Joint Solutions – Mortise and tenon variants

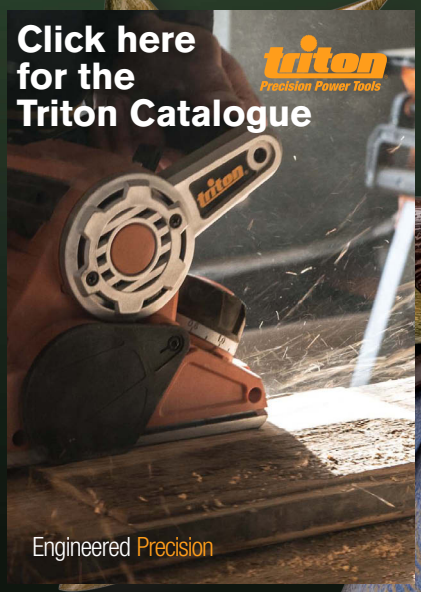
100th ISSUE!

WOODWORKING Plans & Projects

The UK's essential workshop proje manual Issue 100 M mber 2014

Make and paint intarsia

A more colourful scrollsaw project



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AD/14/21

100th issue!

Hello Everyone and welcome to the 100th issue of *Woodworking Plans & Projects*!

Yes, we made it, one hundred issues of the magazine and I'm pleased to say I've been with it all the way, from the very beginning with issue 1 as technical editor and then in the 'hot seat' as Editor starting with issue 67. It's been an interesting journey and as always in the world of magazines, things keep evolving.

One of the changes over that time has been a shift towards digital publishing and I have met a number of readers who download the magazine on to their tablets, to avoid having shelves groaning under the weight of paper magazines.

Another trend has been a move, no doubt spurred on by the last recession – which has thankfully now passed – towards reuse, i.e. recycling and upcycling and people's generally greater consciousness about the state of the environment. This also chimes with a better appreciation of the values of craftsmanship and working with hand tools, relearning older time-honoured skills and enjoying working with wood, rather than always putting on ear defenders and gritting one's teeth as you switch on a power tool or machine.

When we do use power tools and machinery there are now better means than ever of protecting ourselves. There is ambient air filtration and now there are power tools that capture their own dust and also have reduced vibration effects.

In short, since *Woodworking Plans & Projects* started in May 2007, there have been real changes taking place and I think all for the better. I enjoy what I'm doing, whether it's doing DIY at home or busy in the GMC workshop creating articles for the next magazine issue. If I didn't enjoy it I shouldn't be doing the job, but thankfully both the subject – working with wood – and you, our very enthusiastic readership, keeps me as keen as ever to do a good job as Editor.

Recently, I was chatting to a chap at a woodworking show who described *Woodworking Plans & Projects* as 'fun'. Yes, that's how I'd like it to be known, fun.

So let's have fun, everyone!

Our first issue was released back in May 2007. How far we've come since then!

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com

Editor Anthony Bailey Email: anthonyb@thegmcgroup.com
Deputy Editors Tegan Foley & Briony Darnley
Designer Jan Morgan
Senior Editorial Administrator Karen Scott
Illustrator Simon Rodway (www.linemine.com)
Chief Photographer Anthony Bailey
Group Editor, Woodworking Mark Baker
Production Manager Jim Bulley
Production Controllers Clare Disano and Rebecca Braisby
Email: repro@thegmcgroup.com
Publisher Jonathan Grogan
Advertising Sales Executive Russell Higgins
Email: russellh@thegmcgroup.com

Circulation Manager Tony Loveridge
Marketing Anne Guillot
Subscriptions Helen Chrystie
Tel: 01273 402 873 Fax: 01273 478 606
Email: helenc@thegmcgroup.com
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This month in Woodworking Plans & Projects

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KIT & TOOLS

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Woodwork on the web
To find more great projects, tests and techniques like these, visit our fantastic website at: www.woodworkersinstitute.com

REGULARS

Noticeboard

All the latest events and news from the world of woodworking...

PHOTOGRAPHS COURTESY OF RSPB IMAGES/ELEANOR BENTALL

Wild-crafting with the RSPB – garden crafting for winter/spring

The RSPB – Europe's largest wildlife conservation organisation – has long urged UK householders to better connect with nature. As part of its garden-focused 'Giving Nature a Home' campaign, the RSPB is organising a number of family-orientated activities and events over the next few months, all of which are designed to get people involved in crafting events across the RSPB's 200 plus UK reserves. For more information, see www.rspb.org.uk/events.

Woodland Foray, RSPB Arne Nature Reserve, Wareham, Dorset

When: Sunday 2 November, 2014 – 11am-2pm
Price: RSPB members – £6; non-members – £10; under 16s – £2
Tel: 01929 553 360 – booking essential

Join the RSPB woodland team and Michael Jordan from TV's *Mushroom Magic* and founder of the Association of British Fungal Groups on a walk around the woodland trails at the scenic RSPB Arne reserve to learn about the many species of fungi that occur on the reserve. Also lots about the history of the woodlands, the species of trees and the wildlife that rely on woodland habitat.

Family Volunteering Day, RSPB Pulborough Brooks, West Sussex

When: Saturday 8 November, 2014 – 11am-3pm
Price: Free
Tel: 01798 875 851 – booking essential

This active family day gives family groups the opportunity to 'make a difference' while bonding in the scenic forests where children will be encouraged to get involved in practical conservation tasks designed with 5-14 year olds – and their parents and grandparents – in mind. This event involves arts, crafts and making things – so be prepared to get mucky! Bring a packed lunch, although tea, soft drinks and biscuits will be provided at the end of the session.

Coppicing at the Ancient Woodlands of RSPB Garston Woods, Wiltshire

When: Wednesday 12 November, 2014 – 9.30am-3.30pm
Price: Free – please note that tools, gloves and tuition are all provided
Tel: 01929 553 360

Coppicing work continues, on Sundays and Wednesdays, throughout the winter. The work undertaken is vital to maintain the rich diversity of plant and animal life in this beautiful RSPB reserve, and is healthy good fun – you'll also learn lots about the history of these most resplendent woodlands. Supervised training is provided by RSPB staff and volunteers. Bring a packed lunch if you can stay all day, but do come even if you can only spare a half-day. Gloves, tools and tuition are all provided. There are fewer dates this season, which will ensure the RSPB has full support from the Arne team. However, with the same amount as usual of work to be done, they are hoping for more volunteers on each session.

DETAILS:
Contact: RSPB
Web: www.rspb.org.uk

ABOVE:
Left: Family volunteering event at RSPB Pulborough Brooks; right: RSPB Giving Nature a Home campaign

CHRISTMAS CRAFT FAIR AT RHS GARDEN WISLEY

Craft In Focus is returning to RHS Garden Wisley from 25–30 November to stage the UK's leading popular Christmas craft and design fair. Anyone visiting the craft fair can also visit the Garden the same day for free, saving on the normal Garden admittance.

The craft fair will be held in floored and heated marquees in front of the main entrance and features around 160 of the UK's finest professional contemporary craftworkers and artists working in wood, glass, metal, textiles, ceramics and more. The UK has a wealth of individual and talented designer-makers and artists who produce wonderful original items that simply cannot be found among the mass-produced and imported goods on the high street. Craft In Focus has selected the best of these to show at the Christmas event. All exhibitors at Craft In Focus events design and make the work that they display and are selected for their individuality and innovation in contemporary design, as well as outstanding technical ability.

The craft fair opens from 9am each day and admission is £9. RHS Members and accompanied under 16s free.

