



GUIDE TO VINYL CUTTERS



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CUTTING
EDGE
DESIGN



WHY GET INTO CUTTING?

Take a walk through your nearest city centre and look around. On some of the store fronts, you might see lettering on the windows. Inside those shops, you might find t-shirts and tote bags with all kinds of attractive designs. Even if you look at the bigger picture, the buildings themselves were probably designed by an architect who created scale models to secure the funding.

For all of these things, cutting plotters may well have played a major part. For such a versatile device, it's not surprising that so many people are interested in the possibilities they might unleash. With a relatively small investment, it's possible to start a creative new business and unlock a wide and varied spectrum of markets.

For over 30 years, Roland DG has been at the forefront of vinyl cutter manufacture across the globe. In that time, we've seen thousands of spare-room novices quickly graduate to professional print service providers. We've helped larger organisations, like universities, unlock new capabilities and bring costly jobs in-house.

Take it from us, the world of cutting plotters is filled with opportunity and it's just waiting for you to decide to take the plunge. Whether you're a sign maker looking to expand your capabilities, a designer with a commercial streak, or just a crafty hobbyist looking to make a little extra money, there's more to cutters than meets the eye.

THE VINYL CUTTING MARKET

You might ask which industries have a use for cutters, but it's almost easier to mention those that don't.

At Roland DG, even we are constantly surprised at the variety of people who use our devices.

Because of their versatility, these machines are the key to unlocking new capabilities in any business and as a result, the return on the investment is almost always swift.

Take the following industries for example:



CUSTOM PRODUCTS

Personalisation is a key factor for growth across a wide range of areas from consumer electronics to employee incentives. This has sparked a boom in the market of customised products like clothing, interior design and corporate gifts. Companies who sell custom products may buy a cutter for a specific purpose, but they soon find that they are capable of doing so much more.



SIGNAGE & WINDOW LETTERING

Cutters open lots of doors for those in the signage industry. Rather than simply offering colour signs printed on vinyl or banner material, they can offer their clients a range of new products. Window lettering is one such product that can yield impressive results, especially given the wide range of colours and textures available in vinyl media.



MOTORSPORT

From small rallies to international racing tournaments, the motorsport industry spans the globe. Vinyl cutters are widely used to create large number decals, decorative stripes and even more intricate designs. They are even used to cut masking film used for more permanent paint jobs. Customised vehicles are even becoming popular outside of the motorsport arena, so this is a market that is only going to grow.

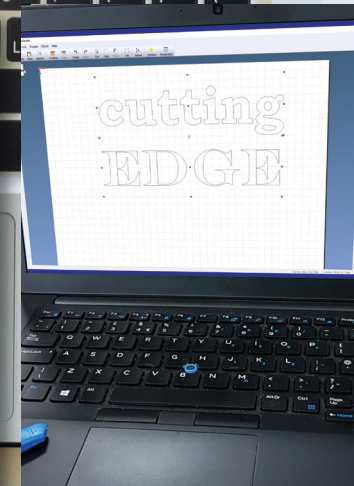
WHAT YOU NEED TO START A CUTTING BUSINESS

We've just shown you a few examples of profitable vinyl cutting markets, but there are countless others. At this stage, you're probably wondering what you need to get started. You'll be happy to know that you don't need a huge warehouse and a team of staff - some of the biggest vinyl cutting businesses started out as a weekend hobby in a spare room.



A CUTTING PLOTTER

This is the machine that cuts the material by moving a small blade along coordinates specified in your artwork. With proper maintenance, these machines will happily make you money for many years and pay for themselves many times over.



