

Quick cuts anywhere

Hand-held rotary power saws can slice through masonry walls in minutes

By Mark A. Wallace



Partner Industrial Products

To operate a hand-held rotary saw safely, this worker wears eye and head protection, work gloves, a dust mask and hearing protection.

Hand-held rotary power saws are used frequently to cut openings in masonry walls and in demolition work and sometimes to cut brick or block for new walls. Because they are portable and usually don't require water, these saws come in handy whenever a quick cut through masonry is needed. Before selecting from among the many available models, consider these questions:

What kind of power is available onsite?

Rotary power saws come in gas-, air-, electric- or hydraulic-powered designs. Gas saws are the most mobile since they aren't tethered to an electric, air or hydraulic power source. However, they create exhaust fumes, which can be hazardous indoors or in poorly ventilated, confined spaces. If not well-shielded, their mufflers can cause operator burns, and if they're not well-designed or well-maintained, the dust from cutting can destroy the carburetor and engine before the cutting blades wear out.

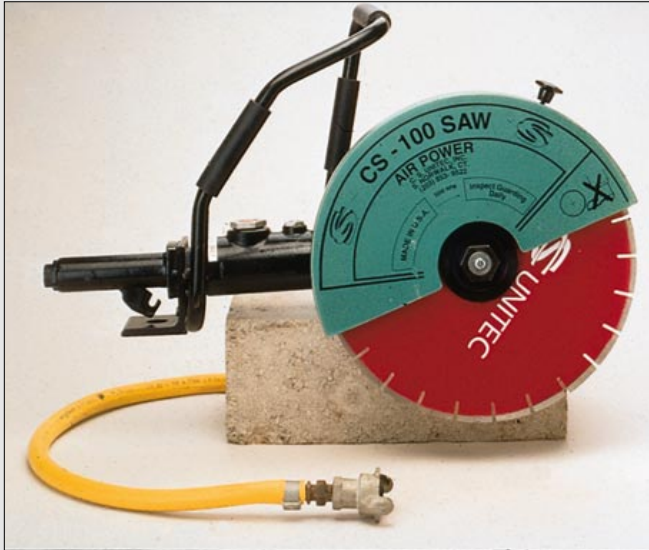
To avoid this problem, the better gas-powered models have sophisticated methods for filtering air. Several saws described here have multistage filtering systems. Some also have specially designed carburetors that maintain a constant fuel:air ratio even when the filter becomes partially clogged. Ron Kendall Masonry, a contractor in West Palm Beach, Fla., owns 104 gas-powered saws made by Partner Industrial Products because they are light, go anywhere and require little maintenance.

Air-powered saws

Chicago Pneumatic CP-0044

Chicago Pneumatic's CP-0044 air-powered cut-off saw features a direct-drive, 4-hp motor, a built-in oiler for continuous lubrication, a safety lock-off trigger that prevents false starts and a blade guard that requires only one hand for adjustment. With a 14-inch diameter blade, the 28-pound, 26½-inch-long saw can cut up to 4 inches deep.

Contact: *Chicago Pneumatic Tool Co., Construction Division, 1800 Overview Dr., Rock Hill, SC 29730 (800-367-2442).*



The CS-100 comes with an adjustable blade guard and an in-line oiler with a safety relief cap and site gauge.

CS UNITEC CS-100

The CS-100 pneumatic hand-held saw made by CS UNITEC cuts up to 4½ inches deep with a 14-

inch-diameter diamond or abrasive blade. The 4-hp, 28-pound saw can be used to cut vertically or horizontally in hot or cold weather. The direct-drive unit requires 90 cubic feet of air per minute at 90 psi.

Contact: *CS UNITEC Inc., P.O. Box 7690, Wilton, CT 06897 (800-700-5919).*

SAWTEC's HS-150

One of SAWTEC's four models of air-powered hand-held saws, the HS-150 is powered by a 7.5-hp direct-drive motor and, with an 18-inch-diameter blade, can cut 7 inches deep. A viewing port makes it easy to keep the engine well-oiled. An optional vacuum guard that attaches to the blade guard is available to collect dust and keep the site dust-free. The manufacturer offers an auxiliary dust-collection system that filters dust to 0.5 microns and works for hours without emptying.

Contact: *SAWTEC Inc., 11 High St., Suffield, CT 06078 (800-624-7832).*



To make a cut in an existing masonry wall, workers use the HS-150, which requires 90 cubic feet of air per minute at 100 psi.

