All Doorknobs Aren't the Same

Especially with interior locksets, the feel, the finish, and the parts you can't see make the difference

BY SCOTT GIBSON

Thanks largely to the innovations of Walter R. Schlage, a handy 12-year-old probably could install a lockset on a bathroom or hallway door in about a half-hour. Schlage's 1928 patent for a cylindrical button lock helped to displace the traditional mortise lock and vastly simplified what had been a time-consuming and ticklish chore (sidebar p. 61). But even Schlage might be surprised to see how pervasive, and diverse, this lock has become.

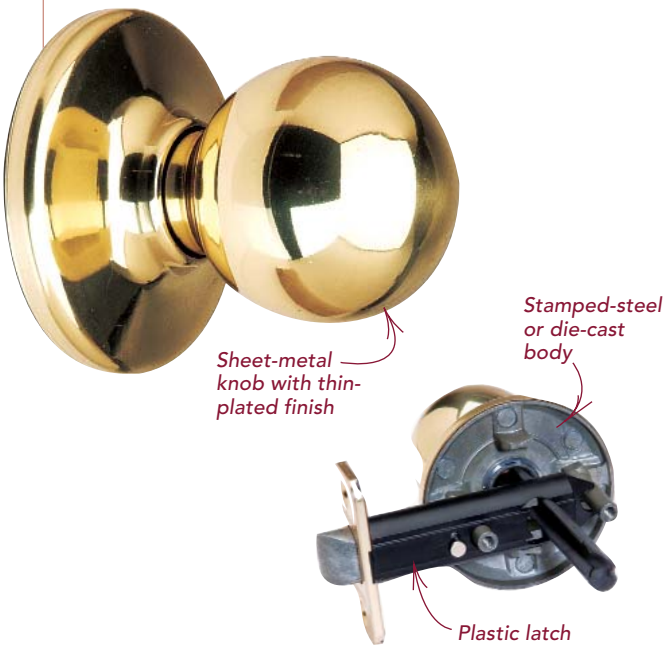
For interior doors, mortise locks are still common in commercial buildings and some high-end houses, but the bored-in lockset that Schlage pioneered is now a fixture in most houses. It requires only two holes in the door: a 2⅛-in. hole in the face of the door and a 1-in. hole in the edge for a latch. The two halves of the lockset are joined with machine screws, and a knob or lever turns the latch.

Although most residential locksets work basically the same way, there are as many differences in what's available as there are similarities. Choices run the gamut from basic

$7 KNOBS WORK FINE, SO WHAT DO YOU GET FOR $700?

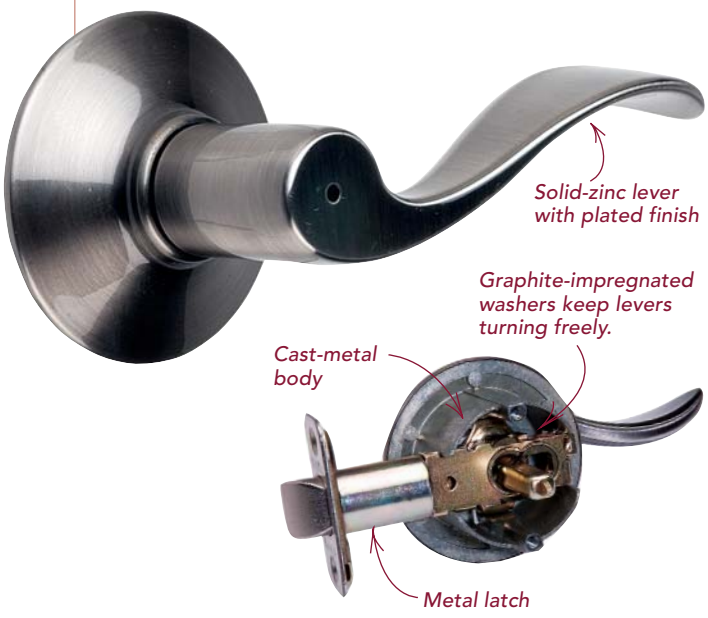
For $7

Kwikset's Security passage set (800-327-5625; www.kwikset.com) may be the most basic doorknob in America. Tested to cycle 200,000 times, it's a functional piece of hardware that carries a 10-year warranty.



