and K-Line® Valve Seat Bushings for proper alignment results. For longer life and precision, try a Guide Pro® Solid Carbide Black Beauty® Boring Reamer.



STEP 2: INSTALL

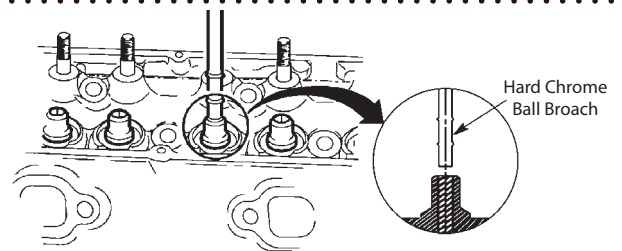
- 1) Blow away chips.
- 2) Insert Bronze Bullet® into holder assembly of the Bronze Bullet® Auto-Installer.
- 3) Drive into place with a short stroke H.D. Air Hammer KL2680.
- 4) If the Guide-Liner® installs hard and is under a lot of stress; it is recommended that K-Line® Bronze Lube KL1225 be applied, providing that the Guide-Liner® doesn't move while ball broaching. If the Guide-Liner® installs easily, it is recommended that no Bronze lube be used. In most cases and in beginning practice no Bronze lube should be used.

NOTE: On powdered metal guides you may need to run a Flex-Hone® prior to installation.



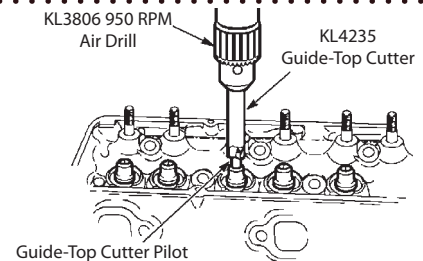
STEP 3: SIZE

- 1) Use Bronze Lube in guide and on tool prior to sizing
- 2) Insert K-Line® Ball Broach in guide and drive by air with a Broach Holder KL5758 or KL5759 and Air Hammer KL2680.



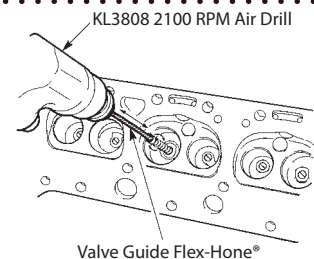
STEP 4: TRIM

Insert appropriate size pilot into K-Line® Carbide Guide Top Cutter. Using a 2,100 RPM drill KL3808, remove any excess Guide-Liner® material from each side of the valve guide.



STEP 5: FLEX-HONE

Run the appropriate size Flex-Hone® through the Guide-Liner® with a 2,100 RPM drill KL3808. One pass down and one pass up will provide the desired finish.



BRONZE BULLET® INTERRUPTED SPIRAL® VALVE GUIDE-LINERS®

Choosing the Right Guide-Liner

Choosing the Right Sizing Tool

Select the proper guide I.D. which corresponds to the clearances you desire. All Guide-Liners have been designed for maximum performance when finished to the stated minimum finished guide I.D. or larger.

To obtain the recommended finished guide I.D., select a slightly larger ball broach (due to material flow-back that occurs during this sizing operation) typically, .001 to .0015 larger than the desired finished I.D.

FRACTIONAL SIZES

	Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.
5/16"	.309 (7.85)	2.50 (63.5)	KL1916STA	.313 (7.95)	3.13 (79.5)	KL1840STA
	.310 (7.87)	2.25 (57.2)	KL19112STA	.313 (7.95)	1.88 (47.8)	KL1913STA
	.310 (7.87)	3.13 (79.5)	KL1927STA			
	.3425 (8.70) BORED HOLE MAXIMUM ID					
11/32"	.338 (8.59)	2.40 (61.0)	KL1938STA	.343 (8.71)	2.50 (63.5)	KL1923STA
	.339 (8.61)	2.50 (63.5)	KL1961STA	.343 (8.71)	3.13 (79.5)	KL1841STA
	.341 (8.66)	2.50 (63.5)	KL1983STA	.344 (8.74)	2.50 (63.5)	KL1921STA
	.342 (8.69)	2.50 (63.5)	KL1932STA			
	.3735 (9.49) BORED HOLE MAXIMUM ID					
3/8"	.368 (9.35)	2.50 (63.5)	KL1976STA	.373 (9.47)	3.13 (79.5)	KL1992STA
	.370 (9.40)	3.13 (79.5)	KL1902STA	.374 (9.50)	2.50 (63.5)	KL1974STA
	.371 (9.42)	2.50 (63.5)	KL1985STA	.374 (9.50)	3.13 (79.5)	KL1842STA
	.373 (9.47)	2.50 (63.5)	KL1977STA	.375 (9.53)	2.50 (63.5)	KL1975STA
	.4055 (10.30) BORED HOLE MAXIMUM ID					

* Highlighted part # designates universal length.

BORED HOLE TOLERANCES

FRACTIONAL			
5/16"	.341 (8.66)	-	.3425 (8.700)
11/32"	.372 (9.45)	-	.3735 (9.487)
3/8"	.404 (10.26)	-	.4055 (10.30)

MILLIMETER			
5mm	.212 (5.37)	-	.2125 (5.395)
5.5mm	.247 (6.27)	-	.2485 (6.312)
6mm	.266 (6.76)	-	.2675 (6.795)
6.6mm	.290 (7.37)	-	.2915 (7.404)
7mm	.308 (7.82)	-	.3095 (7.861)
8mm	.346 (8.79)	-	.3475 (8.827)
8.5mm	.367 (9.32)	-	.3685 (9.360)
9mm	.385 (9.78)	-	.3865 (9.817)
10mm	.424 (10.77)	-	.4255 (10.81)
11mm	.466 (11.84)	-	.4675 (11.87)



Other U.S. and Foreign Patents Pending.

K-Line®, Bronze Bullet®, Interrupted Spiral®, Guide-Liner®, and Bron-EL® are registered trademarks of K-Line® Industries, Inc.



MILLIMETER SIZES

Min. Fin. ID	Length	Part No.		
.197 (5.00)	1.63 (41.3)	KL1858STA		5mm
.2125 (5.40) BORED HOLE MAXIMUM ID				

Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.216 (5.49)	2.25 (57.2)	KL1857STA	.217 (5.51)	2.50 (63.5)	KL1900STA	5.5mm
.2485 (6.31) BORED HOLE MAXIMUM ID						

Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.233 (5.92)	2.00 (50.8)	KL1998STA	.236 (6.00)	2.25 (57.2)	KL1856STA	6mm
.234 (5.94)	1.88 (47.8)	KL1999STA	.238 (6.05)	2.25 (57.2)	KL1906STA	
.2675 (6.79) BORED HOLE MAXIMUM ID						

Min. Fin. ID	Length	Part No.		
.260 (6.60)	2.50 (63.5)	KL1849STA		6.6mm
.2915 (7.40) BORED HOLE MAXIMUM ID				



Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.273 (6.93)	2.50 (63.5)	KL1904STA	.277 (7.03)	2.50 (63.5)	KL1850STA	7mm
.275 (6.95)	2.50 (63.5)	KL1929STA	.278 (7.06)	1.81 (46.0)	KL1903STA	
.275 (6.98)	3.00 (76.2)	KL19100STA	.279 (7.09)	2.50 (63.5)	KL1909STA	
.276 (7.01)	2.75 (69.9)	KL19107STA				
.3095 (7.86) BORED HOLE MAXIMUM ID						

Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.312 (7.92)	2.50 (63.5)	KL1944STA	.316 (8.03)	2.50 (63.5)	KL1851STA	8mm
.313 (7.95)	2.50 (63.5)	KL1933STA	.317 (8.05)	2.50 (63.5)	KL1940STA	
.313 (7.95)	3.00 (76.2)	KL1937STA	.317 (8.05)	3.13 (79.5)	KL19101STA	
.314 (7.98)	2.50 (63.5)	KL1997STA	.318 (8.08)	2.50 (63.5)	KL1942STA	
.315 (8.00)	2.50 (63.5)	KL1939STA	.318 (8.08)	2.75 (69.9)	KL1967STA	
.315 (8.00)	3.15 (80.0)	KL1968STA				
.3475 (8.83) BORED HOLE MAXIMUM ID						

Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.346 (8.79)	2.50 (63.5)	KL19103STA	.354 (8.99)	3.13 (79.5)	KL1925STA	9mm
.354 (8.99)	2.75 (69.9)	KL1852STA	.356 (9.04)	2.50 (63.5)	KL1943STA	
.3865 (9.82) BORED HOLE MAXIMUM ID						

Min. Fin. ID	Length	Part No.		
.393 (9.98)	3.13 (79.5)	KL1920STA		10mm
.4255 (10.81) BORED HOLE MAXIMUM ID				



Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.432 (10.97)	2.50 (63.5)	KL1988STA	.433 (11.00)	3.25 (82.6)	KL1905STA	11mm
.4675 (11.87) BORED HOLE MAXIMUM ID						

* Highlighted part # designates universal length.