"Because of the way they filter air, the saws don't plug up and break down," says Steve Sweatt, who is responsible for maintaining them.

Air-, electric- and hydraulic-powered hand-held saws don't create dangerous exhaust fumes, so they can be used safely indoors and in poorly ventilated areas. Because they are all direct-drive, not belt-driven (as gas-powered saws are), they don't have belts or pulleys that may need adjusting or replacing. Some electric- and air-powered saw manufacturers also claim their saws are quieter than gas-powered cutters. All three types, however, must be connected to a power supply; so you should

buy air, electric or hydraulic saws only if you have such power available or do enough cutting to justify purchasing a generator, air compressor or hydraulic pack.

How much power do you need for the job?

Cutting performance is largely determined by two factors: torque and blade speed. A saw must deliver enough torque (rotational force) to push an abrasive or diamond blade through masonry at the optimum cutting speed. If a saw does not have enough torque, it bogs down.

But it is the speed of the diamonds on the outer edge of the

blade, measured in surface feet per minute (sfpm) that matters most. If the diamonds race by too quickly, they polish. If they move too slowly, they break off. For masonry, the optimum blade speed is 9,000 to 10,000 sfpm, according to one saw manufacturer.

Larger saw blades require more horsepower. For saws of the same blade size made by the same manufacturer, higher horsepower models have more stamina. But be careful about comparing horsepower ratings of models made by different manufacturers because there is no standard for rating a power saw's horsepower.

For two-cycle, gas-powered

Electric-powered saws

Hitachi CC12Y

With a 15-amp, 3.5-hp motor, the 24-pound Hitachi CC12Y can cut up to 4 inches deep. The 12-inch electric cut-off saw features a wide base for greater stability, a C-shaped handle with a "nonslip" rubber coating, all-bearing construction and a spindle that locks for easier blade changes.

Contact: Hitachi Koki U.S.A., Ltd., 3950 Steve Reynolds Blvd., Norcross, GA 30093 (800-829-4752).



Hitachi Koki U.S.A., Ltd.

To protect the armature, the motor on the Hitachi CC12Y stops automatically when its brush becomes worn.

Bosch Model 1365

One of two portable electric saws from Bosch, Model 1365 drives a 14-inch blade at 4300 rpm and cuts $4\frac{7}{8}$ inches deep. The saw has a large foot plate, designed to provide stability and help control the depth of cut. To help prevent the saw from recoiling, the manufacturer recommends setting the foot plate at a depth that keeps the flanges that secure the blade from contacting the material being cut. The safest way to use the saw usually is in the "fire forward position," which directs sparks, dust and debris away from the operator. But it may be safer when cutting vertically to change the tool to the "fire reverse position," so it directs debris down-

ward.

Contact: Bosch/S-B Power Tool Co., 4300 W. Peterson Ave., Chicago, IL 60646 (773-286-7330).



Bosch/S-B Power Tool Co.

Bosch's electric abrasive cut-off saws come in kits that include a masonry-cutting blade and a protective metal case.

Cut-Elec 14-inch saw

The 14-inch-diameter blade on the Cut-Elec rotates in a clockwise, downward direction, so that sparks and dust are propelled down and back for safety and clear visibility. This 18-amp, 4.8-hp saw by Milwaukee Electric Tool Corp. has spiral steel bevel gears, all ball-bearing construction and armature bearing seals to keep out dust.

Contact: Milwaukee Electric Tool Corp., 13135 W. Lisbon Rd., Brookfield, WI 53005 (800-729-3878).



Milwaukee Electric Tool Corp.

The Cut-Elec features an enclosed handle that prevents the power switch from being turned on accidentally.

saws, the amount of engine displacement, usually measured in cubic inches or cubic centimeters (cc), is a more accurate indicator of power. For lightweight use, such as cutting brick or block, roof tile or steel rebar, a 12-inch gas saw with 60 to 70 cc displacement is adequate. For those who need a 12- or 14-inch blade and don't want a heavy saw, one manufacturer says a gas saw with 70 to 80 cc displacement should work well. And for 14- to 16-inch saws, 100 to 112 cc displacement is needed.

What size saw fits your needs?

Since these saws are hand-held, you should select the lightest saw that can do the work. Don't neglect the weight of the blade, and with gas saws, don't forget the weight of the gasoline.

