

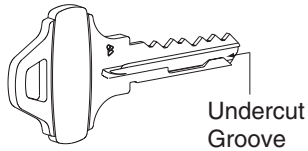


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Introduction

Everest 29™ is the name given to a new family of patented key products by Schlage. Everest 29 and Everest® products are distinguished by the unique patented undercut groove milled into the right side of the key blade.



The first product in this family was the B family of small format interchangeable core (SFIC) introduced in November 1998 to retrofit 7-pin Best® style IC products. Full sized Everest C and D families followed shortly after. A different service manual (MS-C75) is devoted to SFIC. Everest 29 was introduced in August 2012 with a new undercut design that is patent protected until 2029. Everest 29 R, S, and T families are backward compatible with Everest B, C, and D keyways, respectively.

This manual covers the Schlage Everest and Everest 29 cylinders, which are available in mortise, rim, key-in-knob and key-in-lever versions. The Everest cylinders are also available in Schlage's 23-030 full size interchangeable core (FSIC).

Except for the keyway and special pin which checks for the lip on the side of the key section, Everest cylinders are virtually identical to Schlage Classic cylinders with the C keyway, which have been around since 1935.

Locksmiths and users get the benefits of the new Everest 29 patent without the need to invest in new pin kits, key machines or additional service equipment. However, a new top vise jaw is needed for the Blue Punch to hold all Everest C and Everest 29 S Family open key sections. A separate section of this manual provides details on how to upgrade the old Blue Punch.

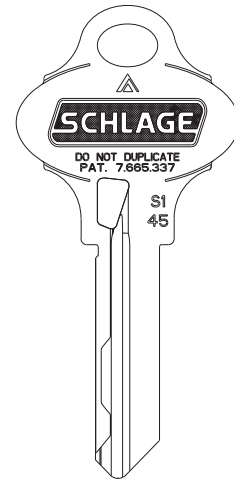
Note: D Family and T Family restricted keys can be cut on a different key biting punch (40-099) because the top of the key blade is not straight. Additionally, a different service manual (MS-C75) is devoted to SFIC products.

Larger Key Bow

Everest

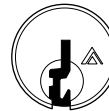


Everest 29



Undercut Groove Keyway and Everest Logo on Plug Face

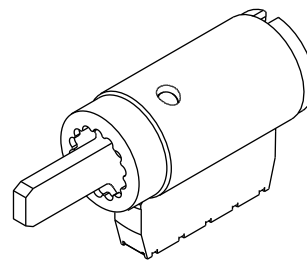
Everest



Everest 29



Hole in Cylinder Shell for Check Pin



Key Control

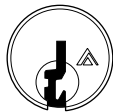
Since the late 1960's, patents on keys have been used primarily to prevent unauthorized key duplication. This is the case with Schlage's newest patented Everest 29 families. Both Everest and Everest 29 offer open keyways as well as families with restricted key control.

Open Keyways

Everest C Family Keyways are protected by U.S. utility patents 5,715,717 and 5,809,816 and Everest 29 S Family Keyways are protected by U.S. utility patents 7,665,337 against unauthorized manufacture and distribution. However, the C Family and S Family keyways are readily available to the end user for fast and easy key duplication without any formalities. All C and S keyways are considered "open" keyways which means they can be stocked and sold by all locksmiths and contract hardware dealers. The purpose of the Everest C and Everest 29 S keyways is to guarantee the end-user genuine Schlage quality replacement keys and to provide commercial locksmiths and contract hardware dealers a group of keyways not available in home centers or retail key stands. Everest 29 S Family keyways are the default keyways for all new Schlage products and Schlage master key systems.

Restricted Keyways

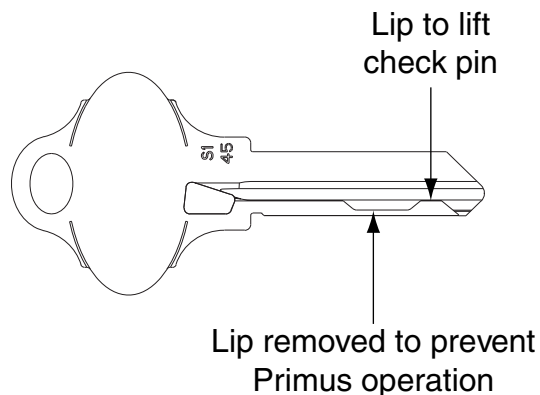
For end-users who want restricted keys with patent protection, Schlage offers its Everest D and Everest 29 T Family keyways. Everest D and Everest 29 T Family keyways are protected by the same patents and require a letter of authorization from the end user. The difference between the C/S and D/T Families is just the keyway. Despite the fact that D and T Family keyways are restricted keyways they are still serviced in the same manner as the C and S Family keyways. D and T Family keyways can be reliably cut with the 40-099 key biting punch. Due to the design of the key blade, a standard punch cannot be used.



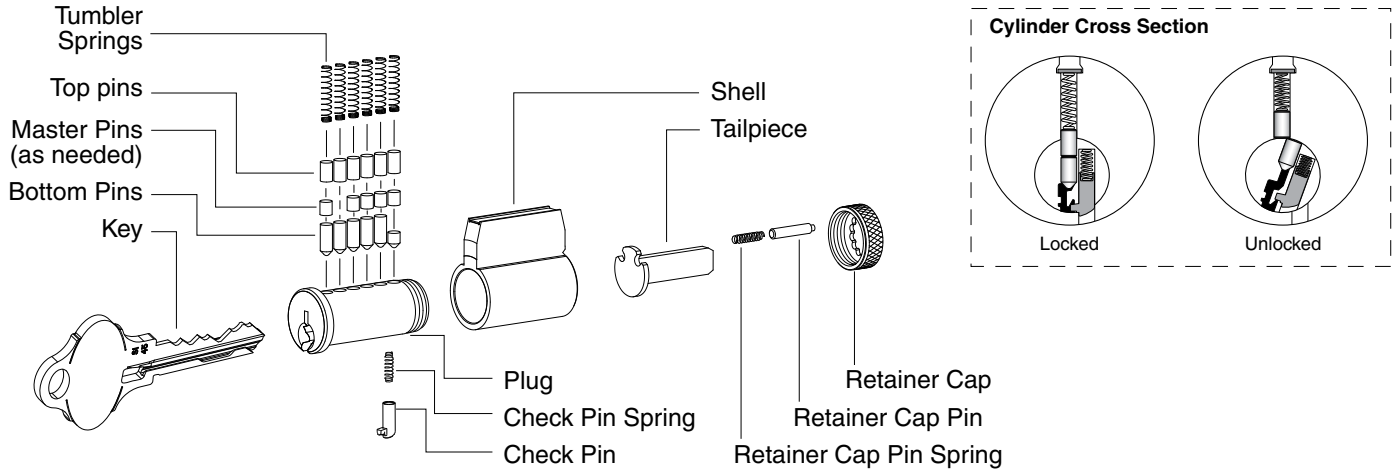
The keyway for each restricted D Family job is selected by Schlage and registered to the end user. Everest restricted key blanks, cut keys, cylinders and plugs are drop shipped directly to the end user (or a location specifically authorized by the end user). This creates positive key control by preventing dealers and distributors from having access to keys and cores without the end user's permission.

