

Cylinders

Master Lock Company makes ten basic cylinder sizes/types for use in our padlocks;

1. A small diameter cylinder for some of our laminated locks.
2. A four pin cylinder for our laminated locks.
3. A five pin cylinder for our laminated rekeyable locks
4. A six pin cylinder for our ProSeries® locks.
5. A cylinder for our number 19 lock.
6. SFIC small format interchangeable core cylinders.
7. Cylinders compatible with various door hardware locks made by others.
8. Master Lock EDGE™ System
9. Python®
10. Universal Pin

1. The small diameter cylinder is generally referred to as the number W7 cylinder and is used in various products where the available space is limited. This cylinder is used in the number 7 laminated padlock, the gun lock, etc., and is generally not accessible for rekeying. In those cases where it can be rekeyed, it uses the same pins used in the first four classes above. Those pins are available in our #291 pinning kit found on page 28. See page 17 for service procedures.



2. The four pin cylinder is generally referred to as the number W1 cylinder and is used in the number 1, 3, 5 laminated padlocks, and many other products. In many cases it is not accessible for rekeying, but when it can be rekeyed you may use our #291 pinning kit. Servicing procedures may be found on page 17.



3. The five pin cylinder is generally known as our number W27 cylinder and is found in our laminated rekeyable locks such as the number 21, 24, 25, and 27. It may be rekeyed using our #291 pinning kit shown on page 28.



There are times when you may want to use a four pin cylinder in a lock designed for the five pin cylinder because of keyway compatibility. That can be accomplished by using the 27-0334 plug actuator which adapts the four pin cylinder to the five pin length.

4. The six pin cylinder is referred to by two different part numbers, depending on the number of pin chambers that are pinned. When pinned with only five pins, it is called the W6000 and if all six pins are used it is called the W7000. This cylinder is found in our ProSeries® products and may also be rekeyed using our #291 pinning kit.



Effective mid-2001, Master Lock Company implemented a new six pin cylinder and key. The cylinder changed from a crimp to an E-clip which reflects tighter tolerances between the plug and shell. The new key has a radiused blade bottom. This running change should have no effect on key operation from old to new cylinder types.



Cylinders *continued*

5. The W19 cylinder is only used in the number 19 lock and it is not really accessible for rekeying without drilling the rivets. This cylinder uses .125" diameter pins and a .025" increment. The shell is crimped on both sides and does not allow the service technique typical on the old style W1 cylinder. The only option available for rekeying would be to use the holes on the bottom of the shell to remove pins from the plug and replace them with new ones.

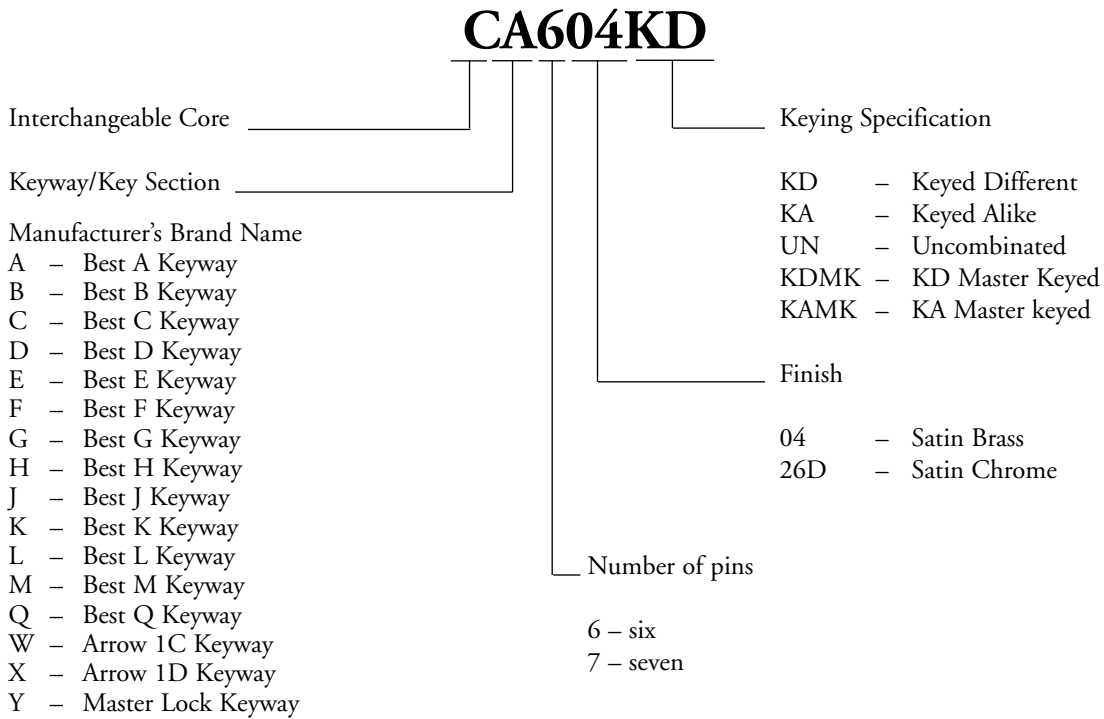


6. The Interchangeable Core cylinders are constructed to the SFIC standards that you encounter with many other brands. Keying uses the same techniques employed for those cylinders.