BRONZE BULLET® SMOOTH WALL VALVE GUIDE-LINERS®

FRACTIONAL SIZES

5/16"	Min. Fin. ID	Length	Part No.			
	.312 (7.92)	3.13 (79.5)	KL1840A			
.3425 (8.70) BORED HOLE MAXIMUM ID						
11/32"	Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.
	.341 (8.66)	2.50 (63.5)	KL1983AN	.343 (8.71)	3.13 (61.0)	KL1841A
	.342 (8.69)	2.50 (63.5)	KL1932AN	.343 (8.71)	3.88 (98.6)	KL1855A
	.3735 (9.49) BORED HOLE MAXIMUM ID					
3/8"	Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.
	.373 (9.47)	2.50 (63.5)	KL1977AN	.374 (9.50)	3.13 (79.5)	KL1842A
	.374 (9.50)	2.50 (63.5)	KL1974AN	.375 (9.53)	2.50 (63.5)	KL1975AN
	.3735 (9.49) BORED HOLE MAXIMUM ID					

MILLIMETER SIZES

7mm	Min. Fin. ID	Length	Part No.			
	.277 (7.03)	2.50 (63.5)	KL1850A			
.3095 (7.86) BORED HOLE MAXIMUM ID						
8mm	Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.
	.313 (7.95)	2.50 (63.5)	KL1933AN	.316 (8.03)	2.50 (63.5)	KL1851A
.3475 (8.83) BORED HOLE MAXIMUM ID						
9mm	Min. Fin. ID	Length	Part No.			
	.354 (8.99)	2.75 (69.9)	KL1852A			
.3865 (9.817) BORED HOLE MAXIMUM ID						

* Highlighted part # designates universal length.

0.36 OVERSIZE THIN-WALL

Special Oversize Guide-Liners®
repair oversized/damaged standard
Thin-Wall Guide-Liner® bores.

5/16"	Min. Fin. ID	Length	Qty.	Part No.
	.312 (7.92)	3.13 (79.5)	16	KL1839
	.312 (7.92)	3.13 (79.5)	100	KL1839A
.344 (8.74) BORED HOLE MAXIMUM ID				
11/32"	Min. Fin. ID	Length	Qty.	Part No.
	.343 (8.71)	3.13 (79.5)	16	KL1860
	.343 (8.71)	3.13 (79.5)	100	KL1860A
	.375 (9.53) BORED HOLE MAXIMUM ID			
3/8"	Min. Fin. ID	Length	Qty.	Part No.
	.374 (9.53)	3.13 (79.5)	16	KL1861
	.374 (9.53)	3.13 (79.5)	100	KL1861A
.406 (10.31) BORED HOLE MAXIMUM ID				

0.60 OVERSIZE THICK-WALL

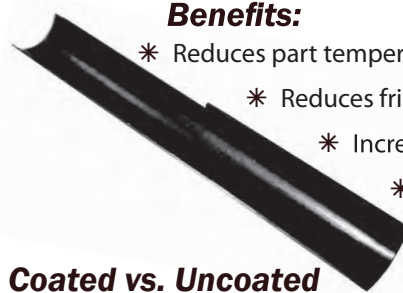
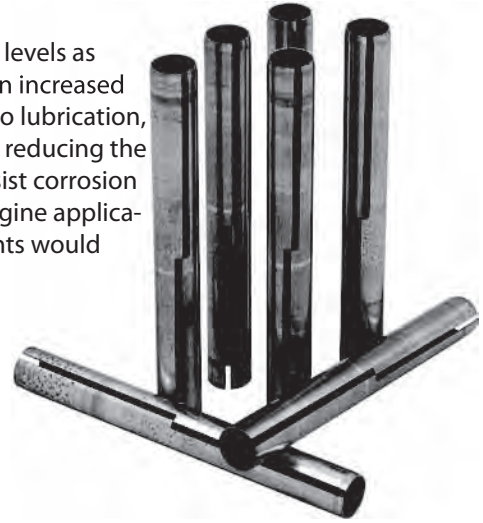
Use for special applications
including valve conversions

Min. Fin. ID	Length	Qty.	Part No.
.312 (7.92)	3.25 (82.6)	16	KL1844
.312 (7.92)	3.25 (82.6)	100	KL1844A
.3735 (9.49) BORED HOLE MAXIMUM ID			
Min. Fin. ID	Length	Qty.	Part No.
.343 (8.71)	3.25 (82.6)	16	KL1845
.343 (8.71)	3.25 (82.6)	100	KL1845A
.4055 (10.30) BORED HOLE MAXIMUM ID			

"DFL" COATED BRONZE BULLET® GUIDE-LINERS®

The only COATED Valve Guide-Liners on the market!

DFL Coating is a moly-based lubricant capable of providing lubrication at levels as high as 350,000 psi. It aides in preventing scuffing and galling, resulting in increased part life. It reduces friction, allowing for more usable power. In addition to lubrication, Dry-Film Lubricant also helps distribute heat so there is less metal fatigue reducing the chance of part failure. K-Line® DFL Performance Coated Guide-Liners® resist corrosion of diesel and race fuels while providing excellent wear resistance. Any engine application that needs lubrication in dry, high speed, or extreme use environments would benefit from DFL Coated Guide-Liners.



Benefits:

- * Reduces part temperature.
- * Reduces friction.
- * Increases combustion chamber efficiency.
- * Sheds carbon.
- * Extends part life.

Coated vs. Uncoated

Frictional drag leads to inefficiency in the combustion chamber slowing the engine down. However, independent testing proves that engine efficiency is increased when using internal engine parts coated with a Dry-Film Lubricant.

DFL
DRY - FILM - LUBRICANT

FRACTIONAL SIZES

Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.310 (7.87)	3.13 (79.5)	KL1927CA	.312 (7.92)	3.13 (79.5)	KL1840CA	5/16
.3425 (8.70) BORED HOLE MAXIMUM ID						
Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.343 (8.71)	2.50 (63.5)	KL1923CA	.344 (8.74)	2.50 (63.5)	KL1921CA	11/32
.343 (8.71)	3.13 (79.5)	KL1841CA	.344 (8.74)	2.40 (61.0)	KL1934CA	
.3735 (9.49) BORED HOLE MAXIMUM ID						
Min. Fin. ID	Length	Part No.	Min. Fin. ID	Length	Part No.	
.373 (9.47)	2.50 (63.5)	KL1977CA	.375 (9.53)	2.50 (63.5)	KL1975CA	3/8
.374 (9.50)	3.13 (79.5)	KL1842CA				
.3865 (9.82) BORED HOLE MAXIMUM ID						

MILLIMETER SIZES

Min. Fin. ID	Length	Part No.	
.216 (5.49)	2.25 (57.2)	KL1857CA	5.5mm
.2485 (6.31) BORED HOLE MAXIMUM ID			
Min. Fin. ID	Length	Part No.	
.236 (5.99)	2.25 (57.2)	KL1856CA	6mm
.2675 (6.79) BORED HOLE MAXIMUM ID			
Min. Fin. ID	Length	Part No.	
.260 (6.60)	2.50 (63.5)	KL1849CA	6.6mm
.2915 (7.40) BORED HOLE MAXIMUM ID			
Min. Fin. ID	Length	Part No.	
.277 (7.03)	2.50 (63.5)	KL1850CA	7mm
.3095 (7.86) BORED HOLE MAXIMUM ID			
Min. Fin. ID	Length	Part No.	
.315 (8.00)	2.50 (63.5)	KL1939CA	8mm
.316 (8.03)	2.50 (63.5)	KL1851CA	
.3475 (8.83) BORED HOLE MAXIMUM ID			
Min. Fin. ID	Length	Part No.	
.354 (8.99)	2.75 (69.9)	KL1852CA	9mm
.3865 (9.82) BORED HOLE MAXIMUM ID			

BRONZE BULLET® GUIDE-LINER® KITS



RX STANDARD GUIDE-LINER® AIR INSTALLATION KITS

These tool kits are designed for the smaller to mid-sized shop, answering the need for a more economical tooling kit package. Each kit features a Carbide Boring Reamer with accessories, packaged in a plastic storage box with step-by-step instructions.

These kits are designed to be used with KL9907 or KL9910 Seat Bushing Kits.

Guide Size Kit No.	Step 1		Step 2		Step 3			Step 4	
	Boring Reamer	Reamer Bushing	Guide Brush	Auto Installer	Ball Broaches			Trim Tool	
5/16" KL1600RX	KL1719C-9	KL9932	KL1036	KL9961	KL5844/.312	KL5845/.313	KL5846/.314	KL1787	
11/32" KL1601RX	KL1725C-9	KL9934	KL1036	KL9962	KL5857/.3435	KL5858/.3445	KL5859/.3455	KL1797	
3/8" KL1602RX	KL1735C-9	KL9936	KL1036	KL9963	KL5872/.374	KL5873/.375	KL5874/.376	KL1807	
5.5mm KL1614RX	*KL3561CC	KL9922	KL1036	KL9958	KL5808/.217	KL5809/.2175	KL5810/.218	KL5811/.2185	KL3184
6mm KL1612RX	KL3566C-9	KL9929	KL1036	KL9971	KL5815/.237	KL5816/.2375	KL5817/.238	KL5818/.2385	KL3185
6.6mm KL1606RX	KL3571C-9	KL9930	KL1036	KL9972	KL5825/.260	KL5826/.261	KL5827/.262	KL3205	
7mm KL1607RX	KL3576C-9	KL9931	KL1036	KL9973	KL5835/.276	KL5836/.277	KL5837/.278	KL5838/.279	KL1897
8mm KL1608RX	KL3581C-9	KL9933	KL1036	KL9968	KL5847/.315	KL5848/.316	KL5849/.317	KL1787	
9mm KL1609RX	KL3586C-9	KL9935	KL1036	KL9969	KL5864/.354	KL5865/.355	KL5866/.356	KL3235	

* Guide Pro® Solid Carbide Boring Reamer.



VALVE SEAT BUSHING KITS

These kits offers sizes to fit most valve seats. Bushings easily disconnect from fixture head for quick size changes. Kits come in a sturdy, padded plastic storage case.