Primus® and Primus XP® Integration

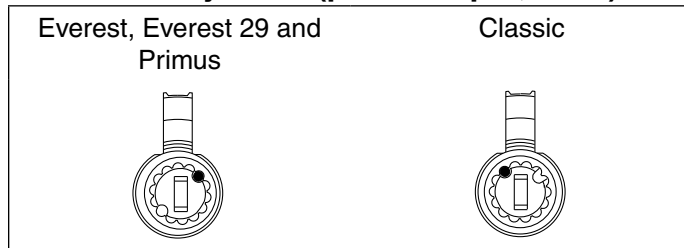
Primus and Primus XP cylinders are also available with Everest or Everest 29 keyways. The Everest Primus XP and Everest 29 Primus XP keys are downward compatible to operate the conventional Everest cylinders and Everest 29 cylinders covered in this manual. See the Schlage High Security Cylinders & Key Control Service Manual (SC-GN-1001) for details on Everest 29 Primus XP cylinders. A portion of the undercut groove is milled away on all conventional Everest and Everest 29 keys to prevent them from being altered to operate an Everest Primus XP or Everest 29 Primus XP cylinder.



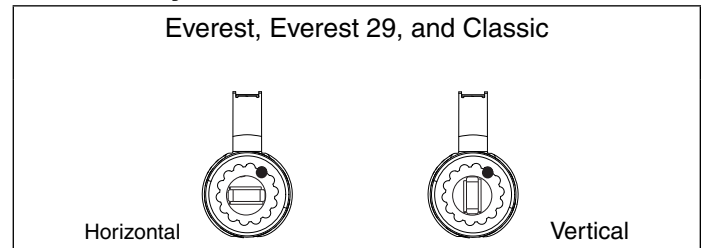
Mechanical Overview



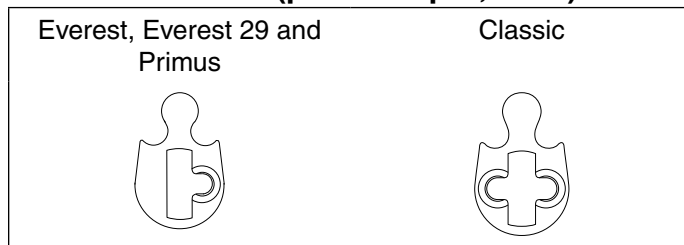
Traditional Cylinder (prior to April, 2010)



Modular Cylinder

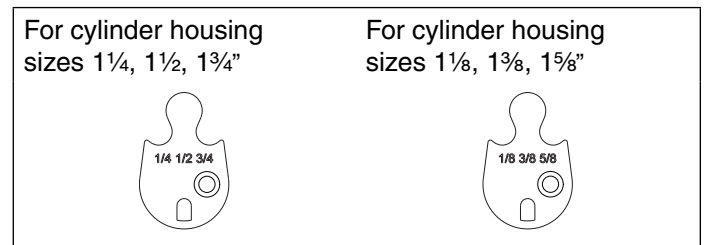


Traditional Cams (prior to April, 2010)



Mortise cylinders use the Primus cam with one screw.

Modular Cams



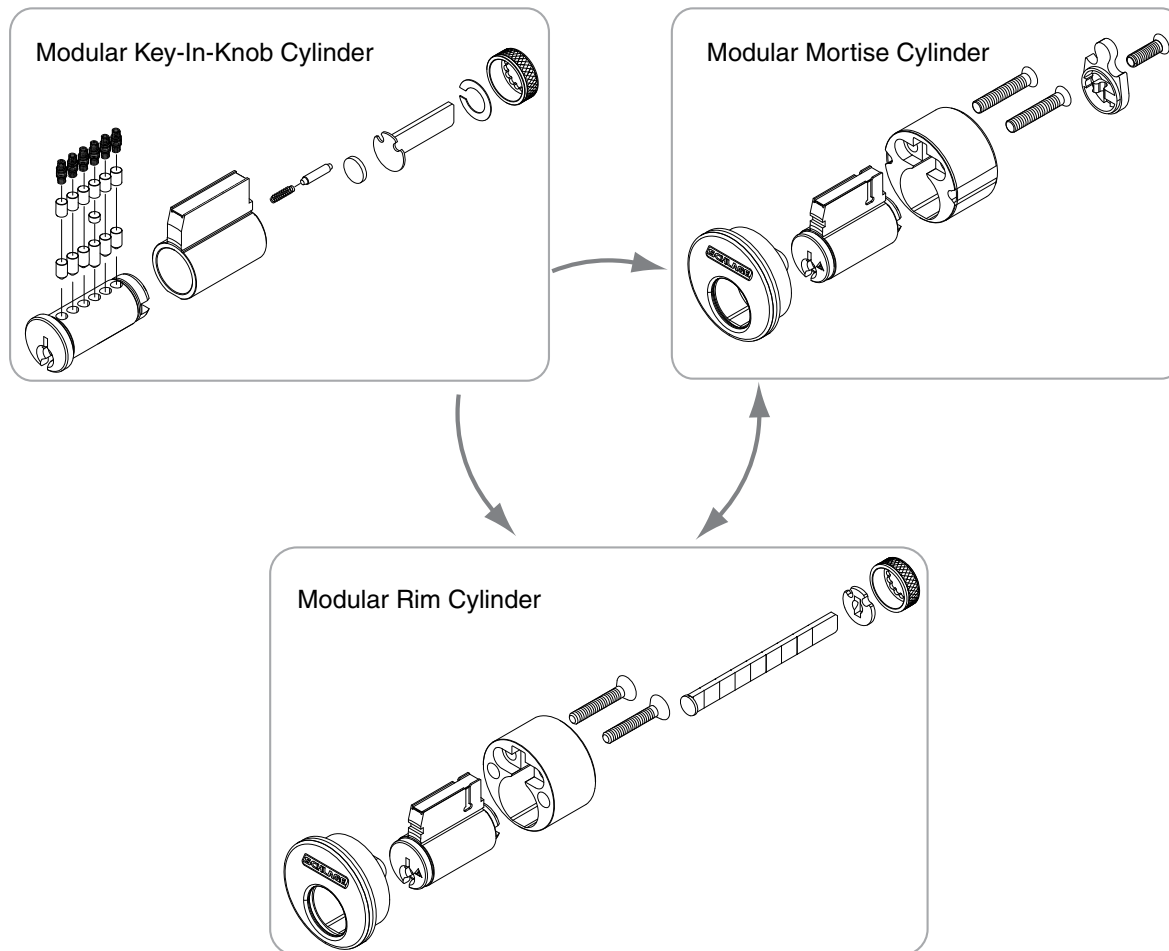
Modular cylinder cams may be used with Classic, Everest 29, and Primus key sections. Use appropriate cam for cylinder housing size.

