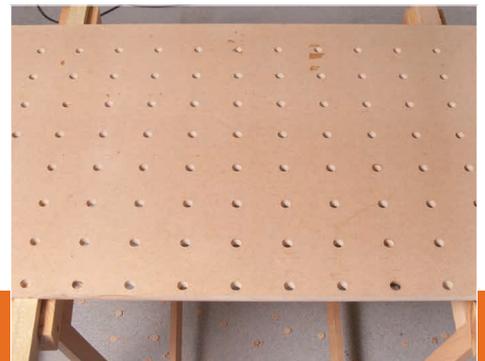
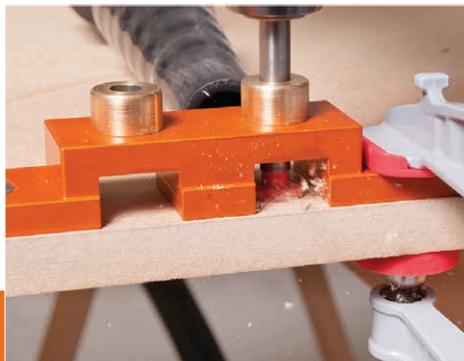
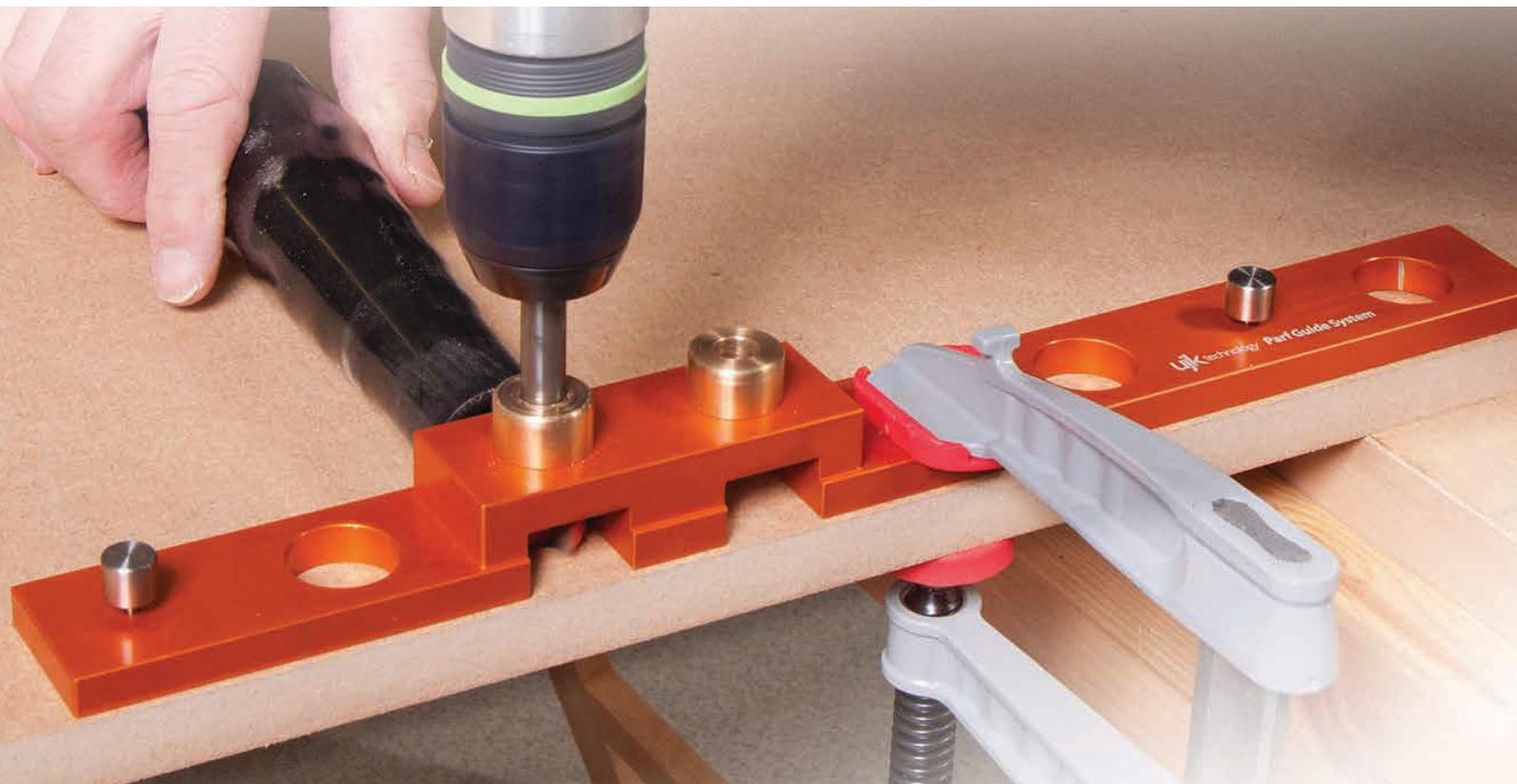




Code 102278

# UJK Parf Guide System



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## Introduction

The UJK Parf Guide System (PGS) has been designed by Peter Parfitt and developed jointly with Axminster Tools & Machinery Ltd who now manufacture the system under the UJK brand name.