KL9907 (7 Pc. Kit)

Part No.	Size
KL9911	1"
KL9912	1-3/16"
KL9913	1-3/8"
KL9915	1-5/8"
KL9916	1-3/4"
KL9918	2"
KL9919	2-1/4"

KL9910 (9 Pc. Kit)

Part No.	Size
KL9911	1"
KL9912	1-3/16"
KL9913	1-3/8"
KL9914	1-1/2"
KL9915	1-5/8"
KL9916	1-3/4"
KL9917	1-7/8"
KL9918	2"
KL9919	2-1/4"

These kits are designed to be used with the RX or NX Guide-Liner® Air Installation Kits

KL9920 2-1/2" (sold separately)

BRONZE BULLET® GUIDE-LINER® KITS



NX DELUXE GUIDE-LINER® AIR INSTALLATION KITS

Complete kit designed for use with KL9942, KL9943, and KL9900, featuring the Black Beauty® Carbide Boring Reamer and deluxe tooling. Packaged in a plastic storage box, complete with step-by-step instructions.



These kits are designed to be used with KL9907 or KL9910 Seat Bushing Kits.

Step 1		Step 2		Step 3	Step 4	Step 5				Guide Size Kit No.
Boring Reamer	Reamer Bushing	Go-No-Go Gage	Guide Brush	Auto Installer	Ball Broaches	Guide-Top Cutter	Cutter Pilot	Flex Hone	Removal Tool	
KL1719CB-9	KL9932	KL2500	KL1036	KL9961	KL5844/.312 KL5845/.313 KL5846/.314	KL4235	KL4238	KL2427	KL5680	5/16" KL1600NX
KL1725CB-9	KL9934	KL2501	KL1036	KL9962	KL5857/.3435 KL5858/.3445 KL5859/.3455	KL4235	KL4239	KL2428	KL5681	11/32" KL1601NX
KL1735CB-9	KL9936	KL2502	KL1036	KL9963	KL5872/.374 KL5873/.375 KL5874/.376	KL4235	KL4240	KL2419	KL5682	3/8" KL1602NX
*KL3556CC	KL9921	KL2514	KL1036	KL9957	KL5902/.1978 KL5903/.1983 KL5904/.1988	KL4230	KL4247	KL2422	KL5677	5mm KL1613NX
*KL3561CC	KL9922	KL2498	KL1036	KL9958	KL5808/.217 KL5809/.2175 KL5810/.218 KL5811/.2185	KL4233	KL4246	KL2424	KL5678	5.5mm KL1614NX
KL3566CB-9	KL9929	KL2499	KL1036	KL9971	KL5815/.237 KL5816/.2375 KL5817/.238 KL5818/.2385	KL4233	KL4245	KL2423	KL5679	6mm KL1612NX
KL3571CB-9	KL9930	KL2504	KL1036	KL9972	KL5825/.260 KL5826/.261 KL5827/.262	KL4233	KL4242	KL2425	KL5684	6.6mm KL1606NX
KL3576CB-9	KL9931	KL2505	KL1036	KL9973	KL5835/.276 KL5836/.277 KL5837/.278 KL5838/.279	KL4233	KL4243	KL2426	KL5685	7mm KL1607NX
KL3581CB-9	KL9933	KL2506	KL1036	KL9968	KL5847/.315 KL5848/.316 KL5849/.317	KL4235	KL4238	KL2427	KL5686	8mm KL1608NX
KL3586CB-9	KL9935	KL2507	KL1036	KL9969	KL5864/.354 KL5865/.355 KL5866/.356	KL4235	KL4244	KL2428	KL5687	9mm KL1609NX
KL3591CB-9	KL9939	KL2508	KL1036	KL9970	KL5876/.394 KL5877/.395 KL5878/.396	KL4235	KL4248	KL2429	KL5688	10mm KL1610NX
KL1749CB-9	KL9937	KL2503	KL1036	KL9964	KL5880/.433 KL5881/.434 KL5882/.435	KL4235	KL4241	KL2430	KL5689	11mm KL1611NX

* Guide Pro® Solid Carbide Boring Reamer.

Steps 1 & 5 use KL3808 Drill - 2100 RPM. Steps 2 & 3 use KL2680 Air Hammer - 4,500 blows/min.

Step 4 uses KL3806 Air Drill - 950 RPM. Step 3 recommended purchase (KL5758, KL5759) Ball Broach Driver.

STEP 1 BORE

KL9942 AUTOMATED VALVE GUIDE BORING STAND

Reduces Operator Fatigue and Costly Operator Error - Available Tooling for Boring .030 over, 1/2" and 9/16"

Hydraulically Controlled Feed Rate

With K-Line's® exclusive air over hydraulic feed control cylinder, constant pressure is delivered during the boring cycle. This provides greater accuracy, predictability and repeatability.

Consistent, Accurate Results

Consistent results make the shop owner money. This tool reduces costly operator error and re-work. You get guides that are properly prepared for the Guide-Liner® System.

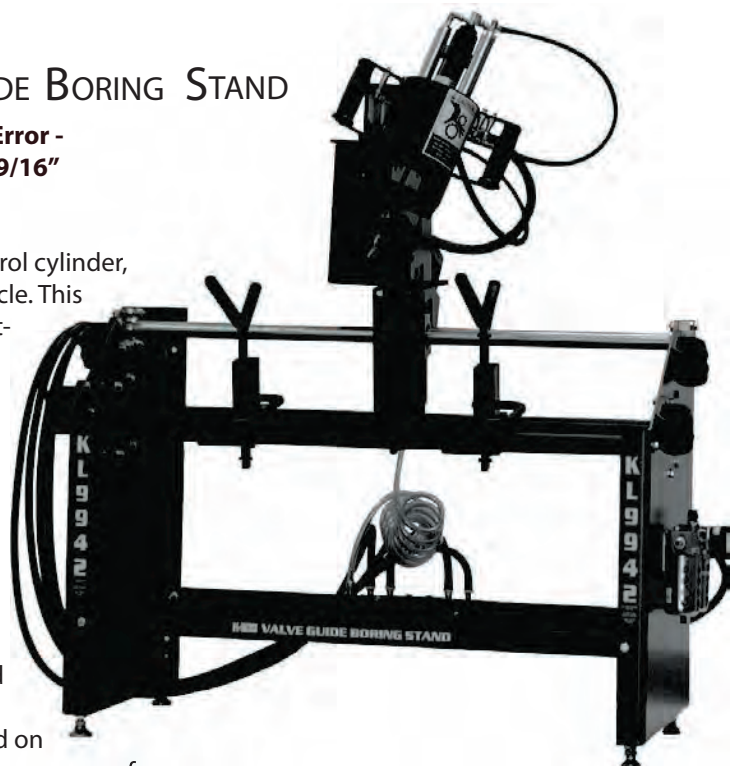
Increased Safety

The K-Line® Automated Boring Head is counter-balanced and incorporates ergonomically designed handles for operator comfort. The clamping and boring operations are controlled by buttons located on each handle. This keeps the operator's hands and fingers away from potential pinch points.

K-Line Quality You Can Count On

K-Line® has been manufacturing quality machine shop tools and equipment for over 50 years. We offer the only complete line of Guide-Liners® and Guide-Liner® Tooling in the world. We put our unparalleled knowledge and experience into making this tool a real time and money saver.

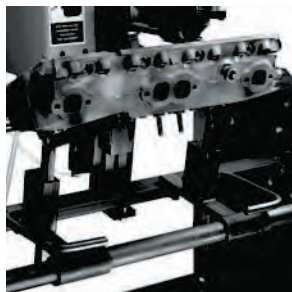
Made in U.S.A. U.S. Patent No. 5,281,057. Canadian Patent No. 2,090,627.
Dimensions: 46"W x 32"D x 56"H F.O.B. Holland, MI
Comes complete with 9 Pc. Seat Bushing Assortment and Air Manifold.



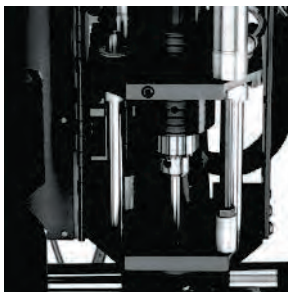
Optional Quick Change
**KL9949 Core Drill Motor
Assembly** for 1/2"
& 9/16" eliminates
need to use valve
guide and seat
machine for
guide work.



Initial Set-up is as Easy as 1...2...3...



Step 1 - Adjust the position of the cylinder head for proper alignment using the ratcheting head holders.



Step 2 - Adjust for seat to guide height using 1/4" reference lines as required.



Step 3 - Set overall guide length (stroke) with integral scale and you are ready to bore.

The last bored hole of the day is just as good as the first, day after day!