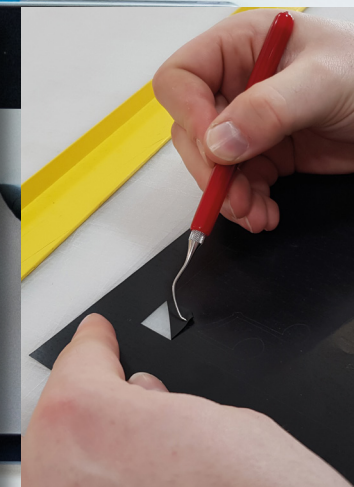
A COMPUTER WITH SOFTWARE

For greater control and accuracy, you'll need to create vector artwork using a design package. Most cutting plotters run using software which reads your artwork and interprets it into instructions for the cutting plotter.



MATERIAL

The material, or media, you use will depend on the application you're using it for and there are hundreds of different colours and types to choose from. From frosted window vinyl to sparkly heat-transfer vinyl, there's a material for every job.



APPLICATION TOOLS

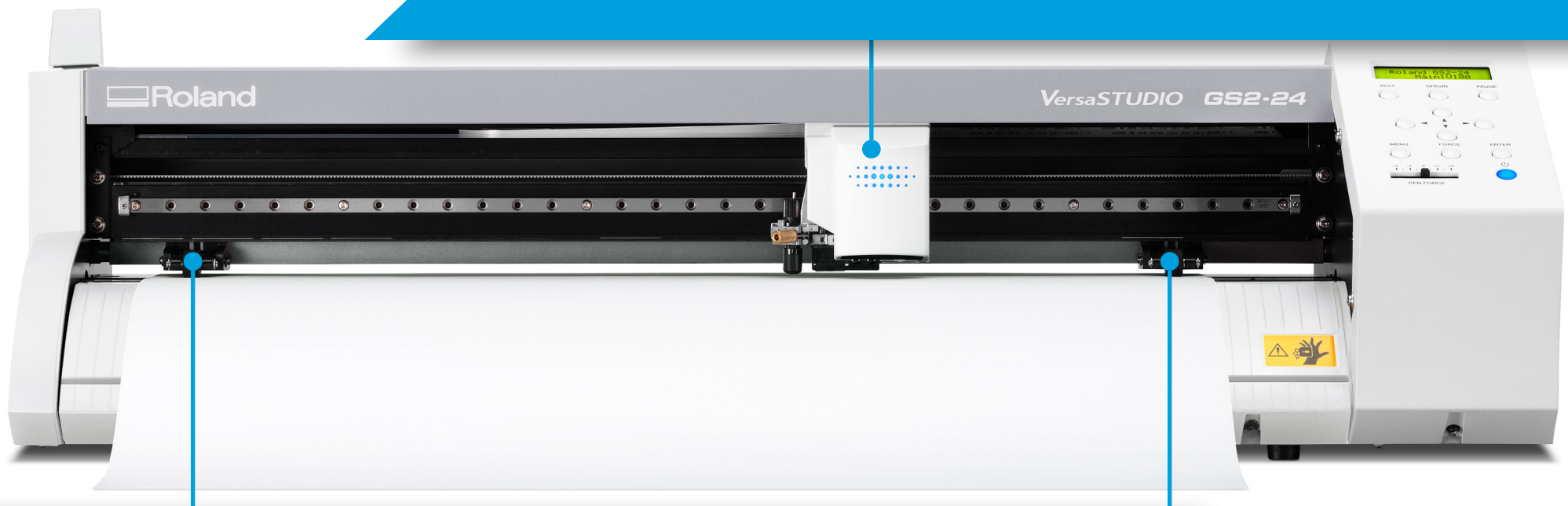
Once your vinyl is cut, you may need to apply it to the surface it's intended for. Whether it's a window or a car door, you'll need a few basic tools to help the application go smoothly, including application tape, a squeegee and a weeding tool.

WHAT IS A CUTTING PLOTTER?

Simply put, a cutting plotter is a device which accurately cuts a sheet of media according to lines mapped out in a digital file. Typically the blade carriage moves left and right, while the vinyl is fed in and out, letting the blade cover every point on the area of the material. A cutter will contain the following basic components.