Be sure, however, to relate machine weight to the saw's power and the cutting requirements. In general, for the same type and design of saw, the more powerful models weigh more. The lightest saw thus may not cut deep enough or fast enough for your needs.

A common size saw used by contractors to cut masonry is 14-inch (which means it accepts blades up to 14 inches in diameter). Saws with 14-inch blades range in weight from about 20 to more than 30 pounds and have a maximum cutting depth of 4 to 5 inches.

What other features do you want in a saw?

After deciding on the size of the saw and the type and amount of power you need, answer the following questions:

Gas-powered saws

Husqvarna 272K

A saw operator who feels less vibration can work with less fatigue. To achieve this, Husqvarna built anti-vibration elements into its saws "so that the handles you hold are separate from the engine and wheel that create the vibration." Dust is a major cause of carburetor problems and engine wear, so the manufacturer located the air intake on the "clean" side of the saw and incorporated both an oiled, three-layer foam filter and a folded paper filter that unfolded measures more than 11 feet in length. In dusty conditions, the oil filter should be checked and, if necessary, changed after every second tank of fuel. This anti-vibration system and four-stage filtering are featured on the 5.2-hp Model 272 K, which has the power to turn a 12- or 14-inch-diameter blade. The unit is one of two gas-powered cutters offered by the manufacturer.

Contact: Husqvarna Forest & Garden Co., 9006 Perimeter Woods Dr., Charlotte, NC 28216 (800-438-7297).

Makita DPC 9501

Makita calls it "Happy Start": Before pulling the starter cord, the operator presses a blue button on the saw, which in turn opens a valve inside the engine. As the piston in the engine moves upward, a portion of the combustion air escapes, making it 70% easier to pull the starter cord. One of two gas-powered cutters offered by the manufacturer, the 14-inch-blade Model DPC 9501 features a 5.8 cubic-inch engine. For balance and easy handling, the operator can cut with the cutting arm in the center of the saw. Then, when a horizontal cut or a cut close to a wall is needed, the user can quickly switch the cutting arm to a side position.

Contact: Makita U.S.A. Inc., 14930 Northam St., La Mirada, CA 90638 (714-522-8088).



Makita U.S.A.

To reduce vibration and operator fatigue, this 14-inch power cutter is built with a vibration dampening system; to protect the operator from muffler heat, the muffler is covered with a heat shield.

Partner K950

Without fuel or blade, the 16-inch K950 gas-powered saw by Partner Industrial Products weighs 22 pounds. The rotary saw's features include a fully-enclosed starter,

a decompression valve that reduces the effort required to start the engine, and a reversible cutting arm for cutting close to walls. To keep dust out of the engines of all its gas-powered saws, the manufacturer uses "Active Air Filtration." The centrifugal force generated by the engine flywheel propels the heaviest dust particles outward, away from the air intake nozzle. Up to 90% of the dust thus never even reaches the filter. Remaining dust passes through a three-layer foam filter saturated with oil to catch the dust particles, then through a pleated paper filter that removes particles as small as 10 microns. If the foam filter is washed, re-oiled and replaced when it gets dirty, the backup paper filter requires only occasional replacement.

Contact: Partner Industrial Products, 1151 Bryn Mawr Ave., Itasca, IL 60143 (800-323-3553).

Target Super 100 Quickie

One of three Quickie hand-held power saws, the Super 100 has a 6.2-cubic-inch engine and can accommodate a 14- or 16-inch-diameter blade to produce cuts up to 5 or 6 inches deep, respectively. Because Target has designed its Quickie saws so the cutting arm can be quickly reversed and the blade switched to the outside mount, users can saw within 1 inch from walls. A narrow blade guard also improves visibility and makes it easy to get close to walls. The Super 100 has a spring-loaded locking mechanism that safely secures the guard in place. The blade is driven by a steel drive pulley and belt, which the operator can adjust with an easily accessible screw.

Contact: Target, 17400 W. 119th St., Olathe, KS 66061 (800-288-5040).



Partner Industrial Products

Like the manufacturer's other gas-powered saws, the 16-inch K950 has an internally compensated carburetor that maintains a constant air-fuel mixture.