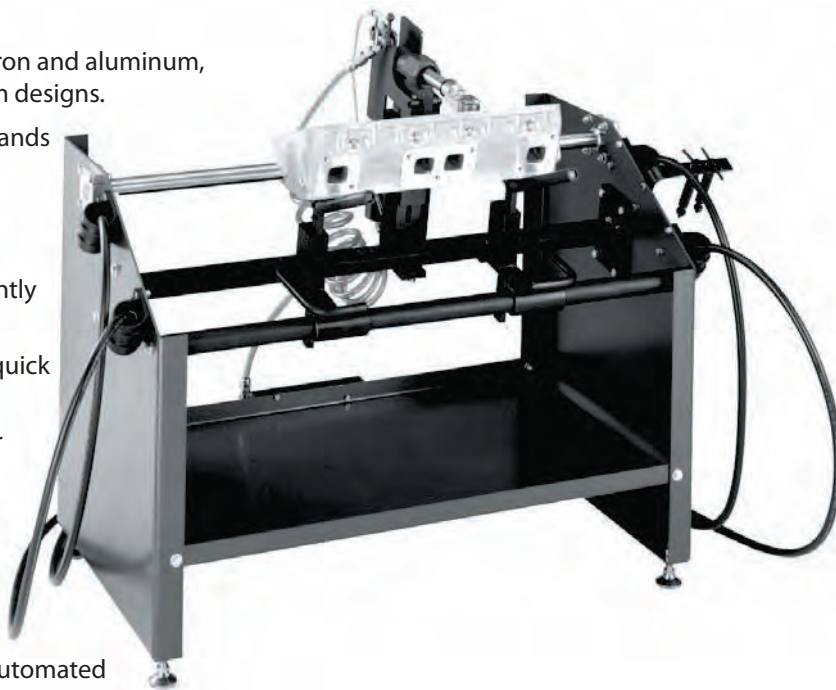
STEP 1 BORE



KL9943 MANUAL VALVE GUIDE BORING STAND

Features

- Accommodates all popular heads, cast iron and aluminum, including multi-valve dual overhead cam designs.
- Quick adjust ratcheting V-cradle head stands (no bolts to remove for adjustment).
- Twin bearings in boring fixture head for longer life.
- Ergonomically designed height and slightly angled to reduce operator fatigue.
- Air control valve is centrally located for quick on/off clamping action.
- Whip lines with air manifold allowing for four additional air tools.
- Quick and easy disconnect coupler for interchangeable valve seat bushings.
- Air tool holsters bolt-on for easy air tool accessibility.
- Can easily be upgraded to the KL9942 Automated Stand by purchasing the KL9940 Automated Boring Head Assembly.
- Includes the KL9907 Valve Seat Bushing Kit at no extra charge.



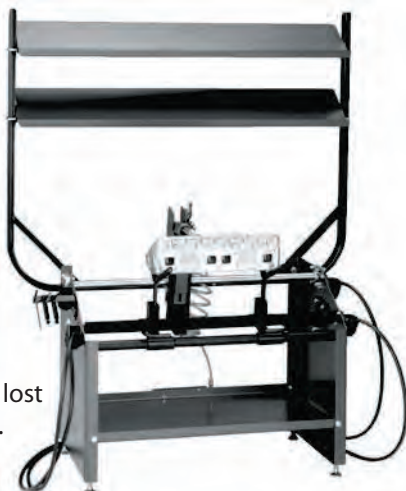
The K-Line Valve Guide Boring Fixture has been uniquely designed to meet the needs of the quality minded engine rebuilder. This boring fixture provides near-perfect alignment with two point set up between the midpoint of the guide and the valve seat for boring out worn valve guides prior to K-Line Guide-Liner Installation.

When used in conjunction with K-Line boring tools, you can expect unmatched consistency, speed and performance. Two-point alignment and positive clamping action ensures that guide to seat alignment is repeatable and precise. The KL9943 is finished in a durable hammertone blue powder coating.

Made in U.S.A.
U.S. Patent No. 5,281,057.
Canadian Patent No. 2,090,627.
Dimensions: 46"W x 32"D x 43"H
F.O.B. Holland, MI

KL9941 TOOL ORGANIZER

Attaches to KL9942 & KL9943
This sturdy tool holder eliminates lost tools, parts and messy work areas.



KL9943 shown with optional
KL9941 Tool Organizer

VALVE SEAT BUSHING KITS

Kit descriptions on page. 8

KL9910

KL9907

9 Piece Set:

KL9911.....	1"
KL9912	1-3/16"
KL9913.....	1-3/8"
KL9914.....	1-1/2"
KL9915.....	1-5/8"
KL9916.....	1-3/4"
KL9917.....	1-7/8"
KL9918.....	2"
KL9919.....	2-1/4"

7 Piece Set:

KL9911.....	1"
KL9912 ...	1-3/16"
KL9913.....	1-3/8"
KL9915.....	1-5/8"
KL9916.....	1-3/4"
KL9918.....	2"
KL9919.....	2-1/4"

KL9920 2-1/2" (sold separately)

STEP 1 BORE

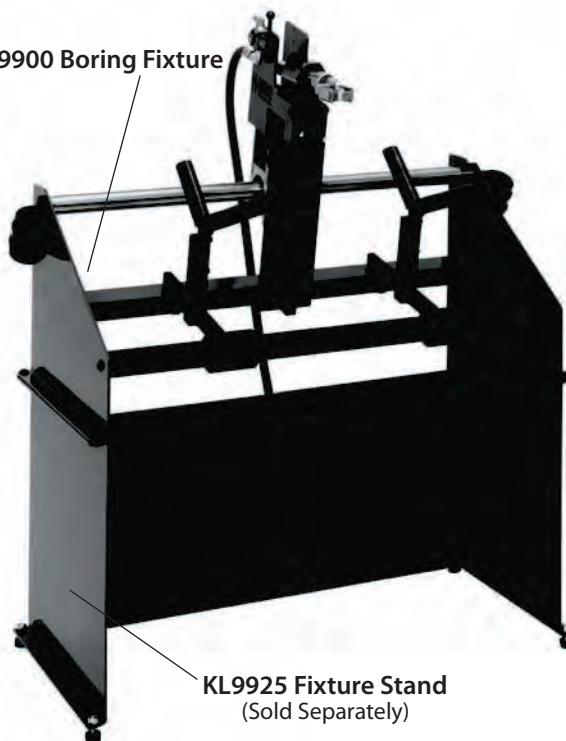
KL9900 VALVE GUIDE BORING FIXTURE

The K-Line® Valve Guide Boring Fixture has been uniquely designed to meet the needs of the quality minded engine rebuilder. This boring fixture provides perfect alignment with the valve seat for boring out worn valve guides prior to K-Line® Guide-Liner® Installation.

Used in conjunction with K-Line® boring tools, including the Black Beauty® Guide Pro® Solid Carbide Boring Reamers, you can expect unmatched consistency, speed and performance. Two-point alignment and positive clamping action ensures that guide-to-seat alignment is precise. Finished in a durable hammertone blue powder coating.

Made in U.S.A. U.S. Patent No. 5,281,057.
Canadian Patent No. 2,090,627.
Other U.S. & foreign patents pending.
Dimensions: 35"W x 24"D x 22"H
F.O.B. Holland, MI

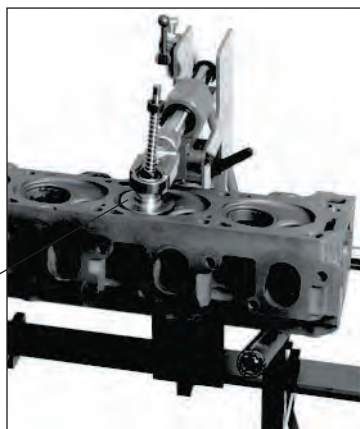
KL9900 Boring Fixture



KL9925 Fixture Stand
(Sold Separately)

Features

- Accommodates all popular heads, cast iron and aluminum, including multi-valve dual overhead cam designs.
- Adjustable V-cradle head stands (height & width) are non-tip for safe operation.
- Twin bearings in boring fixture head for longer life.
- Boring fixture head and stands are slightly angled to reduce operator fatigue.
- Air control valve is centrally located for quick on/off clamping action.
- Quick disconnect for interchangeable valve seat bushings.
- Built-in air tool holsters for easy air tool accessibility.



A must for high-performance applications, heads with canted or opposing guides and production environments.

KL9925 FIXTURE STAND

Custom designed to fit the KL9900 Boring Fixture. Enhances the ergonomics of the KL9900. Angled back splash catches metal chips.

Dimensions: 35"W x 24"D x 22"H
F.O.B. Holland, MI

KL9926 OPTIONAL AIR MANIFOLD

Custom designed for the KL9900 Boring Fixture. Expands your shop air line into four. Connects the boring fixture, plus up to 3 additional air tools. Three 6 ft. air hoses included.



KL9900K VALVE GUIDE BORING FIXTURE KIT

This package includes the KL9900 Valve Guide Boring Fixture, the KL9925 Fixture Stand and the KL9907 Valve Seat Bushing Kit (page 8). F.O.B. Holland, MI.

KL9900 REPLACEMENT PARTS

KL9900-17 Plastic Tool Holster

KL9900-29A Air Valve w/Lever

KL9900-25 Spring Plunger

STEP 1

BORE



BLACK BEAUTY® CARBIDE BORING TOOLS FOR POWDERED METAL AND CAST IRON GUIDES

The Ultimate Boring Tool for Precision and Extra Long Life

- Hardness - Rockwell C hardness of 93-95 allows faster operating speeds with extended tool life - even in hardened guides.
- Unique molecular structure resists galling or chip build up, resulting in reduced tool temperature.
- Lubricity - The lubricious surface aids in maintaining a lower temperature and efficient chip removal.
- Low temperature application process eliminates the possibility of tool warpage or annealing.
- Precision - Each reamer is carefully crafted to a .0002 tolerance or less. Hole sizing is true and consistent.

Replacement Boring Tools for NX Series Guide-Liner® Kits

Part No.	Size	Use With
KL1719CB-9	.312 - .030	5/16" Guide-Liners®
KL1725CB-9	.343 - .030	11/32" Guide-Liners®
KL1735CB-9	.375 - .030	3/8" Guide-Liners®
KL3566CB-9	.236 - .030	6.0mm Guide-Liners®
KL3571CB-9	.260 - .030	6.6mm Guide-Liners®
KL3576CB-9	.275 - .030	7mm Guide-Liners®
KL3581CB-9	.315 - .030	8mm Guide-Liners®
KL3586CB-9	.354 - .030	9mm Guide-Liners®
KL3591CB-9	.394 - .030	10mm Guide-Liners®
KL1749CB-9	.437 - .030	11mm Guide-Liners®

Black Beauty® is a registered trademark of K-Line® Industries, Inc.