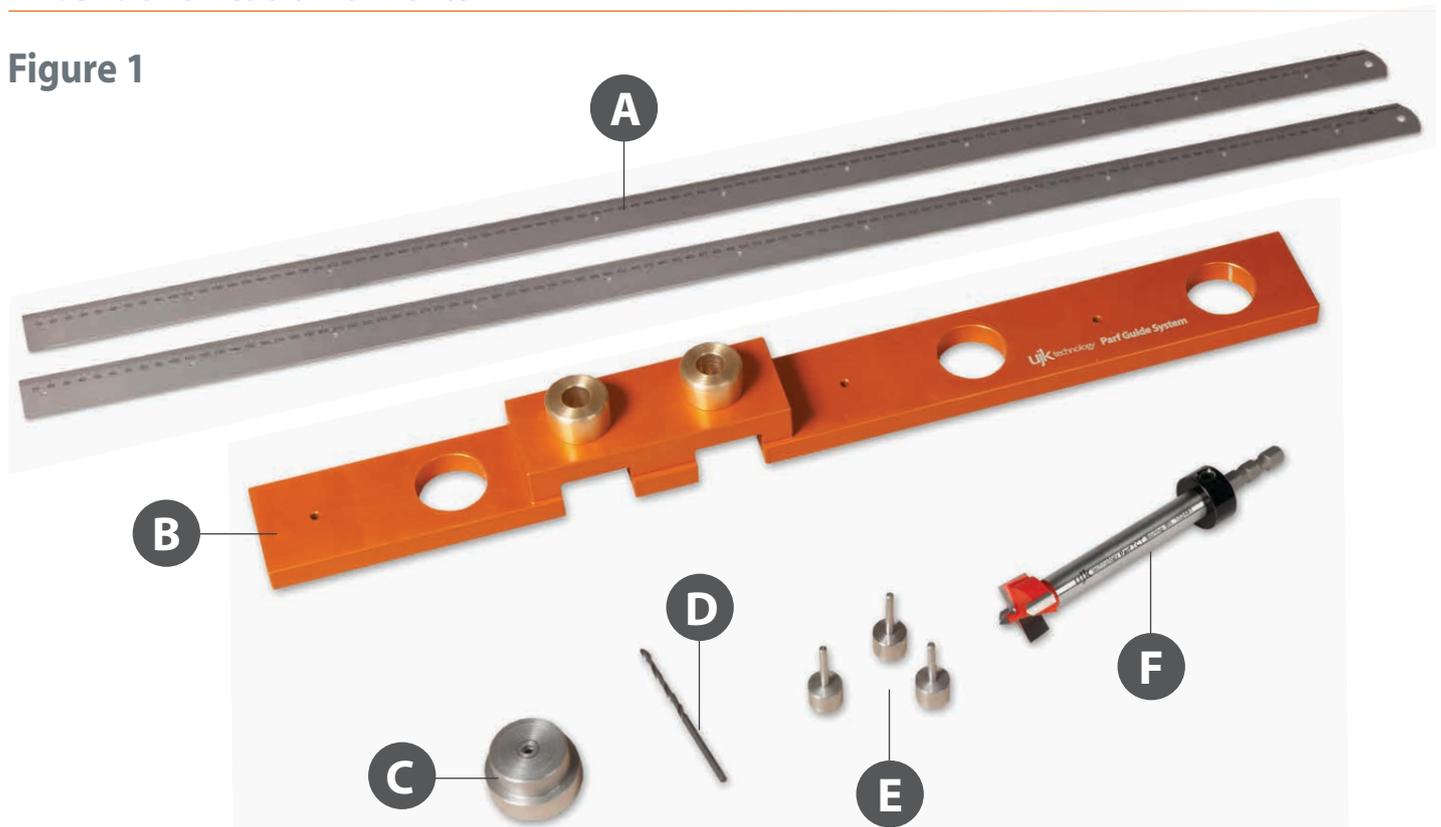
The PGS provides a highly accurate, yet quick and easy method of laying out a pattern of 20mm holes in a bench top or the surface of a track saw cutting station. With an accurate pattern

of 20mm holes and a set of Veritas Parf Dogs you will be able to make perfect right angle or 45 degree cuts with a guide rail and track saw. The PGS provides a quick and easy way to make an impromptu track saw cutting station in under 30 minutes, making it an invaluable tool to take to a job site.