PHOTOGRAPHS COURTESY OF CRAFT IN FOCUS

DETAILS:
When: 25–30 November, 2014
Where: RHS Garden Wisley, Nr Woking GU23 6QB
Contact: Craft In Focus **Tel:** 01622 747 325
Web: www.craftinfocus.com

Trend Celebrate Opening of 200th TRC at A1 Tools & Fixings

Trend introduced the Trend Routing Centre (TRC) programme to create stores where customers could see eye-catching in-store presentation units and buy a comprehensive range of Trend products.

Each TRC is committed to new Trend product campaigns and exclusive customer promotions throughout the year. Staff also receive a comprehensive training programme at Trend's headquarters in Watford, which enables them to give technical advice and information on Trend products to customers.

The TRC programme provides local stores with gold, silver or bronze levels of stocked display units, close to where customers live and work, where they can return with confidence to purchase Trend products from knowledgeable staff.

Combined with Trend's unrivalled technical support and customer service, TRCs offer customers a superior service at 200 locations across the UK and Ireland.

The 200th TRC was recently opened at A1 Tools & Fixings Ltd in St Albans and Trend Managing Director Jeff Willcocks was at the launch to assist with the celebrations. Jeff said, "We set up the TRC programme over two years ago to ensure wider availability of stock for end users to purchase our products in the UK and Ireland. We are particularly pleased that it is A1 Tools & Fixings Ltd who are the 200th TRC in our ongoing programme and that the display units look so impressive in their store."

For further information on your nearest Trend Routing Centre, see details below.

PHOTOGRAPH COURTESY OF TREND

The staff at A1 Tools & Fixings Ltd in St Albans

Contact: Trend
Tel: 01923 249 911
Web: www.trend-uk.com

Wood news:

Join The Gruffalo's Child on a forest adventure

Families across the UK are invited into the deep dark wood this autumn and winter to find the Gruffalo's Child, who has followed the Gruffalo out of his comfortable cave for a forest trail adventure.

The Gruffalo's Child activity trails are the latest initiative organised by Forestry Commission England in conjunction with Magic Light Pictures, following the success from this year's Gruffalo's Forest Tour.

During spring and summer 2014, more than 10,000 children met the Gruffalo and hundreds of thousands followed the Gruffalo activity trails through Forestry Commission England's woods and forests.

From 3 October, 2014 until February, 2015, self-led Gruffalo's Child activity trails will be located in 24 Forestry Commission forests across England, continuing the nationwide celebrations of the 10th anniversary of the book's publication. While following the trail route, children and families can take part in activities based on the popular book's characters.

The trails will lead children and families through the forests using activity boards to help them discover nature and woods at a time of the year when forests are at their most beautiful. In addition, there will be activity packs available for £2, which will include a foraging bag, a fun-packed activity leaflet, a colouring-in sheet and a special Gruffalo's Child sticker. These special packs will encourage children to learn more about the behaviour of animals in autumn and how they search for food, create shelters and prepare for the cold winter months.

Later this winter, several uniquely carved wooden sculptures of the Gruffalo's Child will be placed in selected forests around England.

PHOTOGRAPH COURTESY OF FORESTRY COMMISSION/JAMES SILVERTHORNE

Take part in a forest adventure this autumn

Contact: Forestry Commission
Tel: 03000 674 000
Web: www.forestry.gov.uk/gruffalo

A new report on deforestation

Between 2000 and 2012 around five football pitches of tropical forest have been illegally cleared every minute, according to a new report. The research into deforestation has been carried out by US-based Forest Trends. Forest clearances are down to the consumer demand in Europe and the US for timber, beef, leather and palm oil to name a few. The trade of such products is estimated to be valued at $61 billion a year.

The study argues that in the first 12 years of this century 49% of tropical deforestation was due to illegal conversion for commercial agriculture. Although the majority of illegal deforestation has taken place in Brazil and Indonesia, the practice is spreading throughout Asia and Africa.

It is noted that the authorities in Brazil are making a great effort to address and tackle the problem, with some success through hitting straight at the corporations involved, by blocking access to credit, for example, for companies involved in the illegal clearing. The author of the paper, Sam Lawson, said: "At the moment the EU is giving large amounts of money to these tropical countries to reduce deforestation, while at the same time importing all these dodgy products from illegal clearances. It needs to close that vicious circle; it needs to stop importing these products as a first step." Although much of the forest clearances are illegal, the governments don't have the capacity to enforce their own law, as many of the licences and permits to cut down the trees are often acquired through corruption. The biggest concern now for campaigners is the spread of the practice to new countries in Latin America, Africa and Asia. In Papua New Guinea millions of hectares of forest have been licensed for deforestation in recent years, with a parliamentary enquiry finding that 90% of these licences were issued by corrupt or fraudulent means. There is now, however, a project within the developed countries to embark on an ambitious programme to pay developing nations to stop cutting down the trees. Let's hope the programme is a successful one!

PHOTOGRAPH BY JOEL REDMAN

A typical scene of deforestation

Contact: Forest Trends
Web: www.forest-trends.org

Flamboyant fancy marquetry peacock stool

Amber Bailey makes this beautiful peacock marquetry design stool

PHOTOGRAPHS BY AMBER BAILEY

As a self-confessed furniture hoarder, I am constantly offered cast-offs from friends and family, the latest being a rather ugly upholstered piano stool from the 1930s. Many hours were spent roaming the Internet, trying to find some fabric that might transform it from an ugly duckling into a swan, but to no avail and I found myself instead looking to the possibility of other feathery friends – namely a peacock.

Removing the old upholstery and its decomposing foam revealed a rather interesting curved plywood seat. Being first and foremost a marquetarian, it didn't take me long to decide that the surface area of the stool top provided a perfect groundwork for some marquetry.

Why not have a look at what old furniture may be gathering dust in your house that could do with a bit of a face lift? I say that if there's a flat surface, then slap a veneer on it! Perhaps this will become my motto from now on…

Health and safety

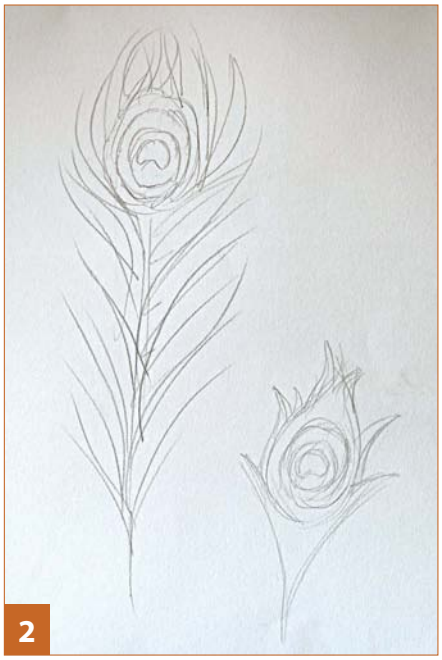
The 'window method' used in this project for cutting the veneers involves a scalpel. It is important to always cut at an angle away from yourself to avoid the blade slipping and causing a nasty accident! Adhesives, polishes and other chemicals give off incredibly strong fumes, so always work in a well-ventilated area wearing appropriate protective clothing.

Creating the design

1 To create a marquetry design I always start with listing down themes, before picking out the most interesting to draw as initial sketches. These are barely more than unrecognisable squiggles, but they block out an approximation of a composition and are redrawn time and again in finer detail. Writing down marquetry themes as often as I do causes many subjects to reoccur and sometimes the best way to get them out of your head is to actually use them. The concept of a peacock with its vibrant plumage was me doing precisely that. A rough sketch indicated that there would be repetitive elements required for the peacock's feathers. As a time-saving method there would be two feathers that would then be reused over and over again.