9" Overall Length

STANDARD CARBIDE BORING TOOLS FOR POWDERED METAL AND CAST IRON GUIDES

Replacement Boring Tools for RX Series Guide-Liner® Kits



Part No.	Size	Use With
KL1719C-9	.312 - .030	5/16" Guide-Liners®
KL1725C-9	.343 - .030	11/32" Guide-Liners®
KL1735C-9	.375 - .030	3/8" Guide-Liners®
KL3566C-9	.236 - .030	6mm Guide-Liners®
KL3571C-9	.260 - .030	6.6mm Guide-Liners®
KL3576C-9	.275 - .030	7mm Guide-Liners®
KL3581C-9	.315 - .030	8mm Guide-Liners®
KL3586C-9	.354 - .030	9mm Guide-Liners®
KL3591C-9	.394 - .030	10mm Guide-Liners®
KL1749C-9	.437 - .030	11mm Guide-Liners®

9" Overall Length

BLACK BEAUTY® CARBIDE BORING TOOLS FOR BRONZE GUIDES

Specifically designed to bore Manganese Bronze, Aluminum Bronze and Silicon Aluminum Bronze prior to Guide-Liner® installation.

Part No.	Size
KL3519CSP	5/16" - 30
KL3525CSP	11/32" - 30
KL3535CSP	3/8" - 30
KL3561CSP	5.5mm - 30
KL3566CSP	6mm - 30
KL3571CSP	6.6mm - 30
KL3576CSP	7mm - 30
KL3581CSP	8mm - 30
KL3586CSP	9mm - 30

9" Overall Length



REAMER BUSHINGS

Replacement Reamer Bushings for NX/RX Series Guide-Liner® Kits



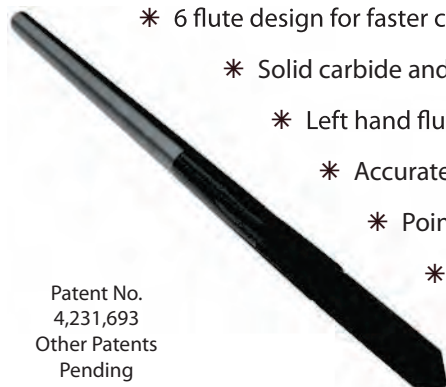
Part No.	Size
KL9932	5/16"
KL9934	11/32"
KL9936	3/8"
KL9923	1/2"

Part No.	Size
KL9921	5mm
KL9922	5.5mm
KL9929	6mm
KL9930	6.6mm

Part No.	Size
KL9931	7mm
KL9933	8mm
KL9935	9mm
KL9939	10mm
KL9937	11mm

STEP 1 BORE

GUIDE PRO® SOLID CARBIDE BLACK BEAUTY® BORING TOOLS



Patent No.
4,231,693
Other Patents
Pending

- * 6 flute design for faster cutting action
- * Solid carbide and patented Black Beauty® process provide increased longevity
- * Left hand flutes send chips down out of the way for size consistency
- * Accurately bores in most types of valve guide materials
- * Pointed pilot for faster hole location
- * Patented tool design provides a smoother finish

An exclusive line of Guide-Liner® boring tools designed to cut faster, straighter holes. Coupled with our patented Black Beauty® process and patented cutting geometric design, these solid carbide reamers provide a smoother finish. Life expectancy is considerably greater than standard brazed carbide boring tools.

Part No.	Size	Use With
KL3556CC	.197 - .030	5mm
KL3561CC	.216 - .030	5.5mm
KL3566CC	.236 - .030	6mm
KL3576CC	.275 - .030	7mm
KL3581CC	.315 - .030	8mm
KL3586CC	.354 - .030	9mm

Part No.	Size	Use With
KL1719CC	.312 - .030	5/16"
KL1725CC	.343 - .030	11/32"
KL1735CC	.375 - .030	3/8"

BLACK BEAUTY® CARBIDE CORE DRILLS AND REAMERS

Designed for use with the K-Line® KL9942, KL9943, and KL9900 for replacing 1/2" and 9/16" valve guides. This procedure is needed if the Bronze Bullet® Guide-Liner® cannot be initially used, due to guide boss breakage, badly worn guides, etc. Can also be used on you Guide and Seat Machine with a 3-jaw chuck. Each tool features the superior cutting qualities attained by the Black Beauty® process. Core drills have a round shank with flats for positive locking action in a 3-jaw chuck. Round shank fits Kwik-Way, K.O. Lee, DCM Tech, Peterson, Kansas



Core Drill



Finish Reamer

Part No.	Size
KL1790CB	11/32" x .475 Core Drill
KL1791CB	3/8" x .475 Core Drill
KL1795CB	.475 x .500 Boring Reamer
KL1793CB	3/8 x .537 Core Drill

GO-NO-GO GAUGES

Designed to be used as a quick check after boring the original valve guide. Will detect under or over sizing of the valve guide before installation of the Guide-Liner®. Will also help the machinist know when the boring tool is approaching dull stage and needs to be sharpened or replaced.



Part No.	Size
KL2500	5/16"
KL2501	11/32"
KL2502	3/8"

Part No.	Size
KL2514	5mm
KL2498	5.5mm
KL2499	6mm
KL2504	6.6mm
KL2505	7mm
KL2506	8mm
KL2507	9mm
KL2508	10mm
KL2503	11mm

STEP 2 INSTALL



BRONZE BULLET® AUTO INSTALLER #1 Rated Installation Tool

This universal tool features a Guide-Liner® holder incorporated into the driver assembly, making installation quick and effortless. Attach the Auto-Installer to the KL2680 H.D. Air Hammer, insert the Bronze Bullet® liner into the holder assembly, position the driver pilot and Bronze Bullet® liner into the bored hole and drive the Bronze Bullet® liner into the hole until the driver shoulder reaches the guide boss. The Auto-Installer eliminates the need for a separate holder and driver and can cut installation time in half.

U.S. Patent No. 5,355,572

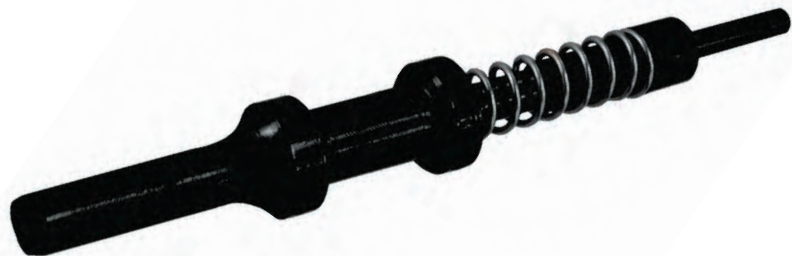
Part No.	Size
KL9961	5/16"
KL9962	11/32"
KL9963	3/8"
KL9968	8mm
KL9969	9mm
KL9970	10mm
KL9964	11mm

SMALL DIAMETER BRONZE BULLET® AUTO INSTALLER

This line of metric auto installers features a reduced diameter Guide-Liner® holder for improved access to the valve guide in modern aluminum cylinder heads with small diameter valve bowls or overhead cam towers.

U.S. Patent No. 5,355,572

Part No.	Size
KL9957	5mm
KL9958	5.5mm
KL9971	6mm
KL9972	6.6mm
KL9973	7mm



BRONZE LUBE For Knurling and Reaming

This oil is specially formulated for guide knurling and finish reaming. Reamer and arbor life will be extended if the proper amount and type of oil is used. Bronze Lube should be used on bronze Guide-Liners®, but can also be used on cast iron guides.



KL1224 Pint
KL1225 Quart
KL1226 Gallon

KL2680 H.D. AIR HAMMER

This high impact heavy-duty air hammer delivers short rapid strokes and uniform driving pressure, making it ideally suited for Guide-Liner® installation, broaching and removal.

Built in regulator.

- .401 Opening
- Weighs on 3 lbs.
- 5¼" O.A.L.
- 4 C.F.M. Air Consumption
- **4,500 Blows Per Minute**
- **Short Stroke 1⅝"**



STEP 3 SIZE



HARD CHROME PLATED BALL BROACHES

A simple, fast method for sizing the inside diameter of Bronze Guide-Liners®. Made of high quality tool steel, hard chrome plated, with a special ground double ball configuration that quickly sizes the inside diameter and eliminates reaming or honing. Use with KL5758 or KL5759 Broach Holder/Driver shown below with KL2680 Air Hammer (page 15). U.S. Patent No. 4,573,346. Canadian Patent No. 1,219,742.