CUTTING CARRIAGE

The cutting carriage contains the blade inside a removable blade holder. This is moved from left to right using sensitive servo motors, while the blade rotates inside its holder to ensure accurate curves and corners.



PINCH ROLLERS

The pinch rollers hold the media securely and move it backwards and forwards in tandem with the lateral movement of the cutting carriage. This combination of backward/forward, left/right lets you cut any shape you like.

More advanced cutters might also include solenoid-controlled blade-pressure regulators, or LED indicators.

You can find out more at rolanddg.com.au.

TIPS FOR BUYING A CUTTER

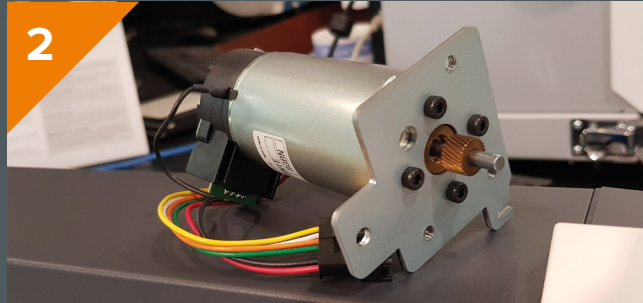
1



THINK ABOUT YOUR BUSINESS

It's easy to get excited about the possibilities of cutting, but if you want to grow a business, you need to think seriously about the kinds of applications you'll be creating on a regular basis. This will determine the kinds of features that will be important to you. For example, if you're using the cutter in conjunction with a separate printer, the ability to detect crop marks is crucial.

2



LOOK FOR SERVO MOTORS

Cutter motors typically come in two varieties - stepper motors and servo motors. Stepper motors are an older, simpler technology and as such they tend to be a lot more affordable. However, they are quite noisy and they can't achieve fine detail on smaller jobs. By spending a little more on a cutter that uses servo motors, you stand a better chance of recouping your investment.

3



INVEST IN THE FUTURE

Just because your jobs are small now, if you're serious about creating a business, you should purchase the widest cutter your space will allow. It's always possible to cut small jobs on a large cutter, but it doesn't work the other way around.

4



LOOK FOR A PRE-FEED FUNCTION

Pre-feeding is an ingenious feature that cuts down on waste and error. Before starting the cut job, the cutter will feed out the required media first, then roll it back in. As it's fed back onto the roll, the cutter will leave subtle grooves in the media which will help ensure the media is loaded properly and assist with accuracy across the entire job.

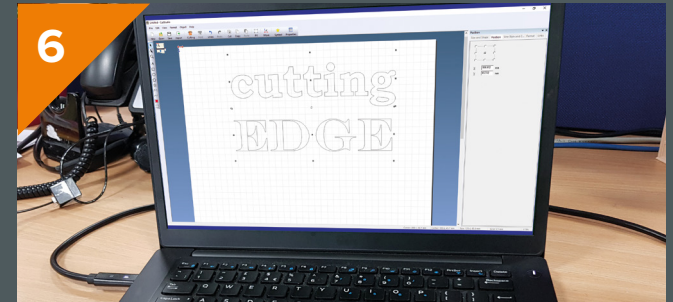
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MAKE SURE YOU'RE COVERED

If you buy the right cutter, you can almost guarantee that it will last several years without any trouble. But if your business relies on the device, a sound warranty gives you that extra peace of mind. Make sure that your manufacturer can offer a comprehensive service package with good response rates to help you minimise downtime.

6



DON'T FORGET THE SOFTWARE

You'll need to ensure that the cutting software is versatile enough to let you create your applications. Look for something that can let you create basic designs and that supports a good range of file formats. Integration with other design packages will also help you increase your capabilities and flexibility.