With the PGS you will be able to make as many custom bench tops or portable cutting boards as your imagination allows.

## PGS Identification of Parts

Figure 1



PGS Components

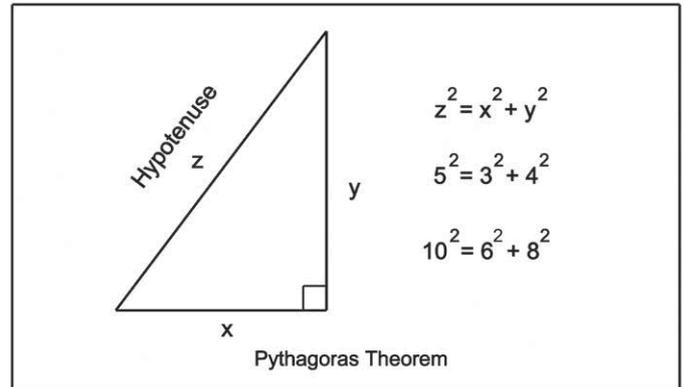
<b>A</b>	2 x	Parf Sticks, 1m long with ruler graduations and a series of 3mm holes along the length at 96 mm centres
<b>B</b>	1 x	Guide Block to locate and guide the supplied 20mm drill
<b>C</b>	1 x	3mm Drill Guide for 3mm drilling
<b>D</b>	1 x	3mm drill
<b>E</b>	3 x	Guide Pins 3mm in diameter
<b>F</b>	1 x	Special D/G 20mm TCT drill with hex shank cutter and 3mm centre guide. Supplied with stop collar to aid in drilling multiple holes

- The PGS concept is based on the Pythagoras Theorem - for any right angled triangle the square of the hypotenuse is equal to the sum of the squares of the other two sides. Woodworkers have been using this knowledge for millennia. The particularly useful special case for this theorem is when the length of the sides are 3 and 4 units then the hypotenuse is 5 units long.

- The relationship still holds true if those lengths are doubled so that the sides are 6 and 8 units and the hypotenuse is 10. These are the values used with the PGS and one unit equals 96mm.

- Using just 2 Parf Sticks it is possible to create a series of accurately placed 3mm holes with the rows at right angles to the columns. Then, using the Guide Block, the 3mm holes can be enlarged, again very accurately, to produce the final pattern of 20mm holes.

Figure 2



### Initial Pattern of 3mm Holes - Basic Triangle Method

**Please Note: The 3mm Guide Pins are designed to be a very tight fit in the ruler and may initially be difficult to fit. Carrying out Step 1 will ensure that the pins fit the ruler accurately.**

**Step 1 (Figure 3)**

- Place one of the Parf Sticks close to the edge of a bench or a rectangle of MDF and clamp securely in place. Using the 3mm Drill Guide, drill a 3mm hole in each of the end holes and place a 3mm Guide Pin through these 2 holes to ensure that there is no possibility of the Parf Stick moving. Now, using the 3mm Drill Guide, drill 3mm holes through the remaining 9 holes in the secured Parf Stick. You now have a straight row of 11 holes, 3mm in diameter and 96 mm apart. The 3 mm Pins are designed to be a very close fit in the Parf Sticks and the 20 mm Guide Block. If you experience any difficulty inserting the Pins then use a twisting motion and try to keep the Pin in line with the hole. A small drop of oil may help. Once through this stage you will find that each of these components make a large contribution to the overall accuracy of the PGS.

Figure 3

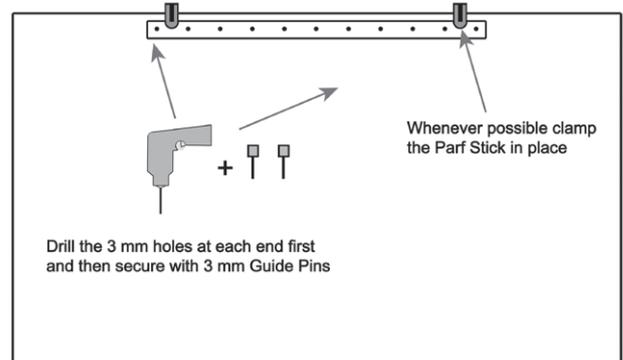
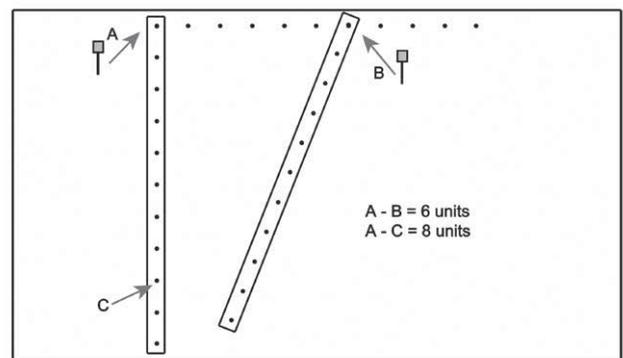