Modular Cylinders

Introduced in April 2010, the Schlage modular cylinder provides easy convertibility between key-in-lever to mortise and rim cylinders. These benefits make Schlage cylinder inventory flexible, reduce the size and cost of inventory, improve customer lead time, and increase customer satisfaction. With a few modular components in stock, the cylinder type and finish required will always be on hand. The modular cylinder accepts a tailpiece or a mortise cam.

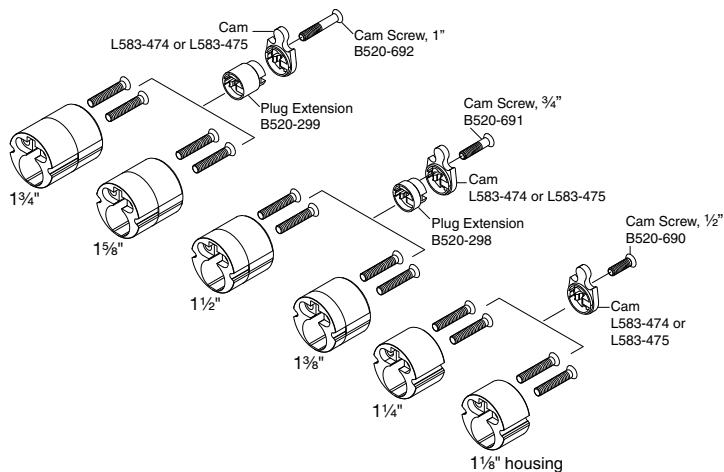
Product line availability: A, AL, B, CL, D, H, L, ND, S, S200, Kryptonite (PL, KS, KC), Mortise, and Rim. All competitive locks that accept Everest Primus XP or Everest 29 Primus XP will also accept the modular cylinders.

Key-In-Knob to Modular Mortise and Rim Cylinder Conversion



Modular Housing Interchangeability

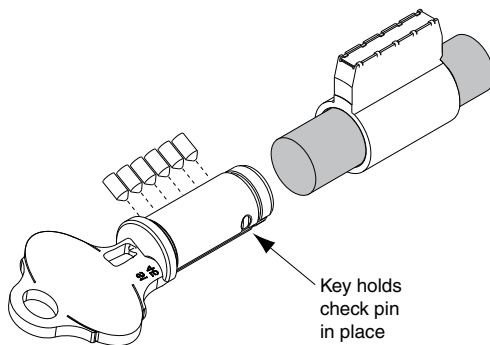
Housing		Cam	Cam Screw	Plug Extension
Part Number	Size	Part Number		
B520-721	1 1/8"	L583-474	B520-690	—
B520-722	1 1/4"	L583-475	B520-690	—
B520-723	1 3/8"	L583-474	B520-691	B590-298
B520-724	1 1/2"	L583-475	B520-691	B590-298
B520-725	1 5/8"	L583-474	B520-692	B590-299
B520-726	1 3/4"	L583-475	B520-692	B590-299



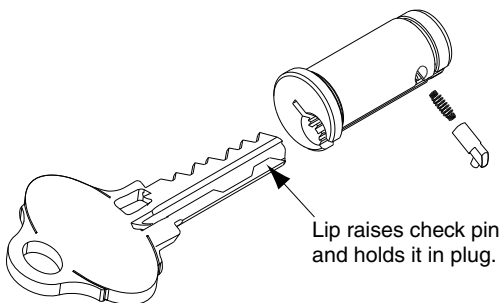
The following instructions assume that the reader has basic experience pinning conventional cylinders. The difference between Everest 29 and traditional cylinders is the check pin and spring located in the special chamber on the bottom of the plug. If using a key to remove the plug, the key will hold both the check pin and check pin spring in place.

Rekeying When You Have the Old Key (no master keying)

1. Remove the cam, tailpiece or other type of plug retainer.
2. Insert the old key and turn it slightly in either direction.
3. Push the plug out gently with a plug follower.



4. While the key is still in the plug to hold the check pin in place, discard the old pins.
5. Hold the check pin in the plug with your finger or thumb. Remove the old key and insert the new key.
6. The new key holds check pin in place while the bottom pins are installed and the plug is put back into the shell.
7. Reinstall the cam, tailpiece, etc.