DESIGN SOFTWARE BASICS

When it comes to vinyl cutters, there's one basic concept you need to understand - vectors. Digital art comes in two forms bitmap and vector. A bitmap is a grid of pixels with fixed dimensions, whereas vector art consists of defined points and coordinates mapped in relation to one another. The key difference between the two is scalability. If you increase the size of a bitmap, you will lose definition in the image and it will appear blocky or pixelated. This isn't an issue with vectors, since the relationship between each point scales along with the increase in size.

What difference does this make with cutting? Well, if you tried to cut a pixelated graphic, it would trace the edge of each pixel leaving you with a jagged image. Using vectors ensures that the cutter follows a definite path, regardless of the size of the final image. It's for this reason that you should use a vector graphics application to create your artwork for cutting.

DESIGN TIPS

Great business starts with great design. Your cutter simply interprets that design, so you can only ask that it interprets it accurately. The real inspiration lies with you.

“GOOD ARTISTS COPY; GREAT ARTISTS STEAL”

One of the secrets to a great business is to keep your eye on your competition. If you don't have one already, create a Pinterest account and immerse yourself in the wider world of graphic design. You never know where inspiration might strike...

WATCH THE TRENDS

It can be tricky to come up with new ideas, but it's even more challenging to find ideas that will sell. Keep an eye on websites like Etsy or Not On the High Street and stay abreast of what's hot.

EXPERIMENT WITH FONTS

Try out different fonts when you're creating lettering. You may find that some are easier to cut and weed than others. For example, a thick stencil font will be easier to work with than a fine cursive font.

KEEP LEARNING

Popular graphic design software packages hold all kinds of secrets that can help you create excellent artwork faster. Luckily there are lots of resources out there to help you take your business further. You can find YouTube videos dealing with specific functions or take a more formal course to get a good overview of the possibilities.

MATERIAL

Whatever you dream of creating, there's a material out there that can help you. You can find vinyl in a range of colours and finishes ideal for any job.

Regardless of what you chose to buy, it's important to take proper care of the vinyl and store it in an appropriate location. At the very least, you should have a vinyl cupboard that is dry, free from dust and not too cold.

Here are just a few examples of the materials that are available and the applications they're used for.

COLOURED VINYL

From signs to vehicle decals, coloured vinyl is incredibly versatile. You add interesting highlights to an everyday vehicle with white or black vinyl, or layer several different colours of vinyl for a broad spectrum of effects.



INFLATABLE HTV

This special heat transfer material lets you create a chunky, textured effect. It works the same as typical HTV (heat transfer vinyl) until it's heated, which causes it to expand and puff out to a 3D shape.



REFLECTIVE VINYL

This is a great example of how the simple addition of a new type of vinyl can expand your market considerably. With reflective vinyl, you can create branded high-vis apparel for construction companies.



CARBON FIBRE

With the right choice of media, you can reinforce the brand beyond the content of the design, like Renault F1® Team did at their technical centre in Enstone.



APPLICATION TOOLS

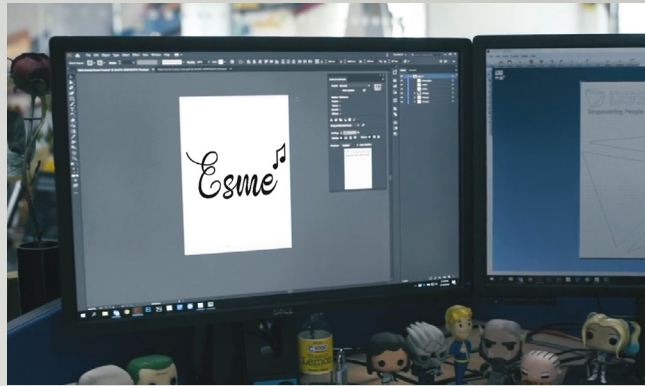
Once you've made your design and cut it, the final piece of the puzzle remains - you need to apply it. For most applications, the process is straightforward. First, you weed off the excess material, i.e. the parts you don't want to include in the design. Then you should transfer the design using application tape. You can think of this as a large sheet of masking tape which lifts the vinyl from the backing paper without permanently adhering to the tape. Using a firm plastic tool know as a squeegee, you can then fix the vinyl to its final location.