For $40

A privacy set from Schlage (800-847-1864; www.schlage.com) is a good compromise between function and cost. Its action feels solid, the tolerances are closer, and it should work flawlessly at least 400,000 times.



locksets selling for as little as $7 to the Ferraris of the class, a $700 sand-cast bronze lock. Some differences are cosmetic, but many are not. Finish, mechanical design, and choice of materials used to make the lock, knobs, and trim pieces have a lot to do with how smoothly it operates and how long it will last.

What you see is only the beginning

What's visible after installation are the doorknob (or lever) and a rose (or escutcheon) that caps the hole bored through the face of the door. Hidden inside the door are the mechanical parts that operate the latch and help to determine how long, and how smoothly, the lockset is likely to operate. These design choices also help to determine how a lockset will fare in meeting performance standards published by the Builders Hardware Manufacturers Association (sidebar right).

Inside an economy lockset—like Kwikset's Security line selling for about $7—what you're likely to find is a spindle made from folded sheet metal that connects knobs on each side

The industry grades its own

Many manufacturers submit their door locks for voluntary testing under a standard sponsored jointly by the Builders Hardware Manufacturers Association (BHMA) and the American National Standards Institute. Tests measure performance and set minimum standards for, among other things, strength, finish durability, and the number of times the latch can be actuated (or "cycled") before it fails. There are three levels of performance. Grade 1, the highest designation, is more common in commercial locksets than it is in residential hardware, where grade 2 and grade 3 are typical. Some budget locksets may not be graded at all. "You're going to be happier in the long run with a graded lockset, particularly the higher grades," says BHMA standards coordinator Mike Tierney. "It's going to feel better. It's going to work forever. It's going to look good. Even grade 3 is better than something that has no grade at all." But some high-end manufacturers don't bother to submit their hardware for testing. Baldwin, for instance, says it sees no market advantage to grading its locks.

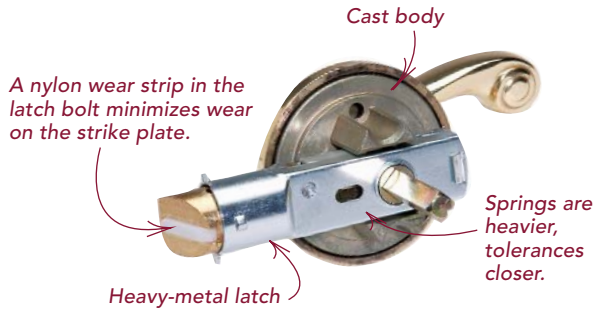
Among the standards for locksets are the minimum torque the knob will resist before failing. That ranges from 120 in.-lb. for grade 3 to 150 in.-lb. for grade 2 to 300 in.-lb. for grade 1. Levers are tested to proportionally higher standards. The longevity tests require that grade-3 locks cycle 200,000 times. That equates to opening the door 10 times a day for 54 years. Grade-2 locks test at 400,000 cycles, and grade 1 at 800,000.

—S. G.