Stihl TS 760 Cutquick

The 6.77-hp TS 760 rotary saw is designed to use 14-inch-diameter blades but is available in a version that accepts 16-inch blades. To keep dust out of the engine, Stihl gas-powered Cutquick saws incorporate a three-stage filter. In the first, or "pre-filter," stage, multiple layers trap dust particles, each layer stopping smaller particles than the layer ahead of it. The large main filter then stops any minute particles that manage to pass the pre-filter. If this main filter is damaged, an auxiliary fabric filter helps prevent damage to the engine. As necessary, within minutes, the user can remove the pre-filter and wash it with water. The saw has a

Stihl Inc.



specially designed compensating carburetor that maintains the air-fuel ratio, keeping the saw running at full power even when the air filter is 90% clogged.

Contact: *Stihl Inc., 536 Viking Dr., Virginia Beach, VA 23452 (800-467-8445).*

The TS 760 features a fully enclosed ignition and starter system to protect against moisture and dust; a shock-absorbing handle and a decompression valve reduce the "jerk back" of the starter rope.

Hydraulic-powered saws

GDM 20H

With a maximum size 20-inch blade, the 27-pound 20H by GDM Inc. can cut just under 8 inches deep. Like the company's other hand-held hydraulic model, the saw can operate in any position—horizontal, vertical or upside down. An adjustable screw on the trigger allows the operator to vary the blade's maximum speed. With a special 4-foot-long guide system attached, the saw can be quickly converted to a wall-mounted unit. The base plate ensures stability when the saw is hand-held and helps align the saw when it is used with the guide system.

Contact: *GDM Inc., 152 Aero Camino, Goleta, CA 93117 (805-968-2613).*

Stanley CO25

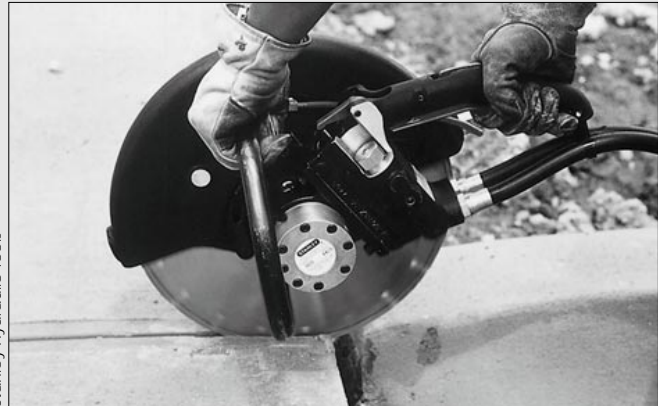
With a 14-inch-diameter blade, the CO25 hydraulic cut-off saw, manufactured by Stanley Hydraulic Tools, has a multiposition handle and an optional handle extension for additional leverage and reach. The adjustable wheel guard is made of cast aluminum to reduce weight and accepts a cooling water hose when

used for wet-cutting. A safety trigger prevents unintentional operation, and an internal blade brake reduces blade coast time after the power trigger is released.

The unit requires 1000 to 2000 psi hydraulic pressure.

Contact: *Stanley Hydraulic Tools, 3810 S.E. Naef Rd., Milwaukie, OR 97267 (503-659-5660).*

Stanley Hydraulic Tools



On this 14-inch hydraulic cut-off saw, a flow control keeps the blade from spinning too fast.

- If needed, how easy is it to adapt the saw to wet-cutting? Most hand-held rotary saws are designed for dry-cutting. Cooling the blade with water increases the blade's service life and reduces dust, but it cannot be done at freezing temperatures or where water may damage other materials.
- How close can the saw cut alongside an adjoining wall, ceiling or floor? On some models, the operator can reposition the cutting arm so the saw can get closer to such obstructions.
- Does the saw provide a way to control the depth or direction

of cut? With some hand-held saws, the operator determines cutting depth simply by the way he or she holds the saw. With others, a base plate or other mechanism can be preset to the depth desired, thereby ensuring a uniform, predictable depth. For straight cuts, some hand-held saws also come with optional guides for mounting the unit to the wall.

- Are vacuum attachments available and easy to use? Dust is one of the most uncomfortable and dangerous aspects of using a power saw.
- Do the saw's handles minimize

vibration and permit vertical and horizontal cutting?

- Does the saw have a safety trigger that prevents it from starting accidentally? Several models require the operator to push a second button or hold the handle in a certain way for the trigger to start the saw. ■

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