- 1 Craft knife
- 2 Magnets
- 3 Lint free gloves
- 4 Squeegee
- 5 Masking tape
- 6 Weeding tool
- 7 Fine point tweezers
- 8 Cutting board
- 9 Straight edge



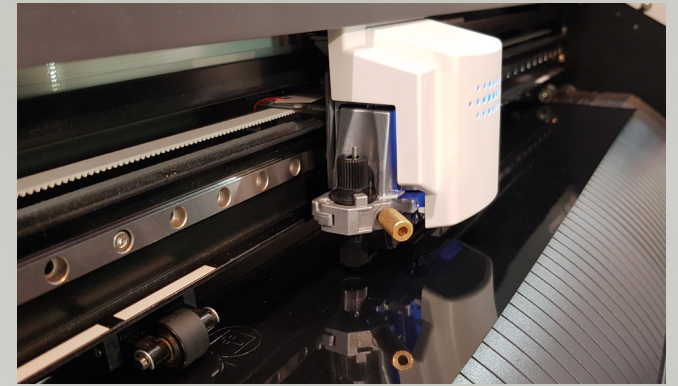
CREATING A CUSTOM SWEATER

Some applications require additional steps, which is why we will take you step-by-step through the process of one of the more labour-intensive applications - applying a heat transfer vinyl to a sweater.



STEP ONE

Create your vector artwork using your software package of choice.



STEP TWO

Cut your vinyl - for heat transfer material, you would typically cut a mirror image of your design.



STEP THREE

Using a weeding tool, carefully remove the excess material leaving your design on the backing sheet.



STEP FOUR

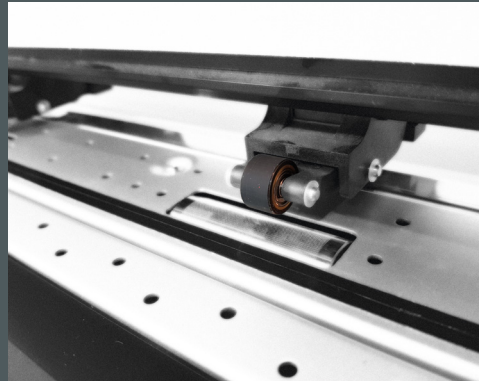
Adhere the vinyl to the fabric using a heat press. Timings and temperatures will depend on the vinyl you have used.

CUTTER MAINTENANCE TIPS

If you take care of your cutter, it should comfortably stand the test of time. Since they are relatively simple devices, maintaining them isn't difficult and won't require a degree in mechanical engineering. There are just a few things you should look out for:

PINCH ROLLER DEGRADATION

If your pinch rollers wear down, this could make the cutter feed the vinyl unevenly across its width, which will affect the accuracy of your cuts.



HOLDER BEARINGS

Your blade should be free to swivel within its holder. If bearing degradation prevents this, the blade could move along the vinyl at an angle, resulting in ragged, uneven cuts.



CUTTING PAD WEAR

After a lot of use, your cutting pad may become etched by the blade. If the blade gets caught in the groove, it can throw it off course or prevent it from cutting cleanly.