1

2 The feathers started with a brief sketch of a realistic feather, then I stripped it of detail to leave the hint of what we associate with how the genuine thing should look.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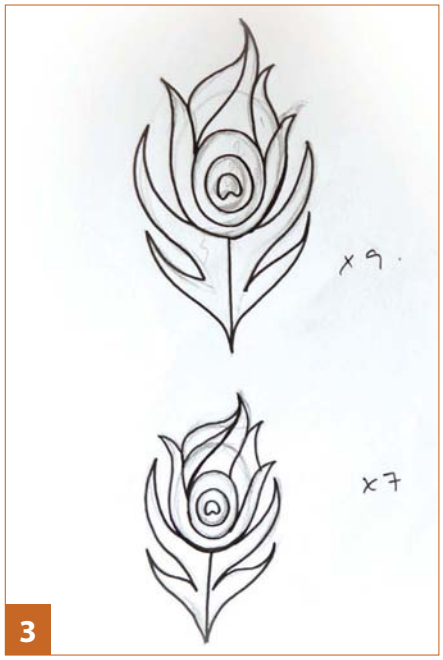
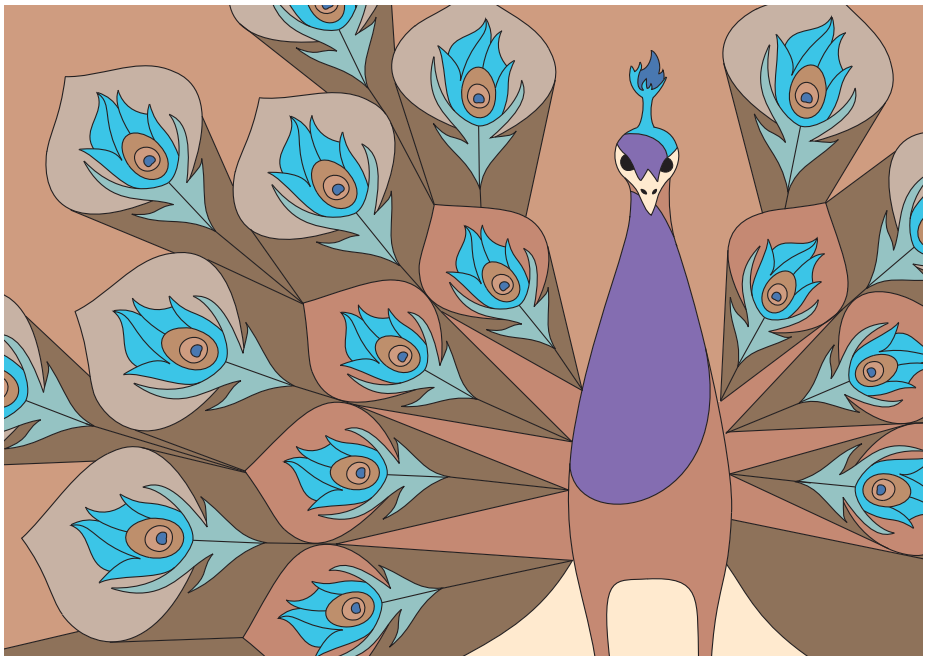
3 The final design of the feather was decided, with two different sizes for the inner and outer layers of the peacock's plumage.



3

TOP TIP Plans & Projects

1. The secret of creating a marquetry design is simply taking a detailed image and simplifying it into a line drawing of block shapes. In terms of choices of designs, these are numerous.
2. It is important to consider your choice of veneers before you begin the project, ideally going by colour rather than wood species. Traditionally marquetarians stored and chose veneers this way; veneers from the same species of tree cannot guarantee conformity in appearance.
3. When applying a surface finish it will inevitably require more than one coat as the porous nature of the wood means the first layer will be sucked into the grain and only afterwards a finish can be built up on the surface. Alternatively, a sealant could be applied prior to this.
4. Having the grain direction running the length of each piece of marquetry detail will reduce the likelihood of the veneer breaking, which you obviously do not want.



4 It was only after the bird detail had been cut that I then was able to make a final decision on how I wanted the background to look.

5 Here you can see the feather detail. Having the design drawn on the computer creates a very fine template, which can be used over many times when working with the 'window method' for cutting marquetry.

Preparing the stool

6 Holding the stool together were screw threads running from each leg into the seat, but it being no more than 12mm thick left them protruding high above the surface. To avoid any sitters being impaled these threads had to be cut off flush with a hacksaw. This was a course of very permanent action so the legs had to be screwed tight as it would not be possible to alter them later. Cutting the threads was simple enough, but making the T-nuts lie flat was a slightly less direct step. The T-nuts had been sunk into the wood of the seat by drilling wide holes to fit them down – the same technique had to be carried out to take them further down. Once screwed back on, this left gaps in the stool surface. A favourite method of mine for gap filling is using the wonders of West Systems' epoxy resin at the directed 10:2 ratio bulked out with Microlight filler to form a thick paste. Here you can see one of the threads and bolts of the stool after being cut to sit below the surface.

7 West Systems' epoxy resin is made up of two parts. If using with a bulking agent, such as Microlight, then stir the majority of this in before adding the hardener to avoid the mixture drying out too quickly.

8 Microlight is made up of microballoons and is incredibly lightweight to the touch.

9 One of the screw gaps after being smoothed off to give a clear surface for the marquetry.

Stool surface treatment

10 I decided very early I did not want to have the natural wood colour of the stool showing, as it felt too light for the marquetry. Bright colours could look very garish next


4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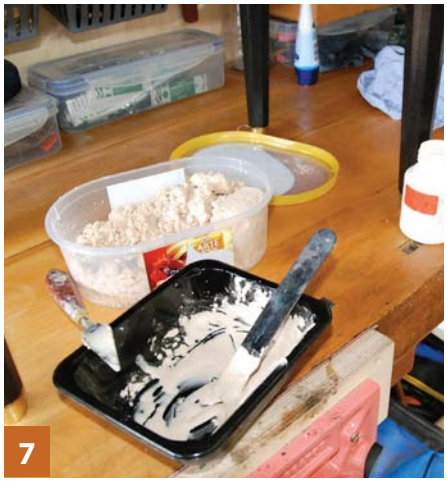
7


8


9


10

to the dyed veneers, so black wood stain seemed ideal for a transparency that showed the wood grain. The original finish was scraped away and I had to apply three coats of staining to ensure an even overall look. To impart a silk finish to the wood, I chose to use a favourite among contemporary designers – Osmo oil. This product is supplied in a variety of different finishes and is incredibly simple to apply. To use, simply spread on with a brush to produce an ample coat and then rub into the wood with a piece of soft cotton cloth. When brushed on, Osmo oil is thick and very glossy before it is rubbed in. To find out more about products in the range, see the supplier panel on page 11.


11

11 A soft cotton cloth is ideal for rubbing in a finishing product as it is unlikely to drag across the surface of the stool.


12

12 The stool is now ready for its marquetry to be applied. The brass feet on the legs were given a clean using a piece of fine wire wool; this helps to shift any tarnishing.

Cutting the marquetry


13

13 Each element of the design was retraced and taped to its corresponding veneer, using a 10A scalpel blade to cut them out. Here you can see the head of the peacock with its tracing. I always begin with the focal point and work my way out, leaving the background until last. To create the feathers I needed to have a production line going, but starting with the large outside sections and working into the detail at the centre of the feather. For efficiency, each step and type of veneer was cut on all pieces before moving on.