For $130

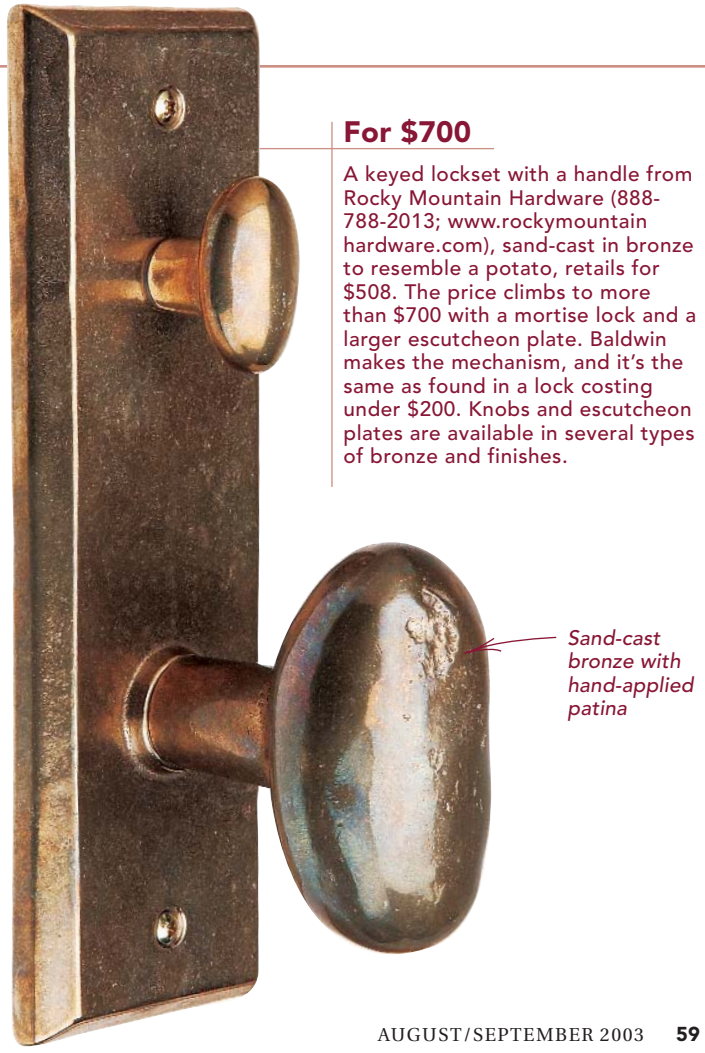
A passage set from Baldwin (800-566-1986; www.baldwinhardware.com) has forged-brass levers. Solid-brass rosettes conceal installation screws. The operation is smooth, and Baldwin tests its locks for 800,000 cycles.





For $700

A keyed lockset with a handle from Rocky Mountain Hardware (888-788-2013; www.rockymountainhardware.com), sand-cast in bronze to resemble a potato, retails for $508. The price climbs to more than $700 with a mortise lock and a larger escutcheon plate. Baldwin makes the mechanism, and it's the same as found in a lock costing under $200. Knobs and escutcheon plates are available in several types of bronze and finishes.

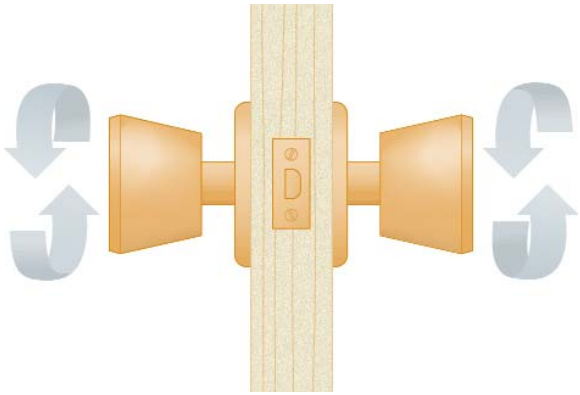


DIFFERENT LOCKS FOR DIFFERENT DOORS

Depending on how it will be used, an interior door may take any one of four different lockset types. Mechanically simpler and less costly than hardware for exterior doors, interior locksets are available in a variety of surface metals and finishes, and may be ordered with knobs, levers, or pull rings.