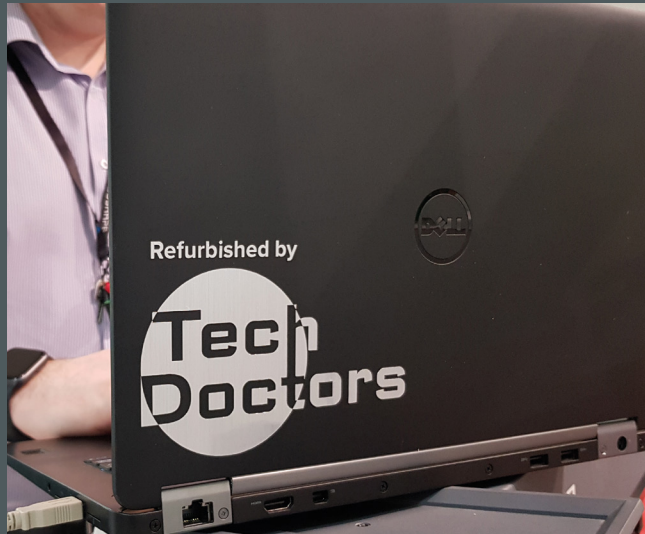


BLADE WEAR

You should replace your blade if it becomes blunt or worn, otherwise it won't cut the vinyl cleanly and you'll end up with poor results.

WHAT CAN YOU SELL?

Now that you know how easy it is to get started with vinyl cutting, you're probably dreaming up all of the products you could start creating. In the following, we'll show you just a few of the profitable applications that are possible with a cutting plotter.



STICKERS/LABELS



DECALS



STENCILS



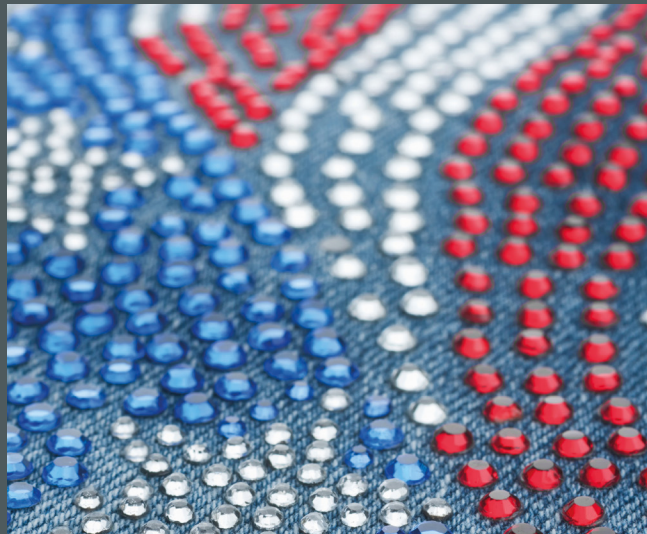
SIGNAGE & WAYFINDING



VEHICLE GRAPHICS



CUSTOM CLOTHING/T SHIRTS



RHINESTONES



CLOTHING PATTERNS



WINDOW GRAPHICS/LETTERING



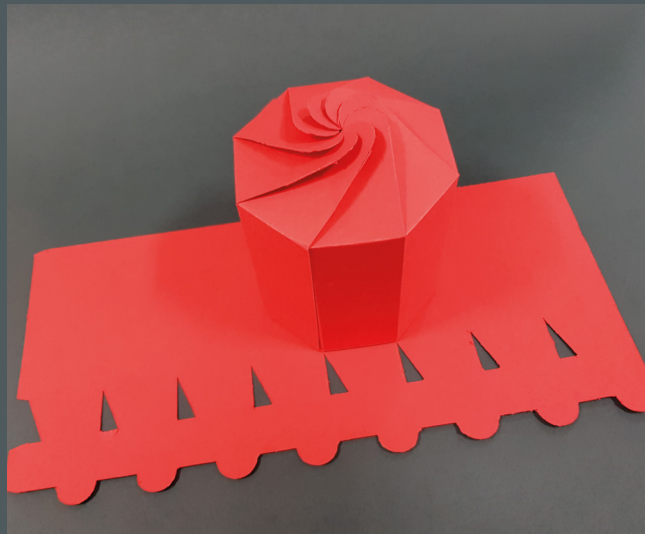
PRIVACY/SECURITY FILM



FLOOR GRAPHICS



WALL ART



PACKAGING PROTOTYPES



SCREEN PROTECTORS



ARCHITECTURAL MODELS



CRAFT & HOBBIES

LOOKING FOR MORE?