14

14 Here you can see my feather-making production line.


15

15 The detail was added onto the feathers by cutting and removing the waste and 'under-laying' the desired veneer to cut around using a scalpel, both of which then slotted together with a tight fit. The background was cut around the peacock, placing it on top to tightly mark out beforehand.


16

16 The final design is now ready to be glued.

Applying the marquetry

17 With the stool seat at a curve, adding sufficient pressure while gluing could become a problem, so contact adhesive was ideal for forming an instant bond. Here, the contact adhesive is ready to be applied to the previously prepared stool.

17

18 Adhesive was applied to both the back of the veneers and the stool, then left for a few minutes to go tacky. The marquetry was pressed onto the stool and rubbed down with a veneer hammer to remove any excess glue or air bubbles. Here you can see the marquetry ready to have the waste removed.


18

19 Be careful not to damage the veneers when applying adhesive to the back of it. For cutting the waste veneer the stool needed to be turned upside down and a scalpel run around the edge. The surface was scraped smooth with a cabinet scraper before sanding using various grades of abrasive. Chances are that dust of the veneers will contaminate one another. To clean out the wood grain use a wood bleach, but there is a danger that it may drain the colour of veneers, so neutralise straight away before it has a chance to react.


19

20 The marquetry was sanded until it felt silky to the touch. Fine grade wet and dry paper is perfect to use to create this outcome.


20

21 For the surface of the marquetry I chose to continue using Osmo oil, finishing at seven coats to ensure a more protective surface. The whole of the stool was then rubbed with Microcrystalline wax and buffed off to bring up more of a shine. It was now time to add Osmo oil to the top of the stool.


21

22 Here you can see the completed project. ■


22

Suppliers

To purchase any of the materials, including contact adhesive, Osmo oil, Microlight and West Systems' epoxy resin visit: www.axminster.co.uk or any well-stocked DIY store. For veneers visit: www.originalmarquetry.co.uk, or visit your local veneer merchant.

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Galvanised shelving

When we reminded **the Editor** that 'upcycling' might just involve using different materials instead of wood, it put him on his mettle. He was galvanised into action, so much so that he shelved another project in order to make this one…

So far in this series of projects, we have used wood in one form or another. However, a key feature of upcycling and recycling is imaginatively putting 'unlike' objects and materials together to create something different. So, when I saw in our yard some leftover sections of galvanised steel cable tray used for commercial and industrial wiring installations, it set me thinking, 'what if…?' The result, which I'm quite pleased with, is a shelving unit combining the clean natural lines of clear finished oak *(Quercus robur)* with the more industrial appearance of the perforated steel shelving. Above the desk is a series of low voltage downlighters to illuminate the working area. All it needs is a stylish desk chair to complete the project!

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Project requirements

1 These cable trays were destined for metal recycling before I put in a bid for them. The punched holes not only make an interesting pattern but also a handy means of using fixings.

2 I bought some prepared oak boards from our local timber yard, but I wasn't sure exactly what was needed. In the event, the narrow strips didn't get used but have been saved for another project.

3 Nice shiny new 8mm diameter coachbolts and nyloc nuts were the intended means of fixing wood to metal. Once assembled, they wouldn't need tightening up again or need spring washers.

4 The first job was to lay the components out on the workshop floor, carefully supported by a large glue bottle. That way I could visualise where everything needed to be.

The making process

5 From that exercise I could determine the lengths of oak I needed. The back pieces could be a lot shorter in my design; only the front boards were long as they needed to hold everything up. The newly cut ends were carefully chamfered to a neat finish.

6 The wide cable tray for the desk had a rough end and needed trimming to match the length of the lower shelf. A felt tip was an ideal way to mark the cut position.

TOP TIP Plans & Projects

1. This kind of project depends on luck and finding the right thing – or like me, being in the right place at the right time! It needs a bit of imagination to work out what 'right' actually is. I looked a bit askance at these cable trays to start with but something was bugging me – I knew they had a use, it was just a question of what? It may be a good idea to set aside a bit of storage for recovered items that might be useful in the future for 'rainy day projects'. You never know when they might come in handy – at least that's your excuse...


1


2


3


4


5


6

7 The Evolution compound mitre saw has a blade intended for cutting both wood and metal. Eye protection was absolutely essential as metal chippings fly off when cutting, but it was a very quick operation.


7

8 The wide cable tray was a bit waggly and, in any case, it needed support to fix it to the front oak uprights. I cut two pieces of oak to fit neatly under the ends of the cable tray with a notch-out cut so the back ends would fix against the oak uprights.


8

9 All the oak sections were now sanded and the arrises lightly 'broken' before the next stage of the operation.


9

Taking shape

10 General Finishes' Enduro-Var satin finish water-based varnish was applied in two coats and rubbed down before the second coat.

10

11 The desk ends needed to be joined securely to the oak uprights and my chosen method was using barrel nuts and bolts. These are knockdown fittings and give an immensely strong glue-free joint.


11

12 First, the bolt holes were drilled in the back end of each piece of oak. I drew a pencil line to sight down, so it would be perfectly parallel with the sides.


12

13 Then the barrel nut holes were drilled – these needed to be far enough from the ends so the maximum strength could be obtained from the oak.


13

TOP TIP Plans & Projects

2. All woodworkers need to be able to do light metalworking, too. If you do car repairs or DIY, the chances are that you already have the basics for doing these kinds of tasks. The essentials are a set of metal cutting drill bits, wood and metal punches, a decent hammer, files, a hacksaw and a set of metric 'C' spanners. A pullover saw or a chopsaw with a multipurpose blade that will cut metal cleanly, is invaluable for the limited number of times when you really need it, as well as a decent dry grinder.

14 The wide cable tray was inverted and screwed on using pre-drilled pilot holes, twinfast screws and bright finish screw cups. These look good and spread across the punched slots in the cable tray.


14

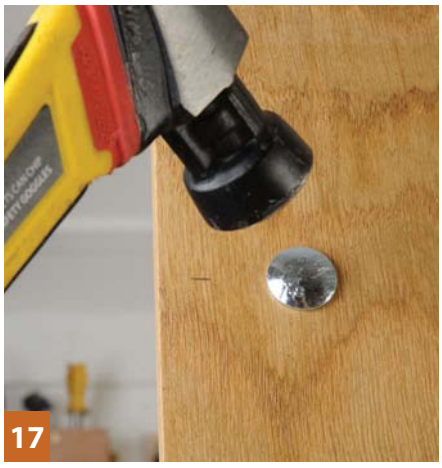
15 All bare metal edges need filing to take off the sharpness and any burr, using a light rub down with medium emery paper abrasive.


15

16 Holes were drilled for the bolts in the front oak uprights. The holes were countersunk with a snail bit on the reverse and the desk bolted on to the uprights. This now set the width of the shelving unit.


16

17 Having set the width of the oak uprights by fitting the desk surface, the lower shelf could be fitted next. This would make the structure more rigid. 8mm diameter bolt holes needed drilling and the positions of these were determined by where the slots in the lower shelf cable tray were made. The coach bolts were hammered into place so the square neck fitted firmly into the wood.


17

18 Next, a 13mm spanner was used to tighten the nyloc nuts so there was just a limited amount of free play to make the rest of the shelf assembly easy to adjust.