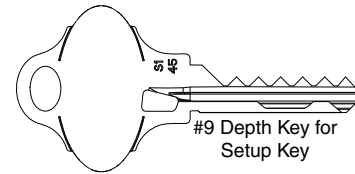


Master Keying

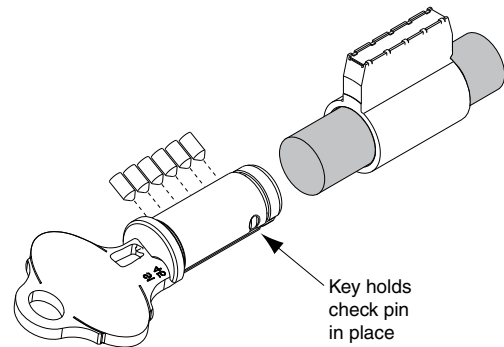
The master keying capacity of full size Everest or Everest 29 cylinders is the same as Schlage Classic cylinders: 4,096 theoretical changes per keyway using two step progression. The MACS is 7. When master keying Everest or Everest 29 cylinders, Schlage recommends using a setup key to reinstall the loaded plug.

A setup key can be made by cutting a key blank to a 9

depth in all positions. When the steeples between the cuts are removed, the setup key can hold the check pin in place when removing the plug of a shimmed cylinder.



1. Insert any operating key and turn it slightly in either direction. Gently push the plug out with a plug follower.
2. Keeping the old key in the plug, discard the old pins.



3. Hold the check pin in position with a finger or thumb. Remove the old key and insert the setup key. If you are certain that the cylinder was not previously master keyed, skip to step 5.
4. **IMPORTANT:** Clear the cylinder shell of any remaining master pins. If master pins remain in the shell, the following problems may occur:
 - A key cannot be inserted or removed
 - One or more springs may get crushed and cause a future lockout
 - Additional keys will operate the cylinder.

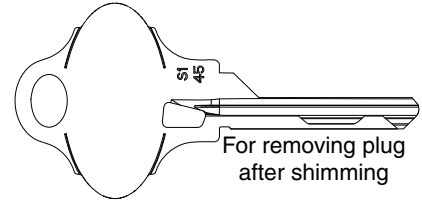
Slowly back the follower out of the shell. Replace any weak or damaged springs. Load the proper size top pin based on the plug total (bottom pin + any master pins). A plug follower with a groove will help guide each spring and top pin into its chamber as you push the follower in from the back of the shell. (The 40-116 shell loading tool can make this process easier.)

5. Install new bottom and master pins into the plug.
6. Orient the plug so it is slightly turned with respect to the shell. Gently push the plug into the shell, pushing the plug follower out.
7. Test all keys for smooth operation.
8. Reinstall the cam, tailpiece, etc.

Rekeying When You Have No Keys

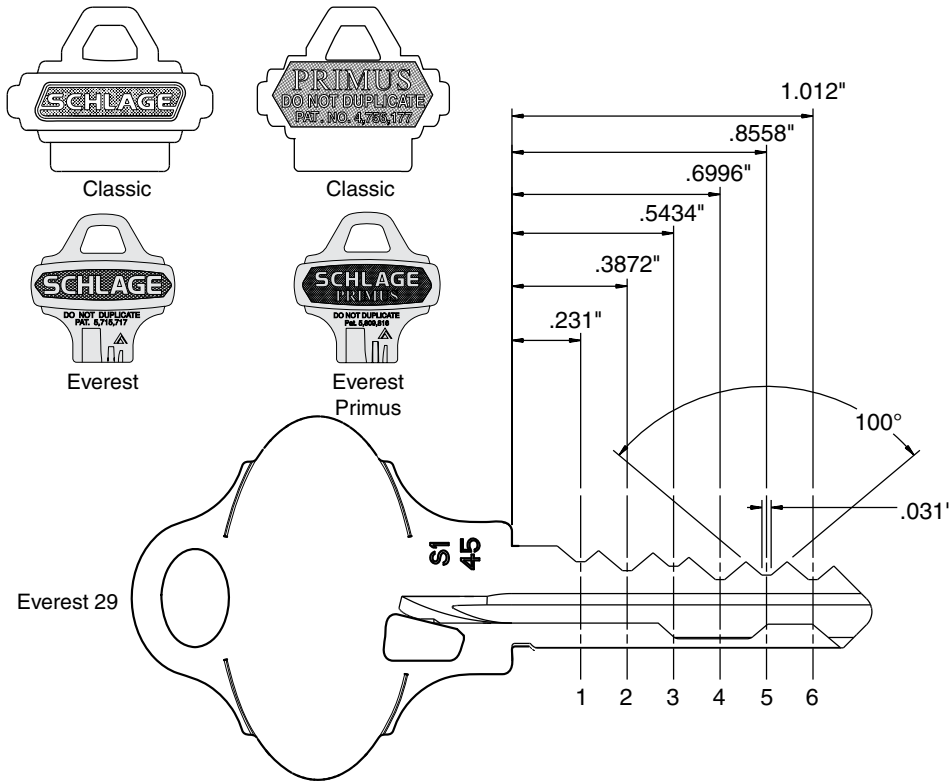
When no key is available, use standard locksmith techniques to shim the cylinder open. However, the check pin must be taken into account. Follow these steps:

1. Using a pick or key blank, shim the six pins as usual. After the last pin is neutralized, the plug still cannot rotate or slide out because the check pin is engaged.
2. Leaving the shim in place, insert a setup key with no steeples between the 9 depth deep cuts. This unlocks the check pin and will also keep it from springing out of the plug in step 4.
3. Use the setup key to turn the plug slightly in either direction and remove the shim.
4. Push the plug out gently with a plug follower.
5. While the setup key is still in the plug, discard the old pins. If you are certain that the cylinder was not previously master keyed, skip to step 7.
6. **IMPORTANT:** Clear the cylinder shell of any remaining master pins. If master pins remain in the shell, the following problems may occur:
 - A key cannot be inserted or removed
 - One or more springs will get crushed and cause a future lockout
 - Additional keys will operate the cylinder.Slowly back the follower out of the shell. Load the proper size top pin based on the plug total (bottom pin + any master pins). A plug follower with a groove will help guide each spring and top pin into its chamber as you push the follower in from the back of the shell. (The 40-116 shell loading tool can make this process easier.)
7. If you are master keying, leave the setup key in the plug. Otherwise, hold the check pin in position with your finger or thumb while removing the setup key and inserting the new operating key.
8. Install the new pins in the plug.
9. Orient the plug so it is slightly turned with respect to the shell. Gently push the plug into the shell, pushing the follower out.
10. Test all keys for smooth operation.
11. Reinstall the cam, tailpiece, etc.



