

TOOLS AND ACCESSORIES

INTRODUCTION

This bulletin addresses the tools and accessories necessary for the fabrication of DuPont™ Corian® solid surface.

OVERVIEW

DuPont™ Corian® solid surface is fabricated with much of the same type of equipment used for woodworking. While woodworking tools can be used to fabricate solid surface, there are tools that have been optimized for solid surface and will provide better results. Corian® solid surface is made of natural minerals and acrylic and cuts differently than wood. Tools with sufficient power and proper cutting design will provide better results and tool life time. This document provides a list of basic tools and accessories used in fabricating Corian® solid surface.

A. ROUTERS

Routers should have sufficient power for the intended task. The following routers are useful for general solid surface fabrication.

- 1½-hp (900 W) router
- 2-hp (1400 W) router
- 3-hp (2200 W) router
- 3-hp (2200 W) plunge base router

Refer to Table A-1 below for a guideline of approximate router power recommendations for common tasks:

Table A-1

Task	Minimum Power (HP)	Minimum Power (W)
General-Purpose Work: e.g. edge and seam trimming, cutouts	2 hp	1400 W
Heavy-Duty Work: e.g. bulk cutouts, banjo cuts, coving	3 hp	2200 W
Detail Work: e.g. edge treatment	1½ hp	900 W

Router power output will vary depending on the brand of machinery.

HELPFUL HINTS

Selecting the right router for a specific task will provide a higher quality cut and extend the life of the router.

B. ROUTER BITS

Router bits should, at a minimum, be tipped with tungsten carbide. Polycrystalline diamond bits may be suitable in certain applications utilizing CNC machinery.

For day-to-day fabrication, you should have the following bits provided in Table B-1.

Table B-1

Task	Tool/Bit
General-Purpose Work e.g. edge and seam trimming, cutouts	3/8" (10 mm) carbide-tipped single flute with 1/2" (12 mm) shank, 1/2" (12 mm) carbide-tipped double flute, etc.
Heavy-Duty Work: e.g. bulk cutouts, banjo cuts	1/2" (12 mm) carbide-tipped single flute with 1/2" (12 mm) shank polycrystalline diamond bit
Detail Work: e.g. coving, edge treatment	carbide-tipped decorative bit with 1/2" (12mm) shank

HELPFUL HINTS

Only use quality tungsten carbide-tipped bits. Make sure they are kept sharp, clean and stored in a way that protects them from damage. Regularly check bit bearings for any slackness or play. Lubricate bearings regularly.

C. SAWS AND BLADES

Any type of circular saw may be used for ripping and sizing DuPont™ Corian® solid surface. Most acceptable common varieties include:

- Stationary saw bed with sliding tray
- Vertical panel saw
- Drop-cut saw with 45-degree angle option
- Heavy-duty portable circular saw
- Radial arm saw
- Beam saw

Regardless of the type of circular saw, all saws must:

- Be heavy-duty.
- Have triple-chip blades of tungsten carbide which should be used only for cutting Corian® solid surface.
- Have blades with hook angle of -5 degrees to +10 degrees and be described as “for cutting hard plastics.”

TOOLS AND ACCESSORIES

- Have a quiet blade; small gullets, brass plugs and heavier blade stock.
- Also, all safety guides must comply with the local safety standards.

Blades should be sharpened regularly with a 400 to 600 grit grinding wheel.

Blades should have at least six teeth per 1" (25 mm) diameter. Refer to Table C-1 for the most successful dry blades for cutting Corian® solid surface.

Table C-1

Blade Size (inches)	Number of Teeth	Blade Size (mm)	Number of Teeth
7½"	40	200	64
10"	60	250	80
12"	72	300	96
16"	100	400	120

The following tools must not be used, in any circumstances to cut Corian® solid surface:



Figure C-1

HELPFUL HINTS

For large-volume work, a water-cooled diamond saw is recommended as the most economical saw.

Heavy-duty, handheld circular saws may be used if necessary. Use tungsten carbide blades with correct blade configurations, referring to Table C-1.