18

19 The shorter lengths of oak at the back of the shelf unit could now be fitted. Note how the bolts face inwards from both faces. The longer top cable tray was now also fitted in place after carefully measuring its intended position.


19

TOP TIP Plans & Projects

3. One of the bugbears in woodworking is finding decent hardware. When you are considering how to fix or finish a project, do try and consider what you will need at the beginning, rather than at the end. The danger of leaving this critical part of the project until late in the day is that you may not find what you want and end up bodging a project. By incorporating hardware early on it will help dictate your working methods and the final outcome.

20 The narrowest cable tray was destined to hold the downlighters over the desk, which meant drilling holes in the edge of the cable tray. The positions of the holes were marked with felt-tip pen and a metal punch applied so the 8mm drill tip wouldn't wander.

21 The narrow cable tray didn't have sides that were quite perpendicular, so I bent it down slightly using an engineer's square to check it was correct.

Fitting the lights

22 I chose a set of low voltage downlighters in preference to mains voltage fittings because they are safe and easy to install. The lights plug on to the cable easily – note the transformer is matched to the loading of the lights.

23 As I was going to fix the lights to thin metal not wood, I decided that pop rivets were the answer. They only need fixing from one face, unlike nuts and bolts, and wouldn't come undone. I used short rivets that wouldn't interfere with the lamp fitting inside the case and a washer on top to span the hole punchings in the metal tray.

24 In fact, the cables stayed neatly out of the way but any sagging could always be dealt with using small plastic cable ties.

25 The shelving unit in position screwed and plugged to the wall. The nuts were all tightened up and the unit checked for upright before fixing. And then it's ready! ■


20


21


22


23


24


25

TOP TIP Plans & Projects

4. Working with electrics always demands respect. Even low voltage lighting can have issues such as heat produced or unbalanced loading on a transformer. I used a low voltage self-fit lighting set because it was very easy to clip together and there was only limited heat output which the metal cable tray would dissipate. There should be no problem installing the mains equivalent if the set is meant for easy DIY installation, but ensure to always follow the instructions carefully.

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Log now, burn later

It's winter time and **Will Rolls** suggests we should be thinking about next winter's logs to get the hottest, most energy efficient and money saving burn from our stoves

I don't know about you, but I'm pretty sick of winter. I live towards the north of England – where, I'm reliably informed, it's 'grim' – and by this time of year, I'm usually beginning to wonder if I'll ever see the sun again. So I expect, like me, you'd much rather be thinking about holidays somewhere warm and sunny than what you should be doing with your depleted log pile. The truth is though, that if you want logs that are nice and dry to burn next winter, you need to start thinking about it now.

Freshly cut wood is around 50% water and you really do have to be quite intentional about drying it out before it will make good fuel. Cutting it and just leaving it in a heap somewhere, while being a good start, will not by itself leave you with high quality logs. In fact it's more likely to leave you with a high quality habitat pile – good for your local environment, but not that useful for heating your house. To dry wood thoroughly you need to take two things into account. Firstly, the wood already contains water, which you need to remove; and secondly, given the British climate, the wood is likely to gain additional moisture from the surrounding environment – which you need to prevent. Both of these problems can be overcome by effective processing and stacking.

Source

This time of year, many suppliers are beginning to run low on seasoned logs – it is in their interest to run down the stock by the end of the winter – but they may well already have some green material ready for processing. Failing that, you can probably get plenty of green logs from local tree surgeons if you don't mind what shape and size you get. Buying green logs can be

Tree surgeons are a good source of green logs

Short split logs dry quicker than long lengths

a problem later in the year, but it's nothing to worry about now, as you've got all year to dry them out, and if the supplier doesn't have to dry the logs, then you might find you can get them a bit cheaper.

Logs that have been cross cut and split will dry faster than long lengths. The rate of drying is directly influenced by the distance any water has to travel before it is able to evaporate away from the log's surface. Larger logs will take longer to dry, and so will logs that still have the bark attached. The bark is an effective barrier to moisture – one of the functions it provides in the living tree – and a log with a split face will dry more quickly than a log of equal size which still has bark on.

A viable alternative to processing all of your own logs – which is also kinder to your back – is to buy logs part or completely processed.

Site

There is probably an interesting – to me at least – study to be done on the relative locations of log piles. The objective is to gain the maximum benefit from sun and wind over the summer to dry the wood out, while protecting the stack from rain, floods, theft and arson as well as being suitably convenient for you to bring logs in during the winter. There does seem to be a natural law of the universe, which means that you'll need to get more logs as soon as it starts snowing, or when it gets too dark to go out without a torch. If you've got space in a shed or garage, then that's ideal, but anywhere out of the rain and relatively close to the house will do.

Stack

Recently, a Norwegian national television station broadcast a 12-hour programme on the subject of burning wood correctly. It sparked a national debate. Not, as you might think, on whether it was a good idea to broadcast such a long programme, but on whether it was better to stack logs bark side up or bark side down. I am not going to court controversy by suggesting one is better than the other – the population in Norway were evenly divided. You do, however, need to make sure that 1) your stack is able to breathe and 2) it is not going to re-wet from any nearby source. Dry wood acts just like a sponge and will happily reabsorb water when it's allowed to.

Ideally you want your stack to let the breeze through as much as possible. It's tempting to stack against a nearby wall, but you do run the risk of causing damp patches on your brickwork. If you do stack by a wall, it's best to make sure that there is an air gap to allow the ends of the logs to breathe. Remember that wood is basically a bundle of tubes that transport water from ground level into the tree canopy. This means that water moves much more effectively along the grain rather than across it – especially if the wood still has bark on.

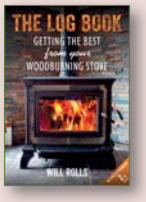
To prevent re-wetting, you need to take into account water moving up from the ground and down – or depending on your location, sideways – as rain. Ideally you want to make sure that your stack is on bearers which prevent moisture being attracted to the bottom of the stack. These can be any old bits of wood you're not going to burn – like fence posts with preservatives in, or old pallets. Preventing rain is a fairly straightforward process of getting some old fence panels or tarpaulin and covering the top of the stack. Remember that you want free air-flow so don't bother covering the sides tightly as any airtight surfaces will have a tendency to sweat in the summer.

Above left: Green wood needs plenty of room to breathe
Above right: Doughnut log stacks allow good protection

Get ready

Personally, I think a dry autumn would be very nice. Realistically, though, I'm expecting something that looks more like a monsoon to emerge. Drying wood is going to be a challenge, so let's all get ready! ■

About the book



Will Rolls, author of *The Log Book – Getting the Best from Your Woodburning Stove*, is a chartered forester who specialises in the use of wood as fuel. Until recently, he worked for the Biomass Energy Centre, giving technical advice on woodfuel and wood fired heating systems. He now operates an independent woodfuel consultancy, advising clients on their potential fuel requirements and supply capability. Find out more at: www.wrolls.co.uk

The Log Book – Getting the Best from Your Woodburning Stove, £7.95 (RRP) is available for just £5.96 from Green Shopping: **www.green-shopping.co.uk/ the-log-book.html**

This article was first published in *Permaculture* magazine No.79 – see www.permaculture.co.uk