Key Bitting Specifications

The following specifications are the same for Schlage Classic keys, including Primus XP



Code Card

C45

for HPC 1200CM
Code Machine

MACS = 7

Increment: 0.15"

Progression: Two Step

Blade Width: .343"




Depth Tolerance: + .002" - 0

Spacing Tolerance: ± .001"

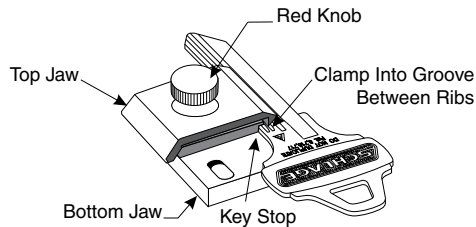
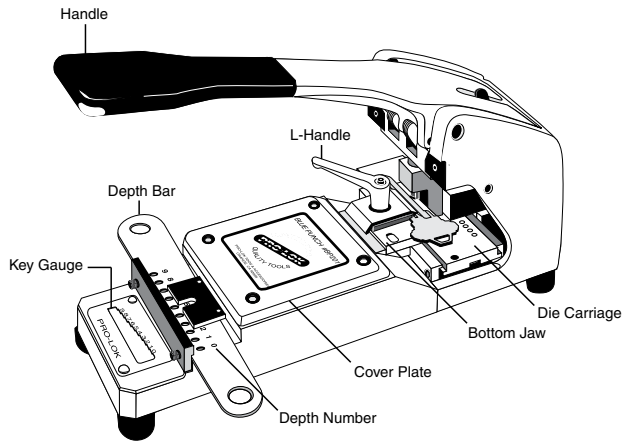
Root Depths

0	.335"
1	.320"
2	.305"
3	.290"
4	.275"
5	.260"
6	.245"
7	.230"
8	.215"
9	.200"

Pins and Springs

Bottom Pins			Master Pins			Top Pins			
Size	Length	Part No.	Size	Length	Part No.	Size	Length	Part No.	Application
0	.165"	34-300	2	.030"	34-202	1	.235"	34-101	Plug total = 0, 1, 2, 3
1	.180"	34-301	3	.045"	34-203	2	.200"	34-102	Plug total = 4, 5, 6
2	.195"	34-302	4	.060"	34-204	3	.165"	34-103	Plug total = 7, 8, 9
3	.210"	34-303	5	.075"	34-205				
4	.225"	34-304	6	.090"	34-206				
5	.240"	34-305	7	.105"	34-207				
6	.255"	34-306	8	.120"	34-208	Other Pins and Springs			
7	.270"	34-307	9	.135"	34-209	Description		Part No.	
8	.285"	34-308				Tumbler Spring		C503-113	
9	.300"	34-309				Check Pin		34-007	
						Check Pin Spring		C603-951	
						Cap Pin		C503-116	
						Cap Pin Spring		C503-115	

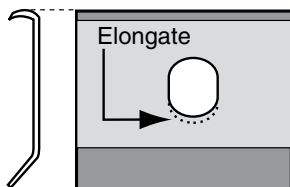
Cutting Everest 29™ Keys on the Blue Punch



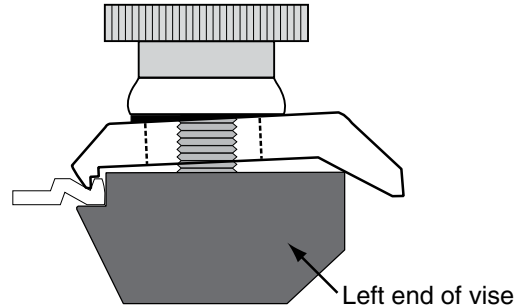
The original version of this popular key machine was developed in the mid-1970's. Pro-Lok® is the most recent in the succession of companies that have manufactured the machine. Even if you have what appears to be an original Schlage punch (40-126), it was made by one of the earlier companies. The basic principles are the same for all versions of the machine, but there are minor differences in the vise jaws which affect the machine's ability to cut Everest C & Everest 29 S Family keys.

Machines made before July 1999 were not designed to hold Everest keys. Most of these machines have a thin top vise jaw made of stamped steel. Some machines will hold Everest keys, except sections with "45" in the designation (such as C145). Even the first generation solid steel jaw was produced before Everest keys existed and must be replaced.

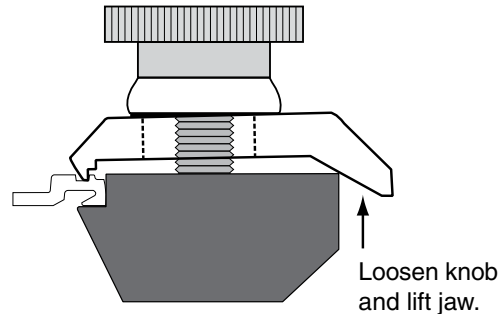
You may be able to alter your old style jaw by slightly elongating the hole, so it can travel far enough to engage in C145's & S145 groove. However, this solution should only be a temporary measure until you install the 40-074 upgrade package with the properly shaped top jaw.



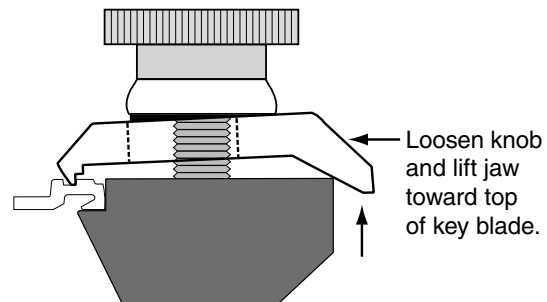
In the close-up illustrations of the vise, notice the different positions of the top jaw required to engage the grooves and seat the different shapes of Schlage key sections properly.



Obverse Key Sections C, CE, E, EF, F, FG, G, H, J, K, L



Most Everest and Everest 29 Key Sections:
C100, C120, C123, C124, C135, C150
S100, S120, S123, S124, S135, S150



Everest and Everest 29 "45" Sections:
C145, C245, C345
S145, S245, S345

Not only must the top jaw engage in different places up and down the side of the various key sections, but the lever or knob screw must be tightened or loosened substantially. Loosening and tightening the lever or knob screw allows enough travel in the top jaw to accommodate the difference in thickness between Classic and Everest 29 key sections, and to adjust for the angles at which the top jaw sits.