The correct tools are essential for cutting DuPont™ Corian® solid surface to ensure that no chipping occurs and that all cuts are neat and clean.

Any small cuts or fractures in a cut may lead to cracking when the sheet is subject to stresses. As with glass, any nicks or fractures create potential weaknesses in the sheet. The best way to eliminate stress from saw cuts is to trim all sawn edges with a shaper or router with a sharp straight cutting tool.

D. SANDING AND FINISHING

In day-to-day fabrication, you need to be well equipped and have the following:

- Orbital sander
- Palm sander
- Random orbital sander or varying sizes
- Stationary belt sander
- Portable belt sander

Microfinishing film abrasives are used for day to day finishing. Open-coat silicone carbide sandpaper is recommended for quick sizing. Other abrasive systems are available that will work well on Corian® surfaces. Using sanding systems with vacuum dust extraction will speed work, lessen clean up and save wear and tear on the sander.

HELPFUL HINTS

Many high volume shops use air sanders as they provide greater tool longevity.

Use machines for which spare parts and service are readily available, as sanders are subject to extreme wear and tear while working with Corian® solid surface.

E. TEMPLATES

Templates can be made from:

- Wood products (MDF, plywood)
- Corian® solid surface

Store all templates in a way that keeps them in good condition and the leading edge true (such as in a vertical rack). Templates are essential in ensuring that cutouts are clean and smooth, which means perfect seams for sink or lavatory installation.

F. STRAIGHTEDGES

Straightedges are critical for truing edges prior to finishing and for preparing edges to be seamed. There are a number of commercially available straightedges, or you can make them yourself.

TOOLS AND ACCESSORIES

G. CLAMPING SYSTEMS

Several types of clamps are suitable for use with Corian® solid surface. Among these are:

- Spring clamps
- C-clamps
- Small bar clamps
- Vacuum-clamping systems
- PVC ring clamps
- Wood bar clamps

Table G-1 shows which clamping systems are recommended for different applications.

Table G-1

Task	Type of Clamp
Attach buildup strips	PVC ring clamps, spring clamps, C-clamps, small bar clamps or wood bar clamps
Hold templates or straightedges in place	C-clamps or bar clamps, vacuum clamping systems
Hold bowls during seaming	Bowl clamping jigs, vacuum systems, locking pliers with long jaws

HELPFUL HINTS

Keep clamps clean and in a readily accessible position in the work area.

H. DUST EXTRACTION

Corian® solid surface is non-toxic to humans. A potential risk associated with this product is accumulated or airborne dust produced during fabrication operations such as sawing, routing, drilling and sanding. As with many materials, certain machining processes may produce particles of dust that are fine enough to form combustible dust clouds which in turn may pose a flash-fire or explosion hazard. Dust explosion behavior is highly dependent on the particle size distribution and not necessarily the material being handled. More information is available in *DuPont™ Corian® Solid Surface Fabrication/Installation Fundamentals – Combustible Dust* (K-26832).

Do not inhale dust. High concentrations of any dust can irritate eyes, nose and respiratory system and cause coughing and sneezing. Corian® solid surfacing does not emit gas at room temperature. Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled. Wash hands before breaks and at the end of workday.

Dust generation and accumulation should be minimized. Dust should be removed at the point of generation where possible by the use of ducted extraction systems, for example. Hand sanders should be fitted with portable dust extractors and, if possible, to vacuum extractors. Equipment such as exhaust ducts, dust collectors, and processing equipment should be designed and maintained to prevent escape of dust into the work area. Routine housekeeping should be performed to minimize dust accumulation on surfaces.

HELPFUL HINTS

Keep filters regularly maintained to ensure effective operation. Several tool manufacturers make sanding systems with vacuum dust extractors which switch on when the sander is activated.

I. ADVANCED TOOLING

Some companies seeking higher productivity have made further equipment investments. Examples include:

- CNC router
- Shaper
- Panel saw
- V-groover
- Water-cooled diamond-tipped saw

J. REFERENCED DOCUMENT

DuPont™ Corian® Solid Surface Fabrication/Installation Fundamentals – Combustible Dust (K-26832)

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