Right: Even the smallest, neatest garden can fit a log store in somewhere

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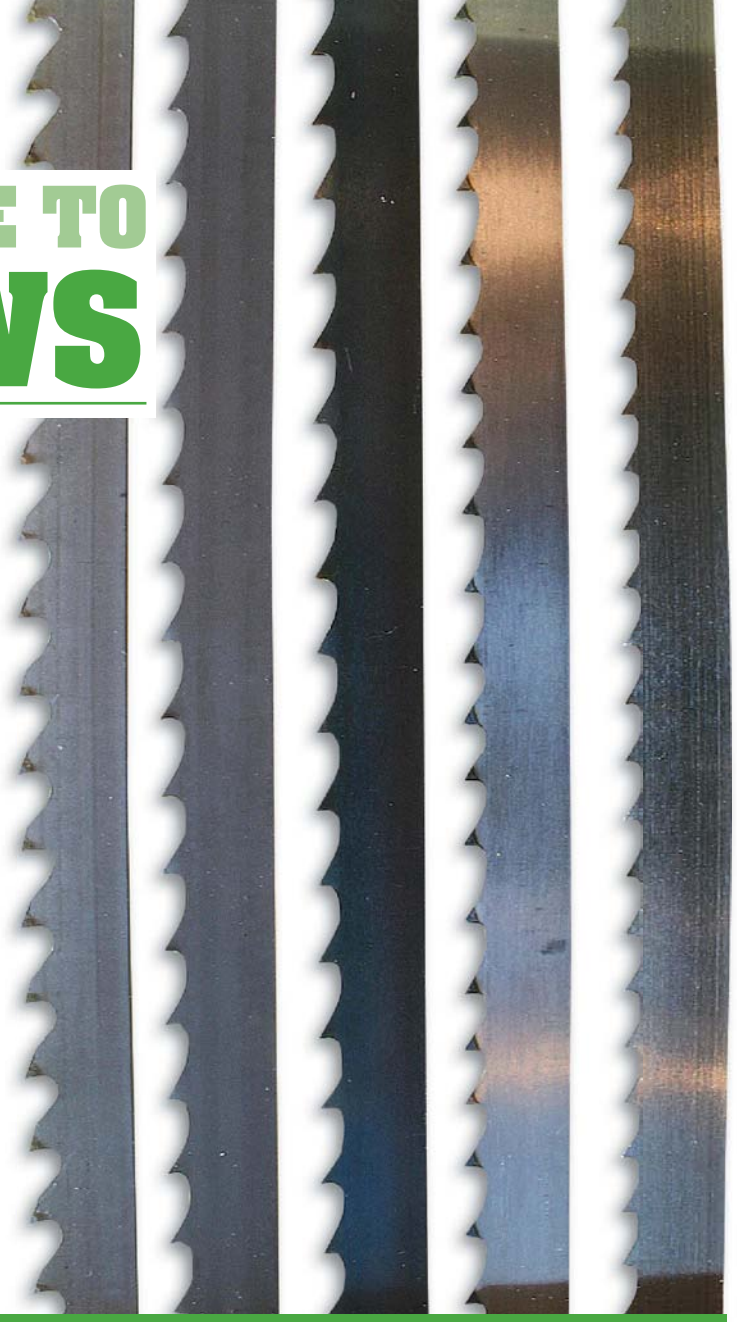
COMPLETE GUIDE TO BANDSAWS

Blade Choice

Mark Duginske looks at choosing the right blades for your bandsaw



PHOTOGRAPHS COURTESY OF FOX CHAPEL PUBLISHING

From the most durable on the left to least durable on the right, the most popular blades are carbide tipped, bimetal, carbon steel, spring steel with hardened teeth and spring steel. The carbide-tipped blade costs roughly 10 times as much as the least expensive spring steel blade, but will outlast it by close to 100 times

This extract is taken from *New Complete Guide to Band Saws* by Mark Duginske. To purchase your own copy of the book, see details below.

DETAILS:
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TOOTH SIZE & SPACING

When you are talking about bandsaw blades, the word 'pitch' does not refer to the sticky thick liquid found in pine *(Pinus spp.)* boards. It is a term for tooth size. The pitch is usually given as a number that refers to how many teeth are in one inch of blade called teeth per inch or TPI, as shown in Fig. 3.10. The words 'coarse' and 'fine' are also used to describe the number of teeth in a blade. A coarse blade has few teeth. A fine blade has many teeth. The coarser the blade, the faster and rougher the cut; the finer the blade, the slower and smoother the cut.

It is important that you match the pitch of the blade to the thickness of the material being cut, as shown in Fig. 3.11. There should always be at least three teeth in the material. A blade with more teeth will give a smoother cut, but one with too many teeth will create other problems, such as too much heat and too slow cutting. Excessive heat shortens the life of the blade because it draws the hardness from the teeth, allowing them to dull quickly. It also shortens the life of the band. With a little experience, you will learn how to tell whether a blade has the proper pitch, too fine a pitch or too coarse a pitch.

Pay close attention to the feel of the saw and the resulting cut. Heat or burned wood indicates a dull blade or too fine a pitch. Vibration may indicate that the pitch is too coarse or that you are feeding too quickly.

When choosing a blade with the proper pitch, you also should consider the hardness of the workpiece. Harder materials require finer blade pitch. Exotic hardwoods such as ebony *(Diospyros spp.)* and rosewood *(Dalbergia latifolia)* require blades around 4 TPI or 5 TPI, while American

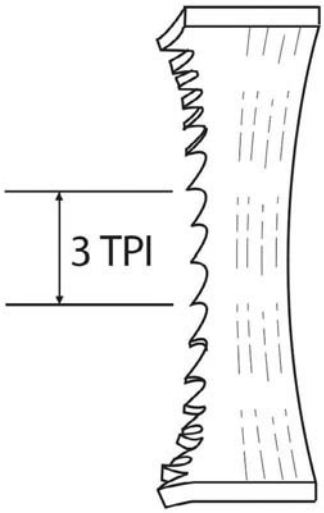


Fig. 3.10 – the term 'pitch' describes tooth size and usually is stated as the number of teeth in one inch of blade – called teeth per inch or TPI. This example has three teeth in one inch of blade so it is a 3 TPI blade

hardwoods, such as oak *(Quercus spp.)* or maple *(Acer saccharum)* will cut well at 3 TPI. Softwoods such as pine are best cut with a coarse blade because the resins in the pine will quickly clog a blade that is too fine, thus decreasing its ability to cut. Owning blades with a variety of tooth configurations in the same width will give you an acceptable range of choice for most jobs.

CHOOSING THE BEST PITCH

1. Minimum heat generated
2. Cuts quickly
3. Quality cuts
4. Long blade life
5. Minimum feeding pressure is required

Pitch that is too fine

1. Excessive heat
2. Cuts slowly
3. More feeding pressure is required
4. Premature breakage or rapid dulling of blade

Pitch that is too coarse

1. Vibration
2. Rough cut

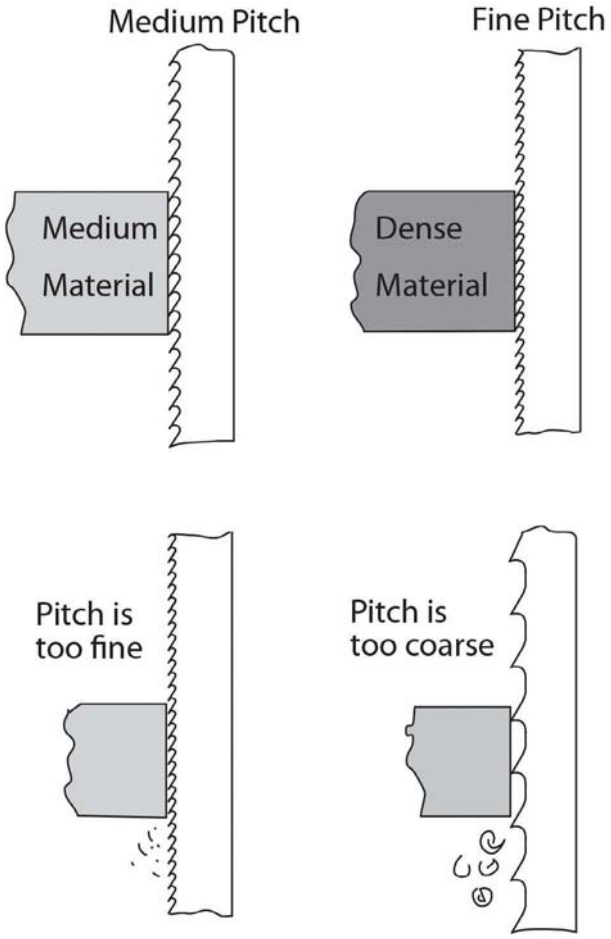


Fig. 3.11 – there should always be at least three teeth in the material being cut. A blade with more teeth makes a smoother cut, but too many teeth create other problems, such as excessive heat and slow cutting