Upgrading to New Top Jaw

Red Knob Operation

Tighten the red knob on the Obverse key sections or loosen it enough to let the top jaw move up to grab into the high groove of C145, S145, or anything in between.

Black Lever Operation

Pro-Lok changed the red knob to a black clutching lever in 1998, before Everest keys existed.

The lever can only swing about 180° before hitting the body of the machine. If the Blue Punch is used only to cut one type of Schlage key section, the lever's travel may be set for fast secure clamping every time.

The black lever does not allow the top jaw to travel from its lowest position (for Obverse keys), to an intermediate position (for clamping most of the Everest C and Everest 29 S Family keys), to the highest position required (for C145 and S145). Commercial locksmiths who cut a variety of Schlage key sections daily may find the continuous lever adjustment inconvenient. On most machines, the lever must be specifically adjusted for each of the three clamping positions.

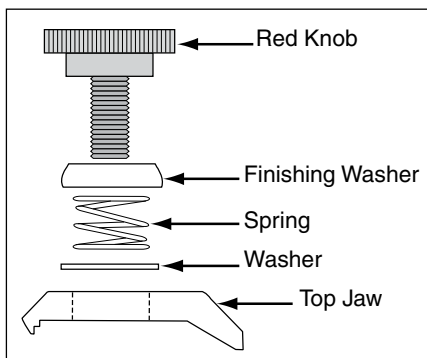
Use the following procedure to back the screw out for Everest keys or to tighten the screw for Obverse keys:

1. Lift the lever against spring pressure to disengage it from the screw.
2. While disengaged, swing the lever to the left or right without turning the screw.
3. Let go of the lever and it snaps back into engagement with the screw.

Upgrade Package 40-074

A newly designed top jaw, red knob, spring, finishing washer and regular washer can be obtained from your Schlage or Pro-Lok distributor.

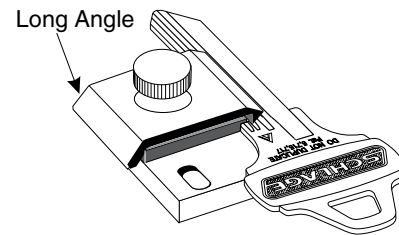
Changing the top vise jaw has no effect on the accuracy of the machine. If the machine exhibits mechanical problems or cannot cut keys accurately, please contact your Pro-Lok distributor to arrange for your machine to be rebuilt.



40-074

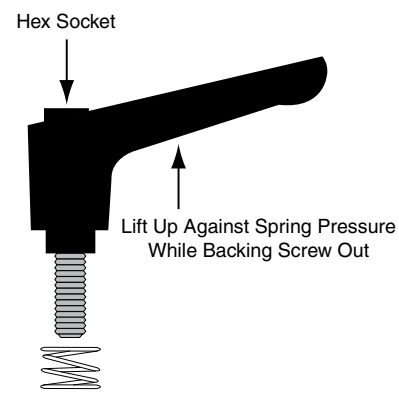
Upgrading Machines With a Red Knob

1. Unscrew the old knob.
2. Remove the old top jaw.
3. Install the new pieces. Install the jaw so the end with the longer angled portion is toward you. The end with the shorter angle has a lip to engage in the groove of the key section.
4. Screw on the new red knob.



Upgrading Machines With a Black Lever

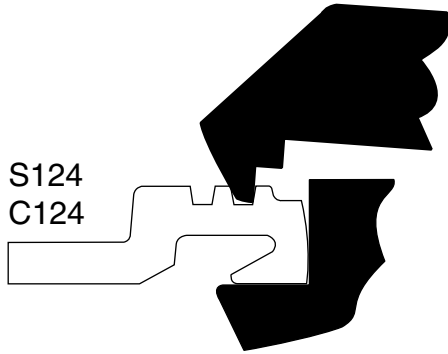
1. Swing the lever as far to the right as it will go. Lift up against spring pressure to disengage it from its screw.
2. Swing the lever back as far to the left as it will go and let it down to engage the screw.
3. Repeat this process as many times as necessary to unscrew the screw completely and remove the lever. A hex wrench may be helpful.
4. Remove the lever, spring, washer and top jaw.
5. Install the new jaw so that the end with the longer angled portion is toward you. The end with the shorter angle engages the groove in the key milling.
6. Reinstall the black lever or install the new red knob depending on your preference: The red knob screws into place. If reinstalling the black lever, use an Allen wrench to start the screw, then reverse the process used to remove the lever. To adjust the lever's final position and rotation, clamp a single key or key blank of the key section you will cut most frequently.



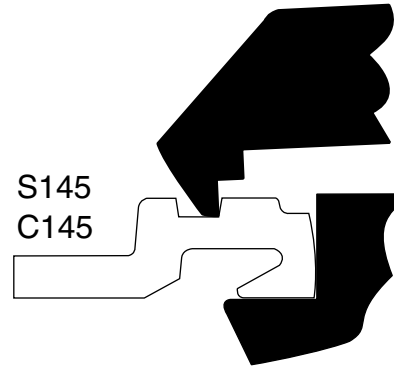
Tips for Cutting Everest® and Everest 29 Keys

After cutting several keys of each key section the procedure will become familiar. However, for the first few keys, please observe these important details:

- Push the die carriage all the way to the right before inserting a key blank. If you clamp an Everest key before moving the carriage, its large bow may prevent the carriage from travelling far enough to allow the first cut to be correctly positioned. (Cut position will begin at #2 and incorrectly cut the key.)
- Closely observe the proper engagement of the top jaw into the key section. If the jaw clamps on the surface of a rib or into the very bottom relief on an Everest key, the key jaw is not able to square up the blank in the vise, incorrectly cutting the key.