Master Lock offers IC cylinders keyed to existing key systems if you are able to supply the combinations for the operating key, the TMK (Top Master Key), and the Control key. Master Lock also has the ability to recreate your entire key system, including all potential expansion, if you can supply bitting combinations of all keys that have been used.



At present, Master Lock offers IC cylinders compatible with the A2 and A4 format from the factory. If you are equipped for pinning SFIC cylinders, you can key the cylinders into an existing A3 system without difficulty. The listing below allows construction of a correct SFIC cylinder part number when ordering from Master Lock.



Cylinders *continued*

7. The door hardware cylinders are rekeyable using standard .115" diameter pins. The plug is mounted to the shell with a ring retainer, and use of a follower is recommended for rekeying. In order to mount the cylinders in the lock, a cylinder retainer plug is placed over the bible of the cylinder. The retainer plug has a threaded hole used to mount it to the lock via the toe side shackle hole and the socket screw. This cylinder also requires a special driver to be placed between the cylinder tail and the lock actuator in order to function. The listing below allows construction of a correct cylinder part number when ordering from Master Lock.



D045KD

Door Hardware Cylinder

Keyway

| Manufacturer's Brand Name | Keyway | Manufacturer's Brand Name | Keyway |
|---------------------------|--------|-----------------------------------|--------|
| Sargent LA-LC* | 36 | Sargent RA-RC* | 70 |
| Arrow 10 | | Sargent S* | 02 |
| Corbin 59A1-2 01 | | Sargent U* | 02 |
| Corbin 60 29 | | Schlage C | 04 |
| Corbin Russwin L4 07 | | Schlage E | 34 |
| Harloc SE-1* 02 | | Schlage P | 28 |
| Kwikset* 12 | | Segal 9.265 | 27 |
| Lockwood 08 | | Weiser*/Falcon | 13 |
| Lori L200* 02 | | Weslock | 33 |
| Lori Locksmith 80 80 | | Yale 8 | 03 |
| Loricentric 90 90 | | Yale GA | 15 |
| Master/Dexter 67* 32 | | Master Lock | 200WP |
| Russwin 981/852 11 | | EDGE® System | |
| Russwin D1 30 | | (Available with 4 or 6 pins only) | |

Keying Specification

| | | |
|------|---|-----------------|
| KD | - | Keyed Different |
| KA | - | Keyed Alike |
| KZ | - | Zero Bitted |
| KDMK | - | KD Master Keyed |
| KAMK | - | KA Masker keyed |
| UN | - | Uncombined** |

Number of pins

| | | |
|---|---|--------|
| 4 | - | four** |
| 5 | - | five |
| 6 | - | six |

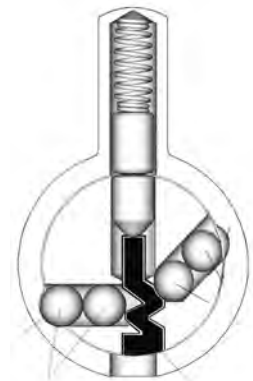
* Indicates a composite keyway that accepts more than one key section. Example: Keyway 02 accepts the Sargent S, Sargent U, and Lori L200 keys.

** Exclusively available for the Master Lock EDGE™ Key Control System only.

8. The Master Lock EDGE™ System cylinders are available in both four and six pin versions. They are the subject of utility patent 7,040,126. A secondary independent locking mechanism utilizing ball bearings on each side of the keyway offers creation of virtual keyways for a key control system along with the special actual keyway for the keys.

This cylinder has two 3/32" diameter ball bearings on each side of the keyway. The ball bearings are not spring loaded and are not staked into place in the plug. Care should be observed when removing the plug from the shell.

Plugs are normally drilled with only one hole for ball bearings on each side of the keyway and therefore dedicated to the virtual keyway associated with those positions. Distribution of virtual keyways is controlled geographically and the product and key blanks are only sold via locksmith distribution



Cylinders *continued*



NOTE: The Master Lock EDGE™ key control is compatible with the American Lock® EDGE™ Padlock and Door Key Control System. Cylinders for Door Hardware locks are only available as an American Lock® EDGE™ product and have a standard size shell for a mortise, rim and KIK application. The plugs for those cylinders have a head that has a diameter typical of that found in door hardware cylinders but the plug itself has the same .397" diameter found in the padlock cylinders.