TOOTH CHARACTERISTICS

Two factors that indicate how a bandsaw blade will cut are the shape, or form, of the teeth and the set of the teeth. These factors are examined below individually.

TOOTH SHAPE

Bandsaw teeth are available in one of two shapes: the face of the tooth is either 90° to the body of the blade, which is called a 0° rake or it has a slight positive angle, in which case it is called a hook tooth, as shown in Fig. 3.12. A blade with a 0° rake cuts with a scraping action. This makes a smooth cut, but increases the heat caused by the cutting. A blade with hook teeth cuts more aggressively. It makes a rougher cut, but less heat is generated, which means that the blade can be used for a longer period of time. Thick wood is best cut with hook teeth not only because they are more aggressive but also because they are more efficient at removing the waste.

Blades can be broken down into four general groups according to the shape of their teeth.

Standard

A blade with standard teeth has teeth spaced closely together. It has a 0° rake. This blade makes a smooth cut. It is especially useful for cutting small details and for cutting across – against – the grain of the wood because it doesn't tear the wood as it cuts. It is the best blade to use when smoothness is a consideration. When cutting thick stock with a standard tooth blade, make sure that you feed the stock slowly. This is the usual tooth form for small blades under 3⁄16in.

Skip-tooth

The teeth on skip-tooth blades have a 0° rake, like those on standard tooth blades, but every other tooth has been removed. Thus, this blade has only half as many teeth per inch. Because a skip-tooth blade is coarse, it cuts very quickly, especially with the grain. A skip-tooth blade is best suited for cutting long, gentle curves, such as a cabriole leg. Although it doesn't cut against the grain as well as the standard tooth blade or rip with the grain as well as the hook-tooth blade, it does offer the best compromise. This is the usual tooth form for medium-size blades between 3⁄16in and 5⁄16in wide.

Hook-tooth

The hook-tooth blade is the most aggressive bandsaw blade. This is because it has a positive rake angle and the fewest number of teeth per inch. It is particularly efficient at cutting thick stock with the grain. The large round gullet, the area at the base of the tooth designed to carry the chip from the kerf, can transport large amounts of sawdust.

This makes it the best choice for ripping or sawing along the grain of the wood and resawing or cutting a board through its width. This is the usual tooth form for blades wider than 5/16in.

Variable pitch

The variable pitch blade is the most recently developed blade for the metal cutting industry and is designed to decrease vibration on interrupted cuts such as those made on tubing, U channels and I beams where excessive vibration is a problem, as shown in Fig. 3.13. These blades have a positive rake angle, like hook-teeth, but the teeth progressively change in size from large to small and back to large again. The variable pitch blade also features varying set angles. The manufacturing process is complicated and expensive because the size of the tooth and the depth of the gullet both change from one tooth to the next, as shown in Fig. 3.14.

The design dampens vibration and produces a smooth finish. It is now being used in the meat cutting industry, as well as on woodworking blades designed for cutting thick stock and for resawing. Fig. 3.15 shows a variable pitch blade cutting oak.

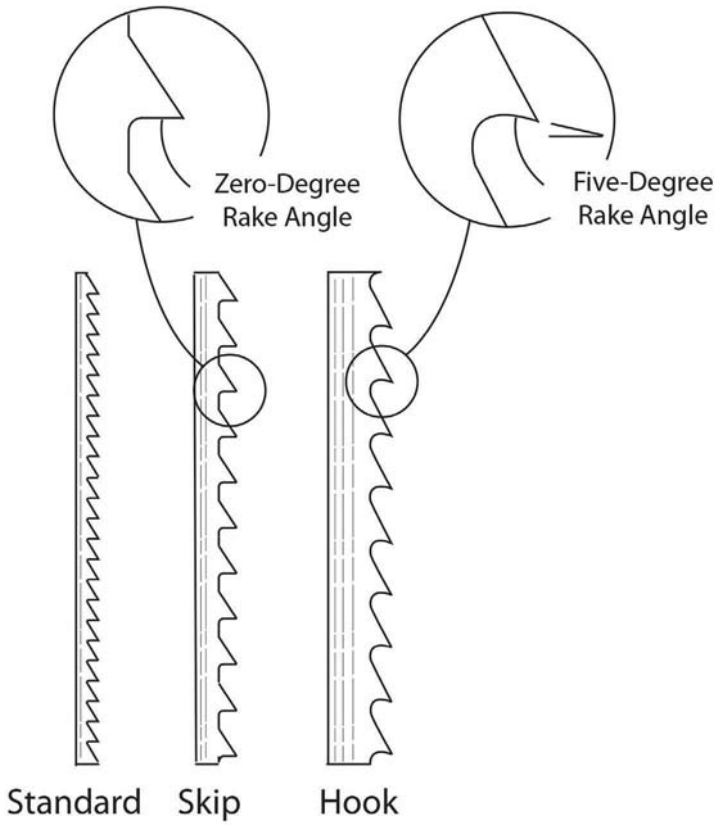


Fig. 3.12 – bandsaw teeth are available in one of two shapes: 0° rake angle and 5° rake angle. The standard tooth and skip-tooth have a tooth face that is 90° to the body of the blade, called 0° rake angle. The hook tooth has a slight positive angle, called 5° rake angle

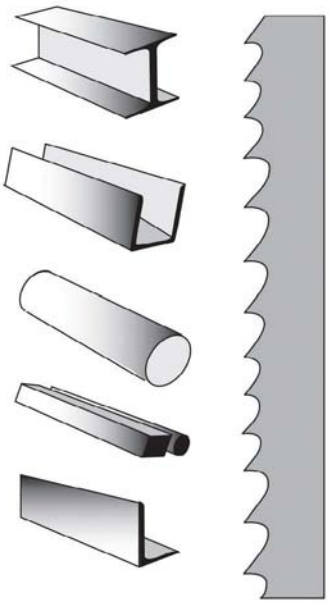


Fig. 3.13 – the variable pitch blade, recently developed for the metal cutting industry, decreases vibration on interrupted cuts such as those made on tubing, U channels and I beams. The teeth progressively change in size from large to small and back to large again