5/16"	Part No.	Ball Size
	KL5842	.310 (7.87)
	KL5843	.311 (7.90)
	KL5844	.312 (7.92)
	KL5845	.313 (7.95)
	KL5846	.314 (7.98)
	KL5853	.339 (8.61)
	KL5854	.340 (8.64)
	KL5855	.341 (8.66)
	KL5856	.342 (8.69)
	KL5857	.3435 (8.725)
	KL5858	.3445 (8.750)
	KL5889	.345 (8.76)
	KL5859	.3455 (8.776)
	KL5860	.3465 (8.801)
	KL5886	.347 (8.81)
11/32"	Part No.	Ball Size
	KL5871	.372 (9.45)
	KL5869	.373 (9.47)
	KL5872	.374 (9.50)
	KL5892	.3745 (9.512)
	KL5873	.375 (9.53)
	KL5893	.3755 (9.538)
	KL5874	.376 (9.55)
	KL5890	.377 (9.58)
	KL5891	.378 (9.60)

5mm	Part No.	Ball Size
	KL5902	.1978 (5.024)
	KL5903	.1983 (5.037)
	KL5904	.1988 (5.050)
	KL5806	.215 (5.46)
	KL5807	.216 (5.49)
5.5mm	Part No.	Ball Size
	KL5808	.217 (5.51)
	KL5809	.2175 (5.525)
	KL5810	.218 (5.54)
	KL5811	.2185 (5.550)
	KL5812	.234 (5.94)
6mm	Part No.	Ball Size
	KL5813	.235 (5.97)
	KL5814	.236 (6.00)
	KL5815	.237 (6.02)
	KL5816	.2375 (6.033)
	KL5817	.238 (6.05)
6.6mm	Part No.	Ball Size
	KL5818	.2385 (6.058)
	KL5819	.239 (6.07)
	KL5820	.2395 (6.083)
	KL5898	.240 (6.10)
	KL5825	.260 (6.60)
6.6mm	Part No.	Ball Size
	KL5826	.261 (6.63)
	KL5827	.262 (6.65)
KL5828	.263 (6.68)	

7mm	Part No.	Ball Size
	KL5833	.274 (6.96)
	KL5834	.275 (6.99)
	KL5835	.276 (7.01)
	KL5832	.2765 (7.023)
	KL5836	.277 (7.04)
	KL5837	.278 (7.06)
	KL5838	.279 (7.09)
	KL5839	.280 (7.11)
	KL5840	.281 (7.14)
8mm	Part No.	Ball Size
	KL5841	.282 (7.16)
	KL5831	.283 (7.19)
	KL5847	.315 (8.00)
	KL5848	.316 (8.03)
	KL5849	.317 (8.05)
	KL5850	.318 (8.08)
	KL5851	.319 (8.10)
	KL5852	.320 (8.13)
	KL5864	.354 (8.99)
9mm	Part No.	Ball Size
	KL5865	.355 (9.02)
	KL5866	.356 (9.04)
	KL5862	.357 (9.07)
10mm	Part No.	Ball Size
	KL5876	.394 (10.00)
	KL5877	.395 (10.03)
	KL5878	.396 (10.06)
	KL5880	.433 (11.00)
	KL5881	.434 (11.02)
11mm	Part No.	Ball Size
KL5882	.435 (11.05)	

IMPORTANT: to obtain the recommended finished guide I.D., a slightly larger ball broach will be required (due to material flow-back that occurs during this sizing operation) typically, .001" (.025mm) to .0015" (.038mm) larger than the desired finished I.D.

AIR HAMMER BALL BROACH HOLDER/DRIVER



Part No.	Description
KL5758	For Ball Broaches 5mm - 8mm
KL5759	For Ball Broaches 11/32" - 11mm
KL5759B	Replacement Bumper

PNEUMATIC BALL DRIVERS



Part No.	For Carbide Ball Sizes
KL9816	6.6mm & 7mm
KL9817	5/16" & 8mm
KL9818	11/32" & 9mm
KL9819	3/8", 10mm, 7/16"

STEP 4 TRIM

KL4235A DELUXE GUIDE-TOP CUTTER WITH INTERCHANGEABLE CUTTER PILOTS



Reversible Carbide Blade

Deluxe Guide-Top Cutter spot faces excess Guide-Liner® material or faces off guide boss and combustion side of the valve guide if needed.

Cutter Pilots

Part No.	Cutters
KL4238	5/16" - 8mm
KL4239	11/32"
KL4240	3/8"
KL4244	9mm
KL4248	10mm
KL4241	11mm

The tool shank is 5/8" in diameter x 4" long and the reversible carbide blade is .720 in diameter.

KL4236A Replacement Carbide Blade

KL4235 GUIDE-TOP CUTTER



Designed to be used when cutting excess Guide-Liners®. It has replaceable carbide blades, which are fastened on with screws. Uses standard K-Line® guide-top cutter pilots.

KL4236 Replacement Carbide Blade (2 required)

KL4237 Replacement Holding Screw

KL4230 5MM DELUXE GUIDE-TOP CUTTER Reversible Carbide Blade

This deluxe cutter is ideal for cutting excess Guide-Liner® material from valve guide bosses in limited clearance areas found on small port cylinder heads. The tool shank is 3/8" in diameter x 3¾" long and the reversible carbide blade can cut up to a 7/16" diameter guide boss. For use with the KL4246 5mm Cutter Pilot.

KL4247 Cutter Pilot

KL4230A Replacement Carbide Blade

KL4233 SMALL DIAMETER DELUXE GUIDE-TOP CUTTER



Reversible Carbide Blade

This deluxe cutter is ideal for cutting excess Guide-Liner® material from valve guide bosses in limited clearance areas found on small port cylinder heads. Pilots are interchangeable with the larger KL4235A Deluxe Guide-Top Cutter.

Cutter Pilots

Part No.	Cutters
KL4246	5.5mm
KL4245	6mm
KL4242	6.6mm
KL4243	7mm

The tool shank is 3/8" in diameter x 3¾" long and the reversible carbide blade can cut up to a 7/16" diameter guide boss.

KL4234 Replacement Carbide Blade

KL4232 MID-SIZE .530 DIAMETER GUIDE-TOP CUTTER



Reversible Carbide Blade

This guide-top cutter fills the size gap between the KL4233 (.437) and the KL4235A (.720). Designed for machining any press-in valve guides found in aluminum cylinder heads; bronze, powdered metal, or steel. Uses standard guide-top cutter pilots.

KL4232A Replacement Carbide Blade

GUIDE-LINER® TRIMMING TOOL

For manually trimming off excess Guide-Liner® material after installation.



Part No.	Size
KL1787	5/16"
KL1797	11/32"
KL1807	3/8"
KL3184	5.5mm
KL3185	6mm
KL3205	6.6mm
KL1897	7mm
KL1787	8mm
KL3235	9mm

STEP 5

FLEX-HONE®

VALVE GUIDE FLEX-HONES®

Ideal for Precision, Final Fitting of Valves to Guide-Liners®

Use with power drill or guide and seat machine. Simply run the closest size FLEX-HONE® through the guide. Works with all guide materials: cast iron, bronze, Bron-EL® and silicon aluminum-bronze. Recommended for one pass final finish on Bronze Guide-Liners.

Recommended for use with KL3808 2100 RPM Air Drill to activate approximately 20-23 Ra in Bronze Guide-Liners®.



Part No.	Size	Grit
KL2422	5mm	240
KL2424	5.5mm	240
KL2423	6mm	240
KL2425	6.6mm	240
KL2426	7mm	240
KL2427	8mm	240
KL2428	9mm	240
KL2419	9.5mm	240
KL2429	10mm	240
KL2430	11mm	240

GUIDE-LINER® REMOVAL TOOL

#1 Rated Removal Tool



Easily removes old Guide-Liners® without disrupting original guide bore. Pilot aligns tool as you drive it through the guide. KL5758 Air Hammer Ball Broach Holder/Driver (page 16) required with removal tool when using pneumatic hammer to remove Guide-Liner®

Part No.	Guide-Liner® Size
KL5680	5/16"
KL5681	11/32"
KL5682	3/8"
KL5677	5mm
KL5678	5.5mm
KL5679	6mm
KL5684	6.6mm
KL5685	7mm
KL5686	8mm
KL5687	9mm
KL5688	10mm
KL5689	11mm

AT2557 QUICK CHANGE RETAINER SPRING

Fits all .401 diameter shank pneumatic tools. Spring gives you positive protection against dangerous accidental shank release. Interlocking design grips the shank tighter as hammering force increases, but still lets you snap shank in or out faster than ever before. Used with the KL2680 H.D. Air Hammer.



KL3808 EXTRA H.D. AIR DRILL

Weighing in at only 2lbs., this drill is a pleasure to work with over an extended period of time. Recommended for use with the K-Line® Boring Fixtures and carbide boring reamers because of its swift **2,100 RPM**, no load speed. With its quality construction, including a 1/2 H.P. motor and a 3/8" Jacobs chuck, this is one of the finest 3/8" air drills available.



KL2680 H.D. AIR HAMMER

This high impact heavy-duty air hammer delivers short rapid strokes and uniform driving pressure, making it ideally suited for Guide-Liner® installation, broaching and removal. Built in regulator.

- .401 Opening
- Weighs on 3 lbs.
- 5¼" O.A.L.
- 4 C.F.M. Air Consumption
- **4,500 Blows Per Minute**
- **Short Stroke 1½"**

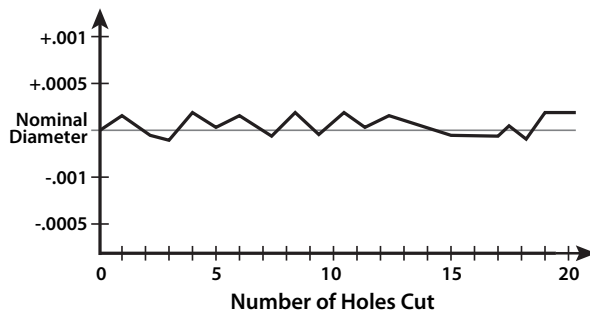


BRONZE VALVE GUIDE FINISH REAMERS

- * Whether you are reaming Manganese Bronze, Aluminum Bronze or Silicon Aluminum Bronze, you can count on cutting more holes per reamer.
- * Specially fluted, heat-treated and ground to give you improved cutting geometry.
- * A new pointed pilot allows for easier insertion into guide and better chip removal
- * You can count on getting longer life and greater consistency from hole to hole.
- * K-Line's Bronze Valve Guide Finish Reamers produce a smooth on-size I.D. while they resist galling.

