

V GROOVING TODAY'S ARCHITECTURAL PANELS

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CURTAIN WALL EXAMPLES



Emirates Tower Hotel, Dubai, UAE.

This 52-story building is clad with six different curtain wall systems: five unitized systems and one stick system. Building features include a 30-story atrium of unitized curtain wall and insulating glass. The aluminum composite panels are 4mm thick panels. (photo courtesy of Curtain wall Design and Consulting Inc. www.cdc-usa.com.)

Any city skyline will have examples of curtain wall construction. Curtain walls may be glass or metal or a combination of both. Below are typical buildings with curtain walls.



The photos below show the curtain wall panels and the aesthetic styling.



Curtain walls are often made of or stainless steel or aluminum composite which has aluminum skins laminated over an insulating plastic core.

INTERIOR WALLS, DOORS AND CEILINGS.

Ceilings are also made with curtain wall procedures to create a unique decorative appearance.

Elevator entries made of V Grooved panels are a common sight.



The wall or ceiling panels are V Grooved to achieve sharp corners on each panel so that when assembled on the building the surface appears to be seamless. The panels are formed like pans so they have 4 to 8 grooves.

EARLY VERSIONS OF V GROOVING MACHINES

The original V Groover was created to enable sheet metal to be formed with sharp outside corner on the bend. Some V Groovers are modified planers. Some are like routers and some V grooving also processed on milling machines.

A V groove is machined on the inside of the bend line and when the metal was bent along that line a sharp corner is achieved.

The sharp corner is required by architectural designers who want buildings to have a distinctive, high quality look and precision fit. The designs were focused on visual appeal and not related to structural strengths.

The best looking elevator doors have panels formed after V Grooving.

Early versions of V Groovers had a limited capacity and most were capable of only 3 or 4 mm thickness and most frequently they grooved thin decorative stainless steel.

Today's NC V Groover



FRONT



REAR

The early designed machines continue to offer the limited capacity and performances but Hydrapower has embarked on a 5 year product development mission advancing Grooving technology to meet the increasing demands of architectural designers. Hydrapower's Groovers can accommodate sheets up to ½" thick and 20' long. Their current performance now has almost obsoleted the name. These machines make a large range of grooves other than Vees and could be more aptly called Groovers.

PRODUCTIVITY

A V Groover can finish a 10' x 0.045" deep groove in 16 gauge stainless steel in about 5 seconds.

A complete panel with 4 grooves at 10' long will be processed in a cycle time of about 1 minute.

With Hydrapower's new software a "pause" function can be activated to automatically bring the sheet to the front where the clamps will release and the operator can turn it 90 degrees to run grooves in the perpendicular direction.

This feature is also used when a sheet is grooved on both sides.

OPERATOR SKILLS

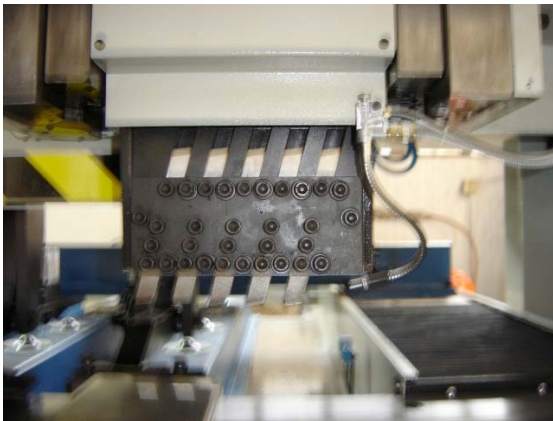
The V Groover has become an NC machine tool for fabricators. An operator has to be knowledgeable with machining operations as well as forming. He has to know how to grind cutting tools to suit custom grooving operations. Some grooves can be square like a keyway. Others may be semi circles and the V angles can be whatever the design calls for. He also has to know the best cutting speed settings for a certain material with a specific tool profile.

The tool holder has cavities for several tools and they can be used in combinations or just a single tool depending on the application.

Grooving composite panels of Aluminum and plastic requires cutting tools suited for both materials with specific profiles and geometry.

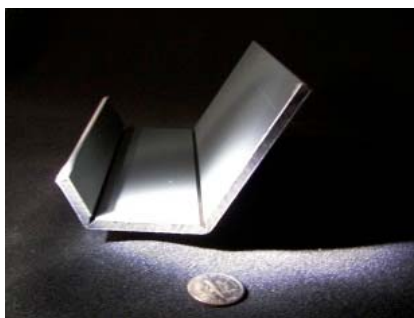
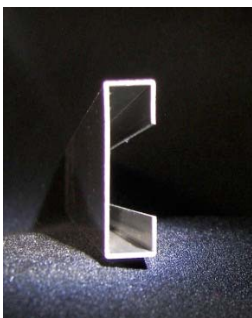
The photo shows a 5 station tool holder which is a general purpose set up for steel and aluminum.

There are 3 and 4 station tool holders which have vertical slots for zero rake and negative rake tools.

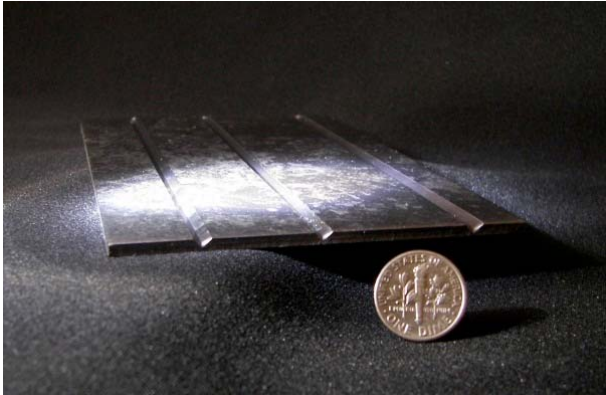


SOME POPULAR V GROOVED FORMS

These photos show shapes with sharp corners. Designers want the shapes to appear as if they were solid rolled bars or extrusions.



Below are sheets which have been grooved ready for bending.



V GROOVER USERS BEYOND CURTAIN WALLS

The graphic artists/designers create the applications and they are expanding the applications.

In shopping malls the stores have displays and racks with V grooved components and the entrance and escalators have them too. So does restaurant furniture and the kitchen equipment.

In Cruise ships and mega yachts their stainless steel stair components and bright work is often V grooved.

In the NASCAR Hall of Fame the displays were V Grooved.

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