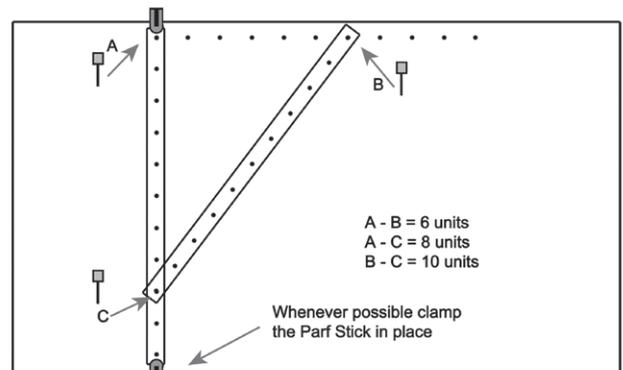
Figure 4



**Step 2 (Figure 4)**

Remove the clamps and the right hand Guide Pin from the Parf Stick and rotate it, about the other Guide Pin (Point A) so that it is approximately at right angles to the line of holes drilled in Step 1. Next identify the 3mm hole which is 6 units from the pivoted end of this first Parf Stick (Point B). Take the second Parf Stick and insert a 3mm Guide Pin through its end hole and also into the hole at Point B. Now identify the hole in the first Parf Stick which is 8 units from Point A, which is shown in Figure 4 as Point C.

Figure 5



**Step 3 (Figure 5)**

The right angled triangle can now be formed from the initial line of drilled holes (A-B), the first Parf Stick (A-C) and the second Parf Stick (B-C). The left hand Parf Stick should be flat on the worktop and underneath the second Parf Stick that forms the hypotenuse. Carefully adjust the positions of the two Parf sticks until the hole in the left hand Parf Stick, at point C (8 units below point A), is exactly lined up with the end hole (10 units from Point B). Use a 3mm Guide Pin to assist with this lining up.

## Initial Pattern of 3mm Holes - Basic Triangle Method

Once the two Parf Sticks are exactly lined up as described, clamp the left hand Parf Stick at both ends. If you are unable to get a clamp at the lower end of this Parf Stick then ensure that the first hole drilled in Step 4, below, is done with the greatest of care so as not to disturb the alignment of the two Parf Sticks.

### Step 4 (Figure 6)

With the two Parf Sticks exactly lined up as described above, drill the 3mm hole through the end hole of the left hand Parf Stick using the 3mm Drill Guide. Insert a 3mm Guide Pin in this hole and verify that the two Parf Sticks are exactly lined up.

Move the right hand (hypotenuse) Parf Stick to one side and continue to drill the remaining 3mm holes along the length of the first Parf Stick using the 3mm Drill Guide.

### Step 5 (Figure 7)

You now have your first column of holes, the accuracy of which will dictate the final accuracy of your work. We now repeat Steps 2 to 4 but as a mirror image starting with the right hand hole at Point D and creating a triangle D-E-F where the line D-E is at right angles to the line D-F.

Drill the second column of 3mm holes, using the 3mm Guide Block, as before.

### Step 6 (Figure 8)

It is important to check the accuracy of the work so far. You should have already checked the lining up of the Parf Sticks used to create the two vertical columns. Now, using one of the Parf Sticks, check that the distance between the corresponding holes of the vertical columns is exactly 6 units.

Also check that the triangles formed from the bottom row and the left and right columns are accurate. The triangles P-Q-R and X-Y-Z should be perfect right angled triangles.

### Step 7 (Figure 9)

Position a Parf Stick, so that it can be used to drill the holes in each successive row below the existing top row. Use a pair of 3mm Guide Pins to accurately locate the Parf Stick, then clamp it in place, before drilling using the 3mm Drill Guide. If you are unable to clamp the Parf Stick in place at both ends then take the greatest of care and start with a hole close to the middle and put a third 3mm Guide Pin through it for extra security. Make sure that the Guide Pins are pushed fully through to help fix the Parf Stick in place.