Patent Numbers 4,231,693 and 5,921,728

***“K-Line Bronze Guide Reamers:
quick, accurate, long-lasting.”***



Part No.	Size
KL1185NB	.216 (5.5mm)
KL1110NB	.236 (6mm)
KL1173NB	.260 (6.6mm)
KL1111NB	.275 (7mm)
KL1116NB	.310 (7.87)
KL1117NB	.311 (7.90)
KL1118NB	.312 (5/16")
KL1176NB	.313 (7.95)
KL1177NB	.314 (7.98)
KL1112NB	.315 (8mm)
KL1174NB	.316 (8.03)
KL1175NB	.317 (8.05)
KL1119NB	.341 (8.66)
KL1120NB	.342 (8.69)
KL1121NB	.343 (8.71)
KL1122NB	.344 (11/32")
KL1123NB	.345 (8.76)
KL1113NB	.354 (9mm)
KL1124NB	.371 (9.42)
KL1125NB	.372 (9.45)
KL1126NB	.373 (9.47)
KL1127NB	.374 (9.50)
KL1128NB	.375 (3/8")
KL1193NB	.377 (9.58)
KL1182NB	.378 (9.60)

All sizes listed are in stock for immediate delivery. **Special reamer sizes also available.** Specials must be within .003 smaller than standard listed reamer. Charge for these is determined from the cost of larger standard size. **Additional grinding charge is added for H.S. Steel and Bronze Reamers.** Contact K-Line® Customer Service for information on additional grinding charges. Allow 4 weeks.

BRONZE LUBE

For Knurling and Reaming

This oil is specially formulated for guide knurling and finish reaming. Reamer and arbor life will be extended if the proper amount and type of oil is used. Bronze Lube should be used on bronze Guide-Liners®, but can also be used on cast iron guides.

KL1224 Pint

KL1225 Quart

KL1226 Gallon



H.S.S. FINISH REAMERS FOR CAST IRON VALVE GUIDES



High quality reamers crafted from the finest tools steel and tempered for long life. Reamers are piloted for self-centering action. Spiral flutes give a smooth, even cut. A new pointed pilot allows for easier insertion into guide and better chip removal. With proper care, they will accurately size thousands of guides.

All sizes listed are in stock for immediate delivery. **Special reamer sizes also available.** Specials must be within .003 smaller than standard listed reamer. Charge for these is determined from the cost of larger standard size. **Additional grinding charge is added for H.S. Steel and Bronze Reamers.** Contact K-Line® Customer Service for information on additional grinding charges. Allow 4 weeks.

Part No.	Size
KL1060	.197 (5.00)
KL1061	.214 (5.44)
KL1062	.215 (5.46)
KL1185	.2165 (5.50)
KL1063	.217 (5.51)
KL1064	.218 (5.54)
KL1199	.234 (5.94)
KL1216	.235 (5.97)
KL1110	.236 (6.00)
KL1217	.237 (6.02)
KL1218	.238 (6.05)
KL1115	.250 (1/4")
KL1207	.258 (6.55)
KL1208	.259 (6.58)
KL1173	.260 (6.60)
KL1157	.274 (6.96)
KL1111	.2755 (7.00)
KL1214	.276 (7.01)
KL1148	.277 (7.03)
KL1187	.281 (9/32")
KL1116	.310 (7.87)
KL1117	.311 (7.90)
KL1118	.312 (5/16")
KL1176	.313 (7.95)

Part No.	Size
KL1177	.314 (7.97)
KL1112	.315 (8.00)
KL1174	.316 (8.03)
KL1175	.317 (8.05)
KL1178	.318 (8.08)
KL1188	.327 (8.31)
KL1203	.330 (8.38)
KL1210	.340 (8.64)
KL1119	.341 (8.66)
KL1120	.342 (8.69)
KL1121	.343 (8.71)
KL1180	.3435 (11/32")
KL1122	.344 (8.74)
KL1123	.345 (8.76)
KL1136	.346 (8.79)
KL1181	.347 (8.81)
KL1137	.348 (8.84)
KL1190	.353 (8.97)
KL1113	.354 (9.00)

Part No.	Size
KL1191	.355 (9.02)
KL1192	.356 (9.04)
KL1215	.357 (9.06)
KL1138	.358 (9.09)
KL1124	.371 (9.42)
KL1125	.372 (9.45)
KL1126	.373 (9.47)
KL1127	.374 (9.50)
KL1128	.375 (3/8")
KL1139	.376 (9.55)
KL1193	.377 (9.58)
KL1182	.378 (9.60)
KL1209	.379 (9.63)
KL1194	.380 (9.65)
KL1213	.381 (9.68)
KL1196	.388 (9.86)
KL1197	.390 (25/64")
KL1205	.393 (9.98)
KL1114	.394 (10.00)

ARBOR LUBE

For Reaming & Knurling Cast Iron Guides

This oil is specially formulated for guide knurling and finish reaming. Reamer and arbor life will be extended if the proper amount and type of oil is used. Arbor-Lube is designed for knurling cast iron guides and helps the arbor raise metal farther.

KL1229 Quart

KL1229G Gallon



KL2347 360° UNIVERSAL HEAD HOLDERS

A real time and money saver for any shop! This sturdy stand accommodates cylinder heads, cam shafts, crankshafts, etc.

No clamps, bolts or adapters needed; heads can easily be rotated 360°.

Constructed of durable light-weight aluminum with slip resistant neoprene covered 'V' rack.



KL2680 HEAVY DUTY AIR HAMMER

This high impact, heavy-duty air hammer delivers short, rapid strokes. Its uniform driving pressure minimizes guide end distortion and breakage. Can also be used in crack repair for peening or metal forming, descaling, cutting, punching and shearing.



.401 Opening; Weighs only 3 lbs.; 4,500 Blows per minute; 4 CFM Air Consumption; 5-1/4" O.A.L.; Short Stroke 1-5/8"

KL3004 VALVE GUIDE AIR DRIVER KIT

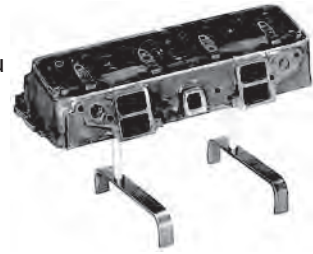
Kit contains the following part numbers:

- KL3005
- KL3006
- KL3007
- KL3008



KL1004 CYLINDER HEAD HOLDERS

Sturdy stand holds cylinder heads safely and securely while you repair cracks, grind seats, clean carbon or perform guide work. Provides ample clearance under heads for tool removal.



AT2557 QUICK CHANGE RETAINER SPRING

Fits all .401 diameter shank pneumatic tools. Spring gives you positive protection against dangerous accidental shank release. Interlocking design grips the shank tighter as hammering force increases, but still lets you snap shank in or out faster than ever before. Used with the KL2680 H.D. Air Hammer.



VALVE GUIDE AIR DRIVERS



Designed to remove and install Bron-EL®, cast iron or solid bronze valve guides easily. Made of a special heat-treated alloy steel for long life and durability.

Part No.	Stem Dia.	Guide O.D.
KL2990	.197 (5mm)	.354 (9mm)
KL2991	.2165 (5.5mm)	.433 (11mm)
KL2992	.236 (6mm)	.433 (11mm)
KL2993	.260 (6.6mm)	.472 (12mm)
KL3001	.275 (7mm)	.394 (10mm)
KL3002	.315 (8mm)	.472 (12mm)
KL3009	.312 (5/16")	.437 (7/16")
KL3005	.312 (5/16")	.500 (1/2")
KL3006	.343 (11/32")	.500 (1/2")
KL3007	.375 (3/8")	.500 (1/2")
KL3008	.437 (7/16")	.625 (5/8")

KL3450 VALVE SEAT REPLACEMENT KIT



Complete "stand alone" installation kit can be used with any guide and seat machine. Large body 5/8" diameter cutter pilots are threaded on the stem diameter end and are securely locked with a special sleeve and nut to reduce vibration and chatter.

Heavy bladed carbide cutters are specially spaced and ground for maximum metal removal and smooth on-size bores. An adjustable stop built into the cutter drive body allows presetting and maintaining the correct finished depth.

Set comes with spindle drive adapter, cutter driver, 11 seat cutters, 3 pilots, 7 seat driving washers and driver all in a sturdy storage box.

NOTE: Typical drive RPM is 250 or less.

KIT CONTENTS

Part No.	Description
KL3504	Drive Adapter 5/16" Sq
KL3526	Cutter Body Driver
KL3490	5/16" Cutter Pilot
KL3491	11/32" Cutter Pilot
KL3492	3/8" Cutter Pilot
KL3525	Cutter Pilot Lock Sleeve
KL3465	15/16" Seat Cutter
KL3453	1 1/2" Seat Cutter
KL3454	1-9/16" Seat Cutter
KL3455	15/8" Seat Cutter
KL3456	1-11/16" Seat Cutter
KL3457	1 3/4" Seat Cutter
KL3458	1-13/16" Seat Cutter
KL3459	1-7/8" Seat Cutter
KL3460	1-15/16" Seat Cutter
KL3461	2" Seat Cutter
KL3462	2-1/8" Seat Cutter
KL3505	Seat Driver Body
KL3510	1 1/2" Driver Washer
KL3511	1-5/8" Driver Washer
KL3512	1 3/4" Driver Washer
KL3513	1-7/8" Driver Washer
KL3514	2" Driver Washer
KL3515	2-1/8" Driver Washer
KL3516	2 1/4" Driver Washer

Accessories

Part No.	Description
KL3451	1-3/8" Seat Cutter
KL3452	1-7/16" Seat Cutter
KL3463	2 1/4" Seat Cutter
KL3507	1-1/8" Driver Washer
KL3508	1 1/4" Driver Washer
KL3509	1-3/8" Driver Washer

All driving washers have 5/8" I.D.