That means the same 291 keying kit can be used for keying and all bittings and virtual keyways will be the same as found in the padlock cylinder versions. All sizes and types of door hardware compatible cylinders in the EDGE™ system will have 6 pin chambers, even the 1" mortise cylinders. The Nickel-Silver keys introduced with this product are the standard for the American Lock® EDGE™ System cylinders to offer the added strength needed for this type of cylinder.

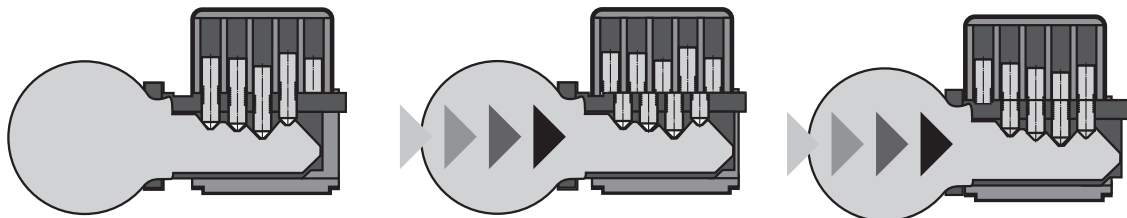
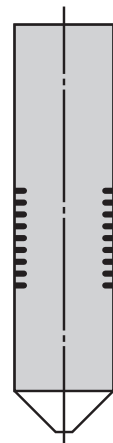
9. The Python cylinder has a removable plug that uses a disc tumbler mechanism and two inwardly sprung sidebars for pick resistance. Supplied with the number 1 keyway, it is a rekeyable plug that can be used in an increasing range of our automotive related products.



10. The Universal Pin cylinder. This cylinder is unique in its design and use. When assembled at the factory it uses a pin tumbler that is both a bottom pin and a top pin without the division between the two. This serrated pin is placed in the first four of five pin chambers and a standard driver pin is placed in the last chamber. The serrations on the pin are made at .015" increments and designed to be located where a shear line might be created.

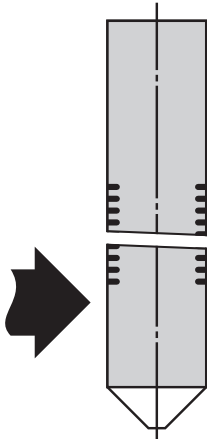
The UP product is a patented design that allows 'setting' a lock to a customer key without disassembly. There are some simple steps to follow that ensure the customers key will operate.

- a. Check the key for excessive wear. If worn, use a code cut key to set locks.
- b. Insert and withdraw the key a few times to ensure that the pins are moving freely and seating on the key.
- c. Place the 376 keying tool over the head of the key and in firm contact with the plug face.
- d. Strike the keying tool once firmly with a hammer to shear all four pins at the shear line.
- e. Strike the keying tool once more to ensure that the plug is fully seated and the newly created top pin in the first chamber can extend into the groove around the plug and act as a plug retainer.



Cylinders *continued*

To assure that the plug is properly seated you can pinch the key to remove the first time. If it removes easily the plug is properly seated. If it won't withdraw, use the keying tool to seat the plug again.



The basic rules to follow with this product are to use a key with as little wear as possible to set the lock, and to never set more than six locks with the same sample key.

When the pins are sheared they are not sheared exactly in a straight line. Because the diameter of the pin chamber must allow free travel of the pin, it is larger than the pin. When the breaking force is applied to the pin it tilts a little inside the pin chamber before it shears. That means that one side of the pin is generally higher than the other.

As that higher edge passes under the pin chamber wall the pin is pushed into the bottom of the key cut. Each time the key is used to set a lock this happens and makes a dent .0005" deeper than the cut you started with. That is why the same sample key shouldn't be used to set more than six locks.

The 376 keying tool is designed to assist in setting a lock to a key and other devices not specifically designed for the UP series products should not be used.



Cylinder Service Procedure

Older style ProSeries® cylinders and most other Master Lock cylinders may be serviced with the metal follower in the 291 pinning kit or via the service holes in the bottom of the shell. Some very specific steps must be followed when rekeying via the service holes but after the first time the rekeying can be accomplished more quickly than using a follower.

This procedure will work on cylinders that have a crimp retainer as well as cylinders that use a clip retainer, but will not work on EDGE™ cylinders.

1. Hold the cylinder with the service holes up.
2. Insert a working key and rotate 180°.
3. Remove existing bottom pins via service holes.
4. Rotate plug 90° Clockwise.
5. Remove old key and insert new one.
6. Rotate plug Counter-Clockwise 90°.
7. Insert new bottom pins to match new key combination.
8. Rotate plug 180° and remove key.

If you are rekeying and Master Keying the cylinder, complete disassembly with a follower is recommended as that will allow the removal of extraneous master pins from the bible as well as the plug.