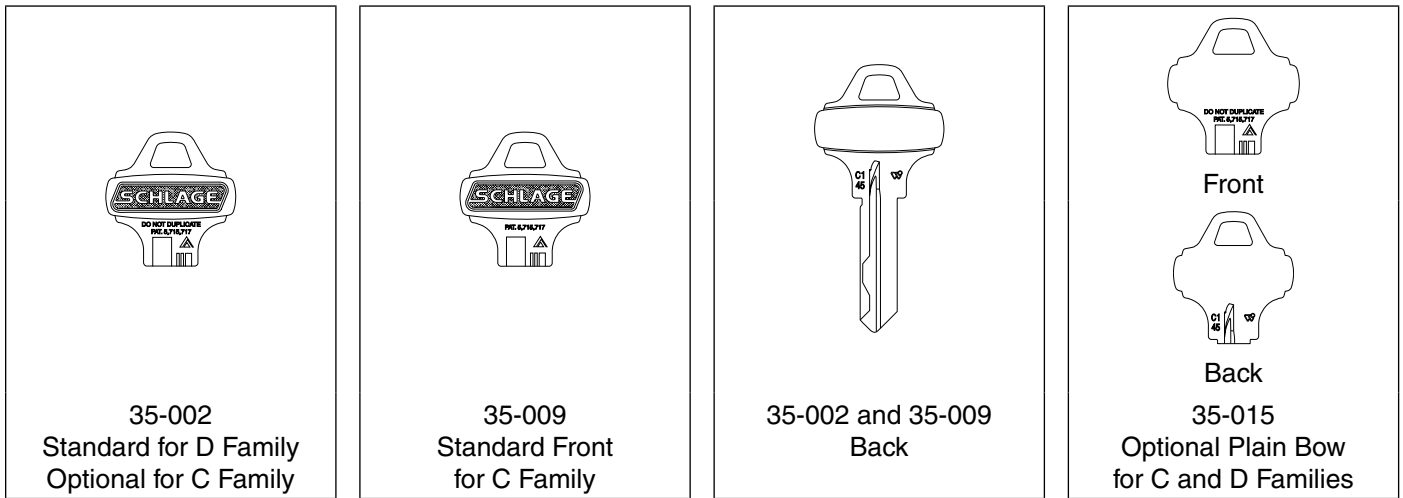
C124, S124, C135, and S135 have tiny grooves. Be sure jaw engages into a groove.



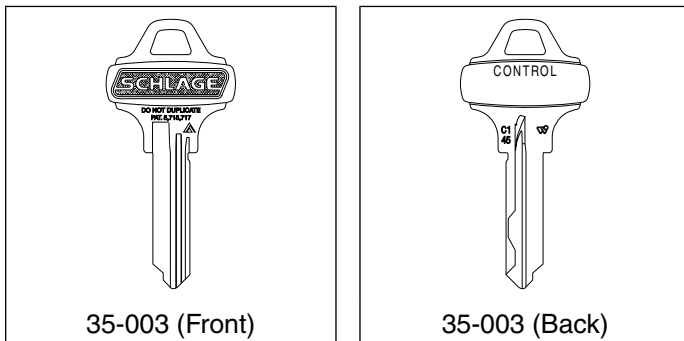
The position of the groove on C145, S145, C245, S245, C345, and S45 blanks requires loosening the knob and pushing the jaw toward the cutter to securely engage the groove.

Everest Key Blanks

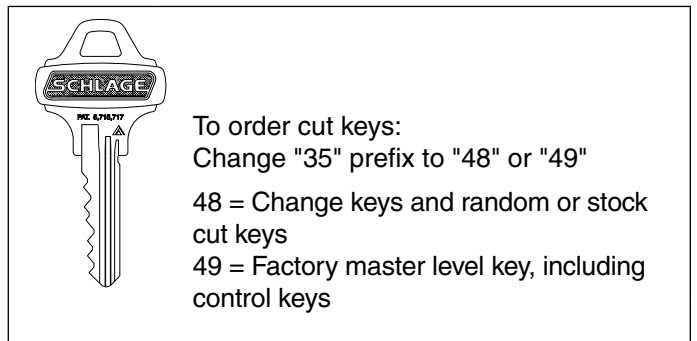
Operating Keys



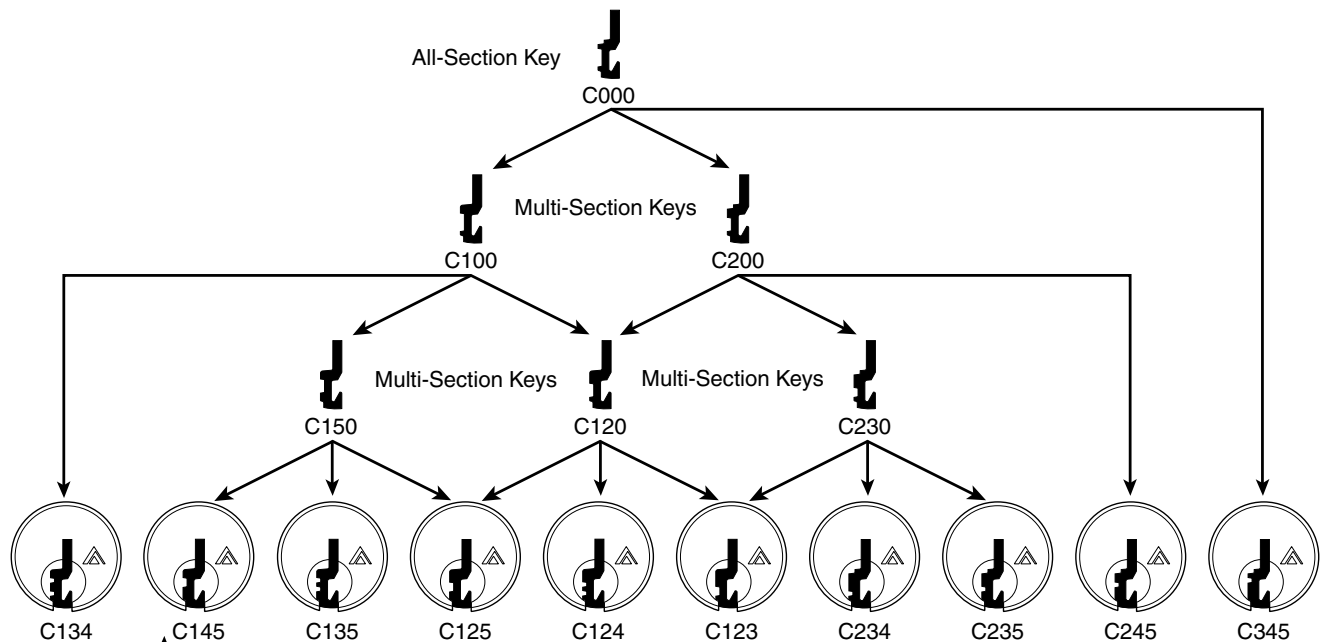
Control Keys



Cut Keys



Everest C Family Open Keyways



New keyway systems begin here and continue to the right.