Part No.	Description
KL3475	6.6mm Cutter Pilot
KL3476	7mm Cutter Pilot
KL3477	8mm Cutter Pilot
KL3493	7/16" Cutter Pilot

REPLACEMENT GRINDER SUPPLIES FOR THE CENTERLESS O.D. VALVE STEM GRINDER

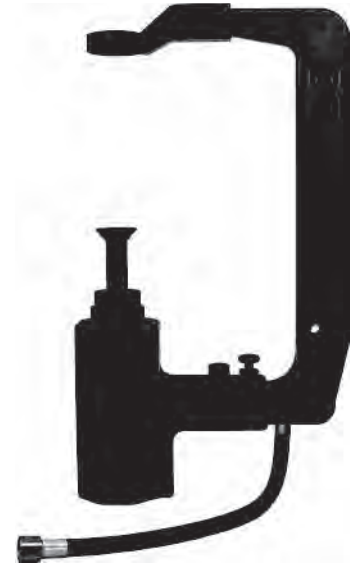
Part No.	Description
KL4505	8" x 4 1/2" x 1 1/4" White Wheel (mounted and balanced on your spindle adapter) Hard Stem Appl.
KL4503	8" x 4 1/2" x 1 1/4" Wheel (mounted and balanced on your spindle adapter) General Purpose
KL4511	6" x 1 1/4" x 1 1/4" Diamond Wheel (mounted and balanced on your spindle adapter)
KL4510	Wheel Assembly (mounted and balanced, includes new spindle adapter)

KL9000 H.D. VALVE SPRING COMPRESSOR

New Features for Stock and Hi-Performance Springs



Extra heavy-duty, air powered Valve Spring Compressor handles most types of valve springs, including racing springs in excess of 900 lbs. The no-flex frame is manufactured from billet stock aluminum alloys. Dual stage pneumatic controls operate the adjustable length ram. The large spring shoe compresses big block & most oversize racing springs up to 1.675 diameter. An optional spring shoe is available for larger springs up to 1.750 diameter.



A unique adapter (KL9000A) is also available which allows you to compress springs for small block heads (ex; 1.250 Springs). This adapter also works in conjunction with the KL9307 (26mm), KL9308 (27mm) and KL9309 (32mm) adapters for use on recessed valve springs for 2 & 4 valve heads. It's time to step up to this premium, high-powered Valve Spring Compressor.

Features

- * Pneumatic head with increased ram travel
- * Incremental ram movement control
- * Generous frame clearances for virtually all car and truck heads

KL9000A Sm. Diameter Spring Adapter
KL9000-8 Lg. Diameter Spring Shoe (1.750)
KL9000-7 Repl. Spring Shoe (1.675)

VALVE SPRING COMPRESSOR ADAPTERS

Adapters fit most spring compressors. Open top and side design is for easy keeper removal. 32mm for 2-valve heads, 26mm and 27mm for 4-valve heads with small recessed valve springs.

KL9307 26mm Adapter
KL9308 27mm Adapter
KL9309 32mm Adapter



KL9100 VALVE SPRING COMPRESSOR

Light Weight, Quick Adjust Design

Nothing else even comes close to our quick adjust, lightweight Valve Spring Compressor. With the included foot extension, this tool provides an unbeatable combination of speed, durability and safety.



Features

- * Can be applied to a wide range of applications.
- * Capable of generating over 400 ft. pounds of compression force.
- * All adjustments are made with the quick adjust arm feature, eliminating time consuming lead screw adjustment.
- * Reinforced forged steel frame.
- * Durable Nylatron® piston boot to eliminate marring valves.
- * Long lasting dual brushing design provides complete uniform piston stroke support.



KL3012 SMALL ENGINE VALVE SPRING COMPRESSOR

Features:

- Exclusive lift wedge eliminates use of screwdrivers; lets you get under the retainer cap with ease.
- Rugged all steel construction.
- Inside dimension: 6"H x 3¼"W.
- Fits most four cycle engines and many valve-in-head foreign car applications.



AT3012B Replacement Spring Shoe

VALVE SPRING SEAT CUTTERS

Carbide tipped valve spring seat cutters for enlarging and correcting valve spring seats. Use pilots only with an electric hand drill. Order cutter bodies and pilots separately.

CUTTER PILOTS

Part No.	Stem Diameter
KL1435B	5/16" - 8mm Pilot
KL1438B	11/32" Pilot
KL1442B	3/8" Pilot
KL1445B	7/16" Pilot

CUTTER BODIES

Part No.	I.D. x O.D.
KL1464	.560 x 1.550 Body
KL1457	.625 x 1.350 Body
KL1460	.625 x 1.476 Body
KL1458	.625 x 1.500 Body
KL1461	.625 x 1.570 Body
KL1462	.625 x 1.635 Body
KL1459	.625 x 1.750 Body



VALVE GUIDE O.D. MACHINING TOOLS



For All Press-on Valve Stem Seals



Carbide tipped cutters accurately machine O.D., face and chamfer top of guide in minutes. Hardened and ground pilots fit any 3/8" or 1/2" electric drill. Cutter bodies and pilots available as complete assemblies or may be ordered separately. All bodies and pilots are interchangeable. Use pilots with electric hand drill only.

CUTTER PILOTS

Part No.	Size
KL1435B	5/16"
KL1438B	11/32"
KL1442B	3/8"
KL1445B	7/16"

CUTTER BODIES

Part No.	Size
KL1435A	.415
KL1433A	.420
KL1434A	.475
KL1438A	.500
KL1442A	.530
KL1443A	.562
KL1445A	.625

COMPLETE ASSEMBLY

Part No.	Original Valve Stem Diameter	Guide Diameter After Machining
KL1433	5/16"	.420 O.D.
KL1434	5/16"	.475 O.D.
KL1435	5/16"	.415 O.D.
KL1436	5/16"	.500 O.D.
KL1437	5/16"	.530 O.D.
KL1438	11/32"	.500 O.D.
KL1439	11/32"	.530 O.D.
KL1440	11/32"	.562 O.D.
KL1441	3/8"	.500 O.D.
KL1442	3/8"	.530 O.D.
KL1443	3/8"	.562 O.D.
KL1444	3/8"	.625 O.D.
KL1445	7/16"	.625 O.D.

STEEL-GRIP® VALVE SEALS Positive Oil Control

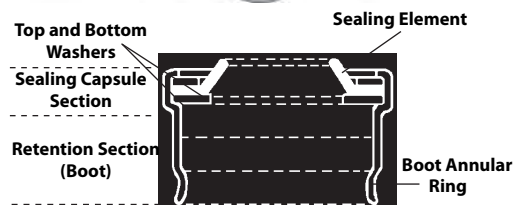


For positive oil control, nothing does the job better than this seal. A special Teflon® sealing element assures positive oil control, but will not “dry up” valve stems. The special steel housing will not crack or vibrate loose.

The outside diameter of the housing is extremely narrow so it will have ample clearance on double valve spring setups. This seal has solved many problems connected with oil loss through the valve stems. Can also be used on thin-wall replacement guides, both cast iron and the Bronze Guide-Liners®.

- Can be installed with your present valve guide machining tools for boot type seals.
- Specially formulated graphite impregnated Teflon® sealing element.
- Self-tightening seal design assures longer life.
- Steel housing will not vibrate loose, crack or disintegrate.

U.S. Patent No.'s 4,502,696; 4,822,061. Canadian Patent No. 890792



Packs Include: Seal Driver, Protector Sleeve, and Installation Instructions.

* Call for price quote on 1,000 Pack of Valve Seals.

VALVE SEALS - 16 PACK

Part No.	Stem x Guide
*KL1425	1/4" x .385
KL1401	5/16" x .500
KL1404	5/16" x .530
KL1402	11/32" x .500
KL1405	11/32" x .530
KL1406	3/8" x .530
KL1408	3/8" x .562

SEAL DRIVERS

Part No.	For Seal No.
KL1429	KL1401A, KL1402A, KL1404A, KL1405A, KL1406A, KL1427A
KL1431	KL1400A
KL1430	KL1408A, KL1424A, KL1428A

PROTECTOR SLEEVES - 10 PACK

Part No.	For Seal No.
KL1401G	KL1400A, KL1401A, KL1404A, KL1424A
KL1402F	KL1402A, KL1405A, KL1428A
KL1403F	KL1403A, KL1406A, KL1408A, KL1427A

VALVE SEALS - 100 PACK

Part No.	Stem x Guide
*KL1425A	1/4" x .385
•KL1424A	5/16" x .420
••KL1400A	5/16" x .420
KL1401A	5/16" x .500
KL1404A	5/16" x .530
KL1402A	11/32" x .500
KL1405A	11/32" x .530
•KL1428A	11/32" x .562
KL1406A	3/8" x .530
KL1408A	3/8" x .562
••KL1427A	3/8" x .625

•Designed for Detroit Diesel
 ••Designed for Harley-Davidson

*Pack does NOT include Seal Driver or Protector Sleeve

* Call for price quote on 1,000 Pack of Valve Seals.

KL2897 NARROW ACCESS VALVE STEM SEAL REMOVAL PLIERS



New Design for Multi-Valve Heads

These pliers remove the valve stem seals used on most overhead camshaft engines, including 4-valve cylinder heads that have a very narrow access to allow it to grasp both original equipment and after-market seals regardless of their configuration. Quality heat-treated steel, with easy-grip handles.

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