If you'd like to know what else is possible with a cutting plotter, visit our website for more information.

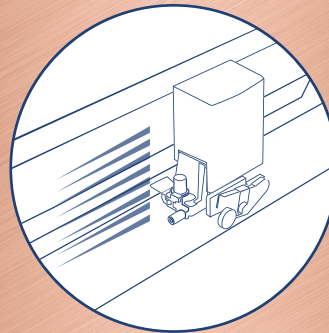
www.rolanddg.com.au

SIGNS YOU NEED A NEW CUTTER

You can take a desktop vinyl cutter a long way, whether you're making custom t-shirts or window lettering. Somewhere on your journey, you'll get to a point where you need to upgrade and invest in your business.

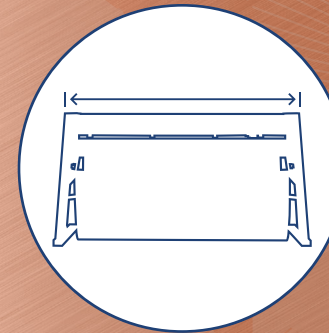
But you don't want to buy a new cutter for the sake of it - you have to know if it's something you need. So how can you tell when it's time to upgrade?

The following indicators should let you know if you need to purchase something with more capabilities.



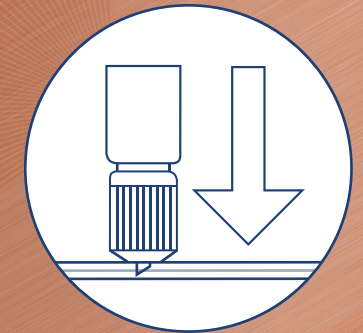
NOT FAST ENOUGH

Once your vinyl cutting venture takes off, you might find yourself struggling to keep up with an increased number of orders. If that happens, it might be time to look for something with a faster cutting speed.



NOT WIDE ENOUGH

If you find yourself saying no to customers who want to create larger graphics like shop windows or large vehicle decals, you'll probably need a wider cutter. This also means that you're not restricted by the available size of the media.



NOT ENOUGH CUTTING FORCE

With such a wide variety of media available, you could be tempted to experiment with different applications. If your cutter just can't manage thicker media, your ambitions could be cut short.

TESTIMONIALS

Hear what these successful businesses have to say about their Roland DG Vinyl Cutters.

“When I first started with a cutter, I had no idea that I was creating a print business...”

*Alex Liggett,
The Vinyl Guys*



“I used the Roland cutter for vinyl graphics to decorate my daughter's bedroom with personalised wall stickers. Friends and family saw these and encouraged me to sell them online...”

*Adele MacKinnon,
Nutmeg Studio*

“I had a strong vision for my business. The Roland cutter brought that vision to life far more easily than I expected.”

*Dipe Rajani,
Sonality.co.uk*



“We don't have downtime here. It's not an option.”

*Joe McNamara,
Renault F1® Team*

GUIDE TO ROLAND DG CUTTERS

If you're serious about building a vinyl cutting business, you'll need effective and reliable hardware that can keep up with your customers' demands.

At Roland DG, our cutters are renowned throughout the industry for speed, accuracy and a robust design that keeps them going even with high production levels. With a 12-month warranty and software included, Roland DG offer more than just a device.

In the following, you'll find out about the range of cutting plotters offered by Roland DG for everyone from hobbyists to professional print service providers.





GS2-24

The GS2-24 is your entry point to professional cutting. The choice of businesses throughout a wide gamut of industries, this cutter boasts 584 mm of cutting width, and a range of 30-500 gf, letting you create vehicle graphics, signs, stickers and much more. With advanced features like perforation cutting and crop mark registration, the GS2-24 is the next step for your cutting venture.