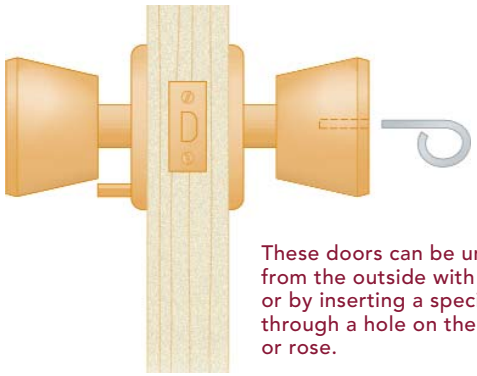
Passage

sets are standard for hallways, closets, and any other door where no locking function is needed. Knobs turn freely on both sides of the door.



Privacy

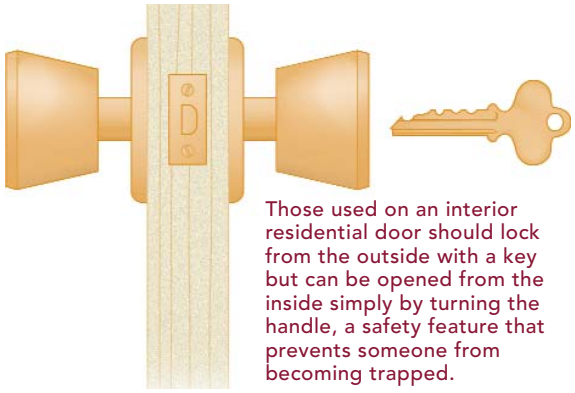
locksets typically are installed on a bathroom or bedroom door. The door can be locked from the inside with a push button on the rose, at the center of a knob or lever, or, in the case of a mortise lock, by turning a small dead-bolt knob in the escutcheon plate.



These doors can be unlocked from the outside with a key or by inserting a special tool through a hole on the knob or rose.

Keyed

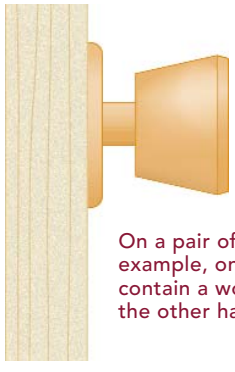
locks are intended for doors where free access isn't a good idea: a closet where firearms or valuables are stored, or an attic or basement where safety is a concern. Keyed locks can work in a number of ways.



Those used on an interior residential door should lock from the outside with a key but can be opened from the inside simply by turning the handle, a safety feature that prevents someone from becoming trapped.

A dummy

set is screwed to the door but doesn't have a latch or any other internal working parts. A dummy could be used on one of the doors in a two-door set.



On a pair of French doors, for example, one door would contain a working latch while the other had a dummy.

of the door. The spindle passes through a spring-loaded latch, and when a knob is turned, the latch retracts. The industry calls this design a *tubular* lock (sidebar, facing page). Internal parts, made from steel or die-cast zinc, are simple and relatively lightweight, and the knobs even have some play when the installation screws have been tightened.

Kwikset's entry-level lockset won't last forever. But it still carries a 10-year mechanical warranty, and its latch is designed to operate at least 200,000 times before it breaks.

When you spend more money, you are likely to get heavier-gauge internal parts; more powerful return springs on the knobs for faster, more positive movement in the latch; and a more solid feel overall. A $40 Schlage lever set, for example, has virtually no play in the levers, a heavy die-cast zinc chassis, and a precise fit between spindle and latch. Because it's rated as grade 2, the lock will handle twice as many open-and-close cycles as a grade 3.

Spend $130 for a Baldwin passage lock, and construction is even heavier. Besides solid-brass levers, the lock has a solid-steel spindle and a latch with a strong return spring and a short throw (it doesn't have to be turned much to retract the latch). Heavy, threaded roses completely hide the installation plates and screws. A nylon strip on the end of the latch minimizes wear on the strike plate, and Allen-head setscrews allow knobs to be retightened.

Finishes and knob/lever styles add to the overall cost

Heavier castings, stronger return springs, better-fitting parts, and sturdier latches all contribute to higher costs. But so do finish and styling, especially at the upper end of the cost spectrum.