Figure 6

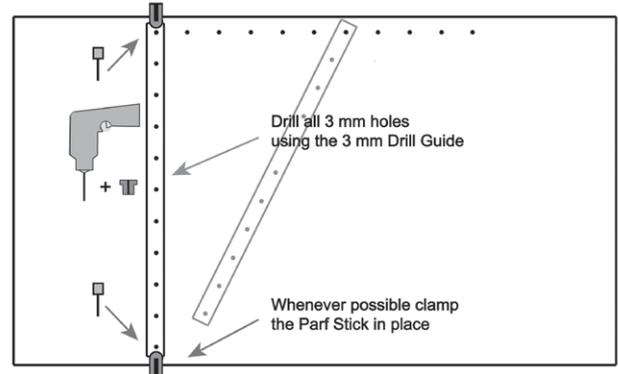


Figure 7

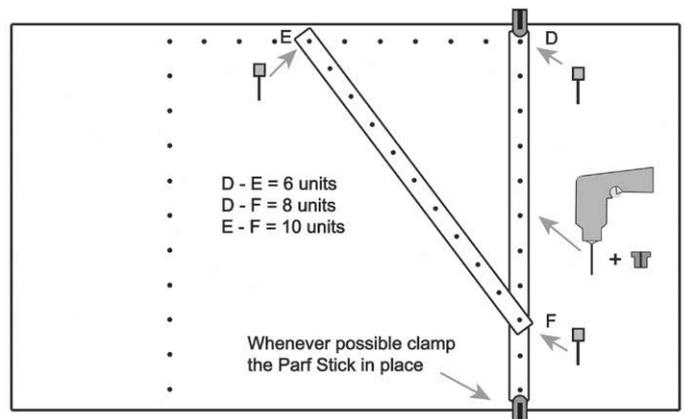


Figure 8

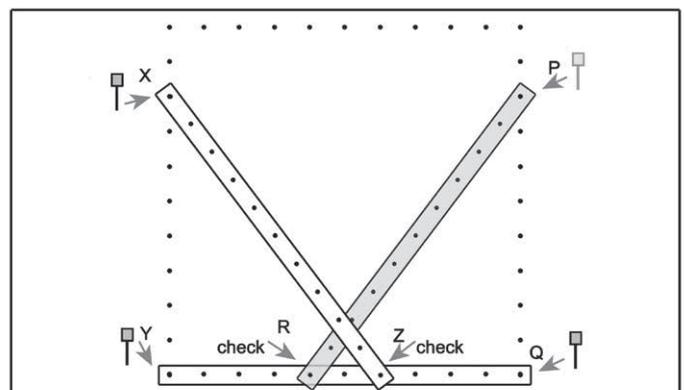
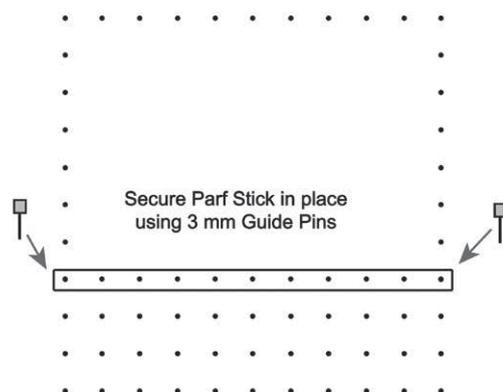


Figure 9



## Horizontal Method (Figure 10)

After completing Step 1 above it is possible to extend the pattern of holes to the left, right or on both sides. Remove the 3mm Guide Pins holding the Parf Stick in position for Step 1 and move the Parf Stick to the right or left as required. Then use 3 of the 3mm Guide Pins to align the Parf Stick with the holes drilled so far so that it is accurately positioned to extend the line of holes. Again, clamp the Parf Stick in place once it is precisely located. Drill the remaining 3mm holes using the 3mm Drill Guide as before.

This method can be used to extend the pattern of holes by a further 4 holes on each side of the original 11 holes.

## Bottom Row Triangle Method (Figure 11)

It is often easier to complete the layout of holes using the Vertical Method outlined below as it is likely to provide better clamping options for the Parf Stick. In order to use this method a bottom row is required. In the simplest case that bottom row was created in Step 7 along with the other rows.

However, if you have extended the width of your top row, as described above, you will need an accurate method to create a bottom row so that the Vertical Method can be used to complete the pattern of holes.

For the right hand side, position the Parf Sticks as shown and secured with 3mm Guide Pins at G and H. Use a third 3mm Guide Pin, at Point J, to accurately align the Parf Sticks creating a right angled triangle, G-H-J. Carefully clamp the bottom Parf Stick in place, checking the alignment at J, then drill the holes using the 3mm Drill Guide.

Repeat the process for the left hand side. As all 3 Guide Pins will be used to set up the two Parf Sticks, use a 3mm drill or a short piece of 3mm rod to improve alignment across the bottom row as shown in Figure 11.

## Vertical Method (Figure 12)

Use the methods described above to create the top row followed by the left and right columns of holes. The bottom row of holes is created last.

It is now possible to use a Parf Stick, secured vertically using 3mm Guide Pins and the top and bottom rows of holes, to drill the remaining 3mm holes.

Choose either the Horizontal Method or Vertical Method whichever provides the better clamping options. If you have extended the row to the left, right or in both directions you will need to create a bottom row using the Triangle Method described below.