PERFECT FOR

- Garment decoration
- Window and wall graphics



GR2-640 / 540

The CAMM-1 GR2-640 and GR2-540 are an ideal balance between affordable pricing and superior cutting performance, and are designed to integrate seamlessly with large format inkjet printers. With a maximum cutting speed of 1,530 mm/s, a maximum downforce of 600 gf and smooth media feeding, the GR2 Series achieves the precision cutting quality and high-volume productivity required by professional users.

PERFECT FOR

- Print-then-cut applications
- large vehicle graphics

FIND OUT MORE



WARRANTY

Built to provide years of reliable service – even in the most demanding production environments – all Roland cutters come with a 1 Year warranty. Roland DG has earned a reputation for long-lasting, high-performance devices, backed by first-rate customer service. This support includes expert technical assistance, videos and free Roland DG software updates for the lifetime of the machine. Roland DG's international ISO certifications are your assurance of quality products and service.

CUTTING THROUGH THE JARGON

BACKING SHEET

Media like self-adhesive vinyl (SAV) is usually attached to a backing sheet which is removed prior to installation.

BITMAP IMAGE

A bitmap image is made from a grid of coloured pixels. This type of image cannot be enlarged without losing definition.

BLADE EXTENSION

Distance the blade protrudes from the blade nosecone. Blades should not be extended more than necessary depending on the application.

BLADE OFFSET

Distance from the centre of the blade to the point of the blade. The offset determines the blade's turning radius and how it compensates for distance while turning corners.

CROP MARKS (REGISTRATION MARKS)

If you're using the cutter in tandem with a printer, crop marks are used to help the cutter align the origin of the cut job so that the blade follows the path of the printed image.

CUTTING STRIP

This protective strip runs the width of the cutter and sits underneath the blade. A well-maintained cutting strip is essential for creating straight and true cuts.

FLOCK

This is a special type of heat transfer media which has a fabric-like texture.

HEAT TRANSFER VINYL (HTV)

This type of vinyl is typically used for garment decoration. Once cut, it is fixed to the fabric using a heat press.

KISS CUT

When the cut made by the machine only cuts through the top layer without cutting the backing sheet.

PINCH WHEELS

These components are used to move the vinyl in and out of the cutter.

PERFORATED CUT

Roland cutters come with a perforated cut, or 'perf cut', option, which lets the blade

cut through the vinyl, the adhesive and the backing sheet, creating a die-cut effect.

PREFEED

This functionality initially feeds the media the full length of the job prior to cutting allowing for better tracking and accuracy.

TANGENTIAL EMULATION

Tangential emulation intelligently orients blade direction — without the blade leaving the face of the media. So angled cuts are more precise, and intricate graphics in thick media are neat and easy to weed.

TRACKING

Tracking refers to the device's ability to cut a straight line along the length of the vinyl.

VECTOR IMAGE

A vector image consists of points and lines defined in relation to one another. This means that the artwork can be scaled to any size without loss of definition.

ACKNOWLEDGEMENTS



THE VINYL GUYS

Alex Liggett of the Vinyl Guys started out using a simple cutter to make decals for a race car project and has since built a full-service print company.

www.thevinylguys.co.uk/



NUTMEG STUDIO

Adele MacKinnon used her wedding gift money to purchase a GR-640 cutter and now creates cut-vinyl transfers for wall art and window lettering for businesses among other things.

nutmegwallartstickers.co.uk/



SONALITY

Dipe Rajani invested in a GS-24 cutter to found Sonality - a custom kids clothing brand. The cutter now acts an integral step in a blossoming B2C eCommerce business.

www.sonality.co.uk/



RENAULT F1® TEAM

In the competitive world of motorsport, there is no margin for error. Joe McNamara, head of graphics for Renault F1 Team, insists on Roland's GR-640 for any cutting applications.

www.renaultsport.com/