Rocky Mountain Hardware, for example, offers both bored-in and mortise locksets for interior doors beginning at $340—far above most everything else on the market. The company sand-casts some of its hardware, a process that can leave a rough, pitted surface and makes even brand-new hardware look like it has been kicking around for years. That's its charm. Yet the extra money doesn't buy any better mechanical innards than a Baldwin because Rocky Mountain's lock mechanism actually is a Baldwin.

Rocky Mountain's price list helps to illustrate that consumers are willing to spend

Drawings: Ron Carboni

SOME TYPES ARE EASIER TO INSTALL

Almost all interior locksets are one of three mechanical types. Tubular and cylindrical designs both are "bored-in" locksets, named for their installation in a hole bored completely through the face of the door. Traditional mortise locks are fitted in a deep pocket cut in the edge of the door. Two other options, rim locks and thumb latches, usually are used only for period restorations.

Tubular locks

According to Mike Tierney, the standards coordinator for the Builders Hardware Manufacturers Association, inexpensive tubular locks are often not as robust or as versatile as cylindrical locks. Sturdier versions of the same design, however, also may be found on high-end locks such as those made by Baldwin. One advantage is that adapting a lock to an extra-thick door can be as simple as using a longer spindle.

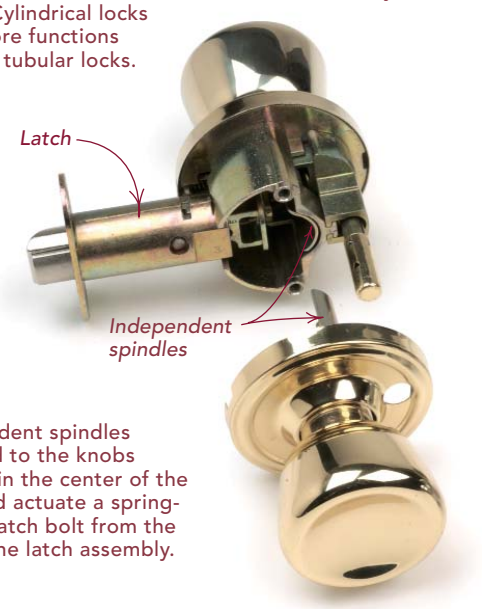


A semicircular or square spindle runs from knob to knob, passing through a spring-loaded latch installed through the edge of the door.



Cylindrical locks

Cylindrical locks are more difficult and costly to manufacture, but the mechanism distributes loads on the latch more evenly than in tubular designs. Cylindrical locks are capable of more functions and features than tubular locks.



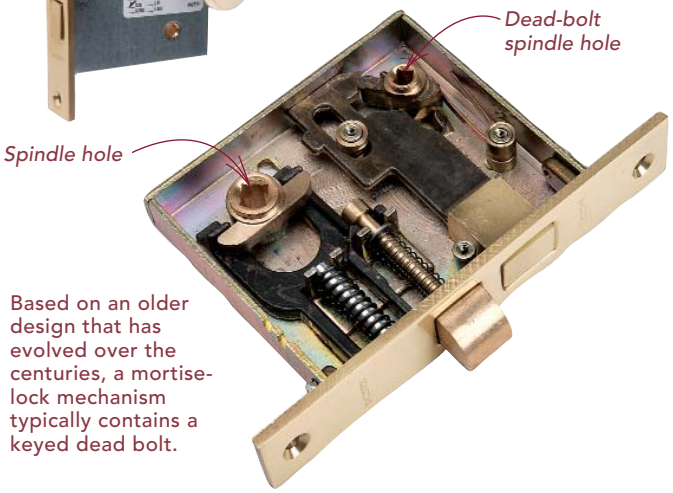
Independent spindles attached to the knobs overlap in the center of the door and actuate a spring-loaded latch bolt from the end of the latch assembly.