Figure 10

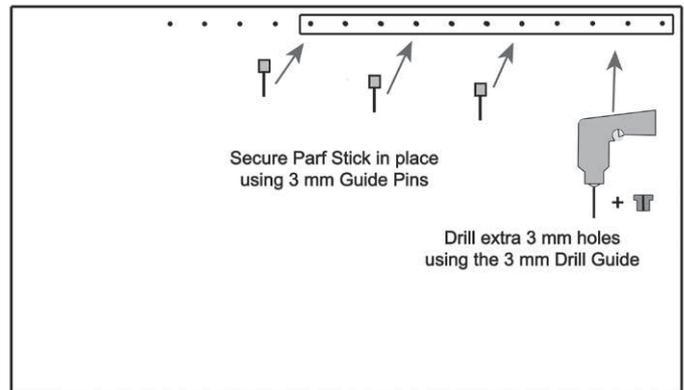


Figure 11

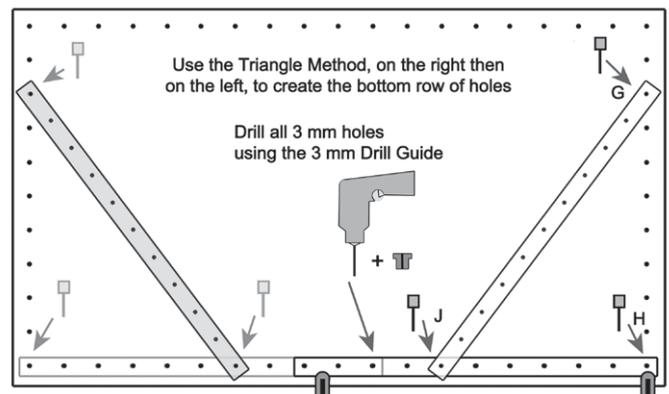
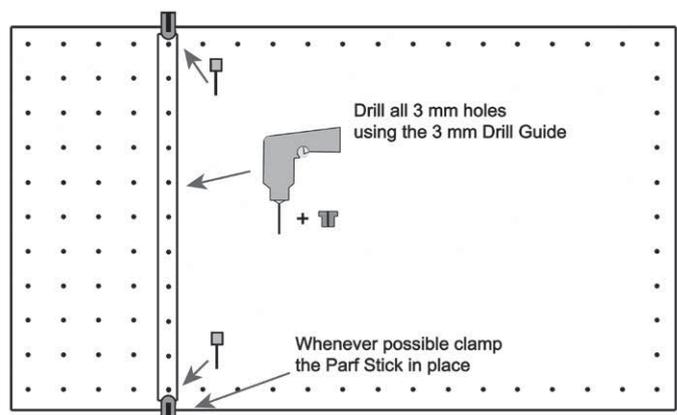


Figure 12



## Drilling the 20mm Holes

### General

The 20mm holes are created using the Guide Block, the special 20mm drill bit and the 3mm Guide Pins. After a number of holes have been enlarged it will also be necessary to use the Veritas small Parf Dogs instead of the 3mm Guide Pins. The leading spike on the 20mm drill helps to keep it running true through the 3mm pilot holes.

It may not be necessary to enlarge all of the 3mm holes and it is worth thinking about the minimum number required to create your bench top or track saw cutting station. This is described later.

### Method using the 3mm Guide Pins (Figure 13 upper diagram)

Place the 20mm drill bit in the Guide Block and attach your drill to the bit. Identify the 3mm hole that you wish to enlarge and move the Guide Block such that the sharp end of the 20mm drill is just at the opening of the hole.