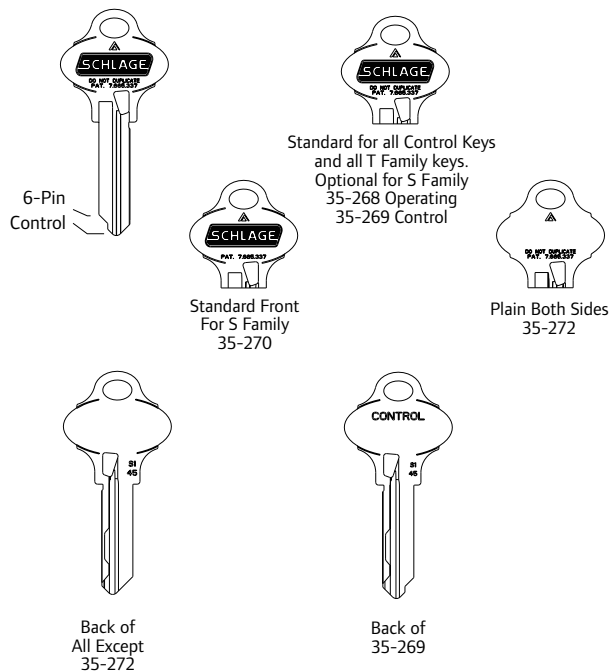
Keyways and Single Section Keys

Everest 29 Key Blanks

Operating Keys

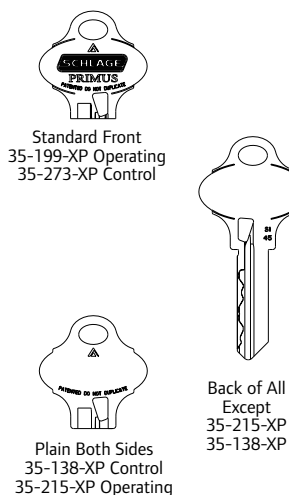
EVEREST 29™

CONVENTIONAL



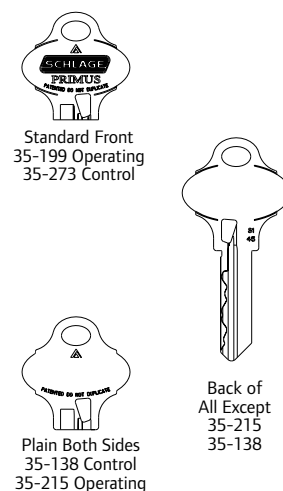
PRIMUS XP

All Primus blanks require proper authorization.

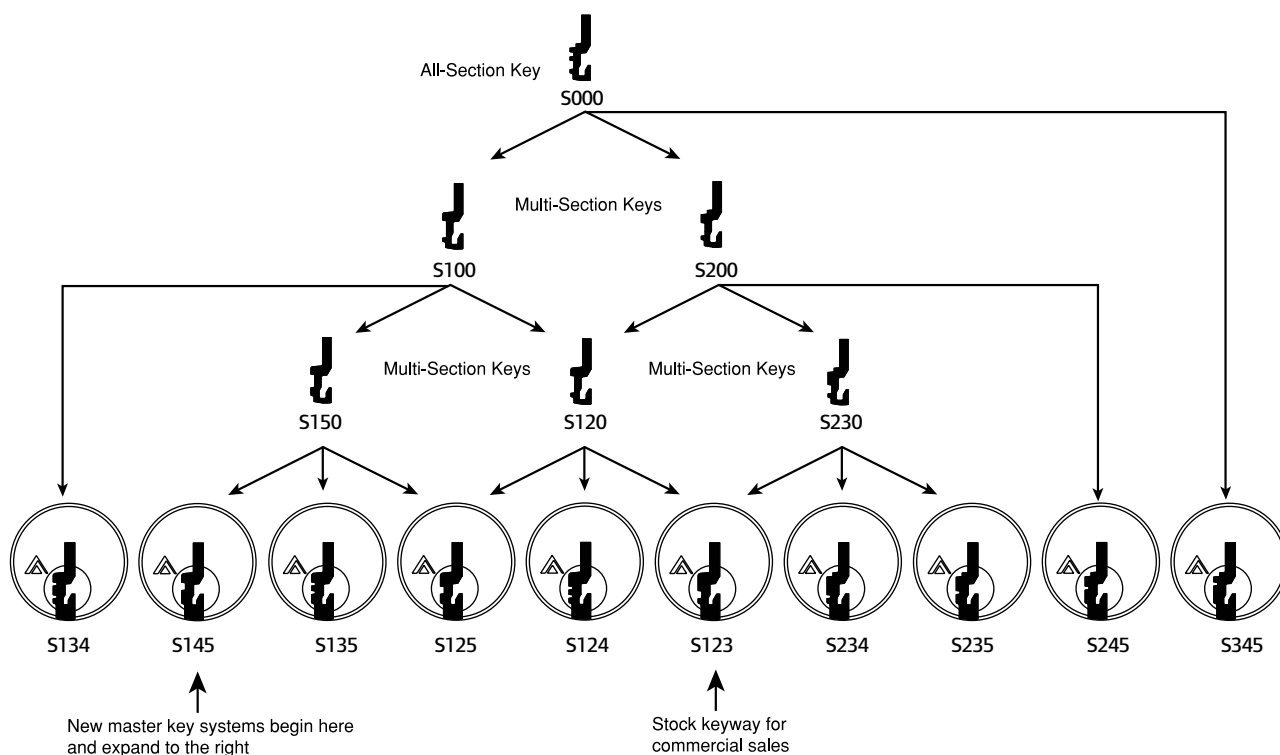


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