Mortise locks

Mortise locks are installed in a deep pocket, or mortise, cut in the edge of the door. Common on exterior doors, they also are available (but not widely used) on interior doors because the mortise can be tricky to cut without the right equipment. Mortise locks are more expensive than bored-in sets.



A spindle connecting the knobs passes through a square hole in the lockset and activates the latch.



Based on an older design that has evolved over the centuries, a mortise-lock mechanism typically contains a keyed dead bolt.

How long does it take to put in a lockset?

We asked professional door hangers Gary M. Katz of Reseda, Calif., and Jim Chestnut of Fairfield, Conn., to estimate the time it takes them to install the two types of locksets: the cylindrical/tubular and the mortise. Because of the large rectangular pocket that must be carefully drilled and chiseled (or routed) into a door's edge, a mortise lock typically takes from one hour to 2½ hours to install. A cylindrical/tubular lock requiring a 1-in. hole in the door edge and a 2⅛-in. hole in the door's face should take about a half-hour.

—S. G.

KNOBS FOR EVERY ARCHITECTURAL STYLE

Given the long history of doors and hardware, it follows that there are plenty of styles from which to choose your hardware. You may have to shop outside your local big-box home center, but if you can imagine the style, you likely can find the lock.



Rejuvenation Hardware
(877-745-1900; www.rejuvenation.com) Latching mechanisms are sold separately; glass knob and plate retail for $55.



Weslock
(800-575-2658; www.weslock.com) Knobs are brass plated in chrome and protected with a topcoat of lacquer. This one retails for about $24.





Historic Housefitters
(800-247-4111; www.historichousefitters.com) Eighteenth-century thumb-latch reproduction retails for $132.75, including latchbar and catch.

Sun Valley Bronze
(866-788-3631; www.svbronze.com) Retail for a tubular privacy set is $270; a mortise set is $311.



Marks USA, Grade 1
(800-526-0233; www.marksusa.com) Levers in this tubular passage set are solid brass; it comes with a heavy-duty spring latch. Screws are concealed after installation. The set retails for about $150.



handsomely for finish and overall eye appeal, factors that have nothing to do with how well a lock works. Manufacturers have responded with smooth and brushed finishes in brass, bronze, nickel, chrome, and iron. They may be highly polished or left without a protective topcoat, which allows them to age with use.

Knobs, levers, and roses are typically brass. If the finished surface is to be different—chrome, say, or nickel—the material is added as a thin plating. Manufacturers may add more than one plating or rub through a topcoat to reveal the one below.

Typical protective coatings include sprayed-on lacquer, a clear powder-coated surface, or a thin layer of chrome or nickel applied in a process called PVD, or physical vapor deposition. PVD, originally developed for the machine-tool industry, increases surface hardness and scratch resistance, and allows manufacturers to offer lifetime guarantees against tarnish. But it also adds to the cost—as much as 50% over the same hardware with a traditional lacquer finish. Unless the house is on the ocean where tarnishing from salt air is a problem, PVD is probably overkill for interior hardware.

What to buy

Even the most inexpensive locksets on the market probably will last for many years before they wear out. But they also can have a tinny feel, and knobs may have an annoying rattle even when installation screws are tight.

At the other end of the spectrum are Sun Valley and Rocky Mountain Hardware knobs and trim. Beautiful, to be sure, but spending $500 on a pair of doorknobs and escutcheon plates seems wildly extravagant.

More appealing is door hardware's middle ground, locksets like the $40 Schlage. They have a solid feel because they are made from solid castings instead of stamped sheet metal. Internal parts are heavier, and there's a fair selection of finishes and styles. In all, they are a good compromise of function and design. At the upper end of this midcategory are locksets like those from Baldwin or Marks. Prices are well over $100, but not stratospheric, with solid mechanicals and appealing finishes. For some period architectural styles, Baldwin locksets in particular may be worth the extra money. □

Scott Gibson is a contributing editor to *Fine Homebuilding*. Photos by Sloan T. Howard.