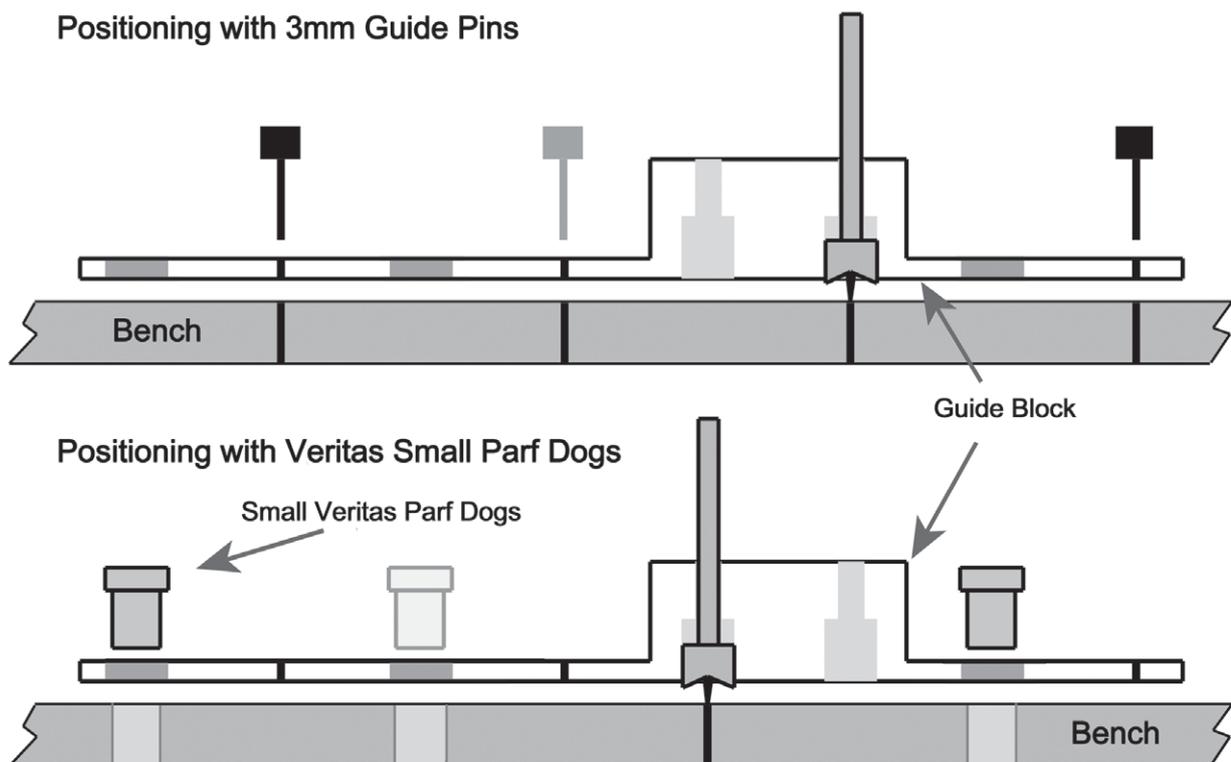
Whenever possible it is a good idea to clamp the Guide Block in place. If you have a drill with a removable chuck, a feature of most Festool drills, you will find this process easier.

**NOTE: When making multiple cuts we recommend occasionally smear a light coat of 2-1 oil on the 20mm TCT drill bit shaft to prevent overheating.**

**NOTE: The 20mm TCT drill cutter is supplied with a stop collar to aid in drilling multiple holes.**

Use at least 2 of the 3mm Guide Pins to accurately locate the Guide Block and, if possible, secure the block with a clamp. Drill the 20mm hole keeping the Guide Block flat against the work surface throughout the drilling process.

Figure 13



### Method using the Veritas Small Parf Dogs (Figure 13 lower diagram)

Once a number of 3mm holes have been enlarged there will be places where it will not be possible to use the 3mm Guide Pins for alignment of the Guide Block. Instead use the Veritas Small Parf Dogs, as shown in the lower part of the diagram, to align the Guide Block.

## General

- Always clamp Parf Sticks or the Guide Block in place whenever possible
- Take your time as a few extra minutes checking alignment will give long term benefit
- If you are unhappy with the location of a hole then either mark it so it is not used for any further part in the process or start again
- When using the Veritas Parf Dogs always secure them from beneath your bench top.

## Making a Track Saw Cutting Station (Figure 14)

A track saw cutting station does not require very many 20mm holes but if all the 3mm holes created in the first part of the process are converted to 20mm holes it is impossible to add additional holes accurately at a later stage. Therefore it is a good idea to design your layout so that there are sufficient 3mm holes left to allow the Parf Sticks to be deployed to create additional rows or columns when required. There are also some 3mm holes required to complete the Triangular Methods which do not subsequently need to be converted to 20mm holes.

In Figure 14 a pattern of 3mm holes has been created with just one complete row at the top. The 2nd and 3rd rows are partially completed to suit the position (in row 2) of the 20mm hole pattern. There are just 3 columns, partial ones on each side and a complete one in the line where the Veritas Parf Dogs will be used.

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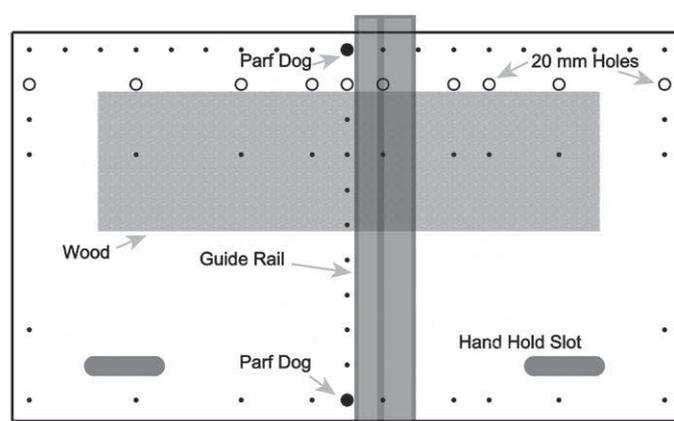
Create the top row of 3mm holes, extending this to the left and right if required. Then use the Triangle Method to create the left and right columns which have a total of 6 holes each. Then

## Making a Custom Bench Top

A pattern of regularly spaced holes across a bench top can provide an endless number of clamping options, make jig setup simpler as well as making it possible to take full advantage of bench dogs, especially the Veritas Parf Dogs.

If there is an existing pattern of holes that may suit your needs best then it is easy to replicate it using the UJK Parf Guide

Figure 14

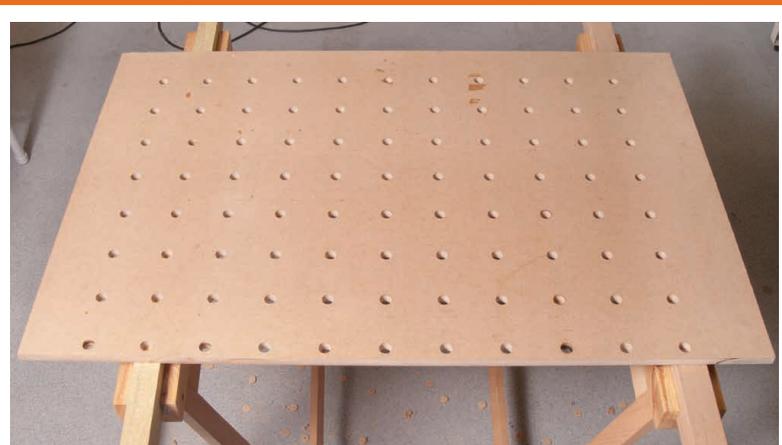
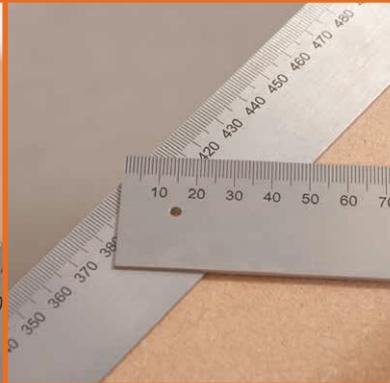


use the Bottom Row Triangle Method to create the bottom row consisting of 10 holes. Now add the full column of holes in the middle followed by the partially completed columns on either side. Finally use the Guide Block to drill out the 20mm holes. It is used horizontally (along a row) to create the two holes where the Veritas Parf Dogs will go. It is used vertically (in line with a column) to create the remaining holes.

Once the pattern of 20mm holes is complete you might decide to cut a pair of handle hold slots to make it easier to move around the workshop or in and out of a van.

System. Just work out your best approach to laying out and creating the pattern you need.

When getting everything symmetrical, both for the rows and the columns, decide whether you want a 20mm hole or the mid point between a pair of 20mm holes at the centre of a side of the new top.



The UJK technology brand was launched by us in 2012 with the intention of encompassing a range of carefully selected products that we held in particular high esteem. Many of these products are designed by us and are manufactured by one of our most trusted suppliers. The range includes routing, measuring and wood jointing products and has already proven to be extremely popular. We are continually striving to develop and increase this range of quality, innovative products, so watch out for some even greater UJK technology designs and ideas.

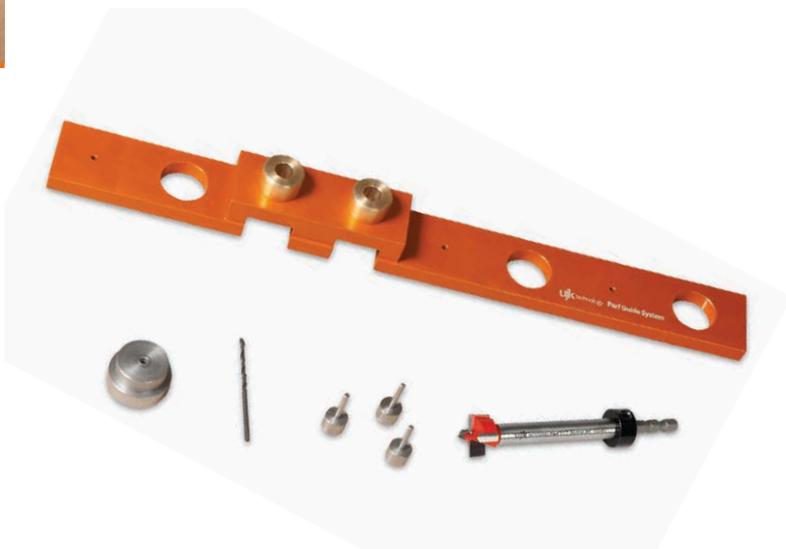


Please dispose of packaging for the product in a responsible manner. It is suitable for recycling. Help to protect the environment, take the packaging to the local recycling centre and place into the appropriate recycling bin.

#### Only for EU countries



Do not dispose of electric tools together with household waste material. In observance of European Directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.



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