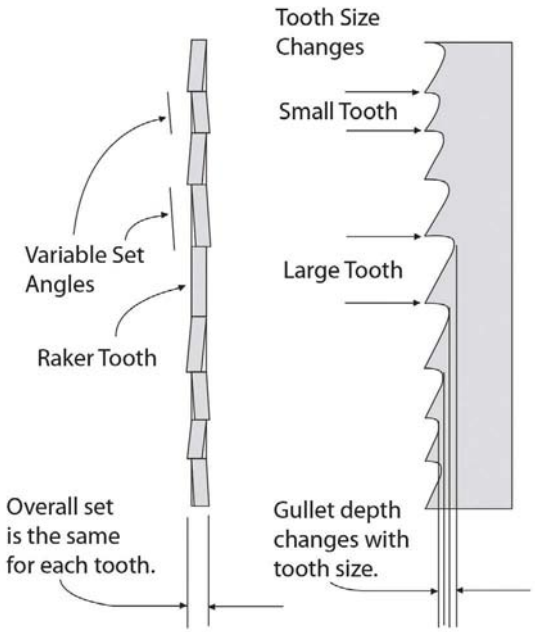


Fig. 3.14 – the variable pitch blade is complicated and expensive to manufacture because the size of the tooth and the depth of the gullet both change from one tooth to the next. The design dampens vibration and produces a smooth finish

Fig. 3.15 – this 1in-wide carbide-tipped variable pitch blade, running on a 20in bandsaw, makes a superb cut in an oak log. It is called a 2/3, referring to the range of variation in the tooth pitch and gullet depth. This blade retails for more than $200 (£123)

TOOTH SET

The teeth on the bandsaw are alternately bent or set sideways, as shown in Fig. 3.16. Thus, the saw cut – kerf – is wider than the body of the blade. Set makes it easier for the bandsaw operator to pivot the workpiece around the blade when sawing a curve. On straight cuts, the side clearance created by the set also decreases friction between the blade and the workpiece. There are three basic set styles, as follows:

Alternate set

Alternate set teeth have every other tooth bent in the same direction. A blade with alternate set teeth gives the most teeth per inch and thus the smoothest cut. Standard tooth blades usually have teeth with alternate set. This type of blade is well suited to crosscutting – sawing across the grain of wood.

Raker set

Raker set teeth are similar to alternate set teeth except that some of the teeth, called rakers, are not set. Rakers clean the middle of the cut and are used most often on skip-tooth and hook-tooth blades. The design increases the efficiency of the cutting action but decreases the smoothness of the cut. This type of blade is best suited to ripping and resawing with the grain of the wood.

Wavy set

Wavy set means that groups of teeth are alternately set in opposite directions. You can see wavy set teeth on an ordinary hand-held hacksaw designed for cutting metal. The variable pitch blade also has a variable or wavy set, which helps to decrease vibration. This type of blade is best suited to cutting metal.

WHICH TEETH ARE BEST FOR WHAT PURPOSE

Crosscutting wood and tight curves

Alternate set, standard pitch teeth with 0° rake.

Long, gentle curves

Raker set, skip-tooth with positive rake.

Ripping and resawing wood

Raker set, hook-tooth with positive rake.

Smoothest possible cut

Alternate set, standard pitch or fine pitch teeth with 0° rake.

Cutting metal

Wavy set, variable pitch with 0° rake.

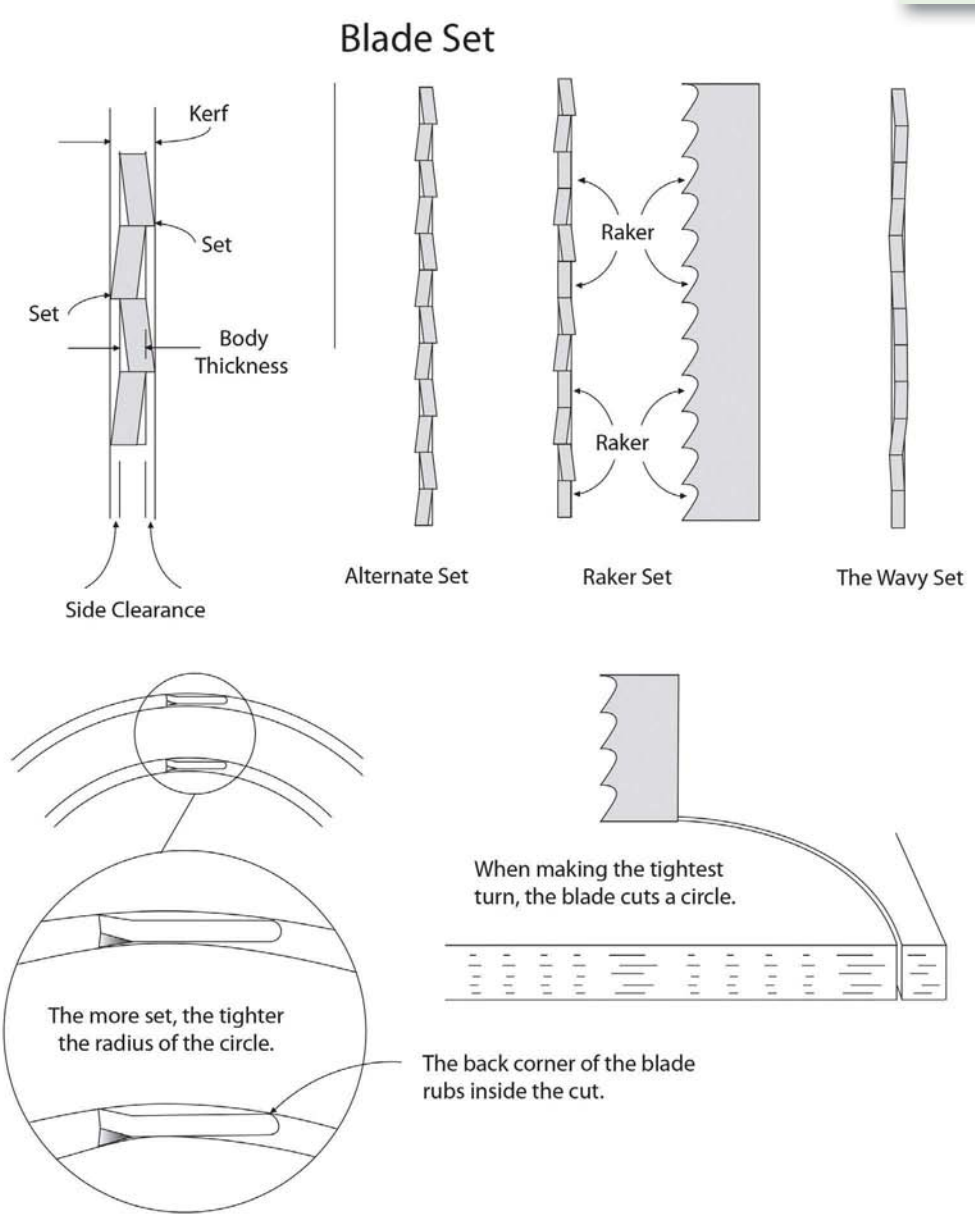


Fig. 3.16 – the teeth on the bandsaw are bent sideways, or set, so the saw kerf is wider than the body of the blade. Set makes it easier for the bandsaw operator to rotate the workpiece around the blade when sawing a curve. The side clearance also decreases friction between the blade and the workpiece on straight cuts

BLADE CLASSIFICATION

Bandsaw blades are usually classified in three different groups: small, medium and large. This takes into account the blade width, tooth shape and pitch. Small blades usually have standard – regular – teeth and a fine pitch. Medium blades usually have skip-teeth with a raker set and a medium to coarse pitch. Large blades often have hook-teeth with a raker set and a coarse pitch. You can best prepare yourself by owning at least one blade from each group.

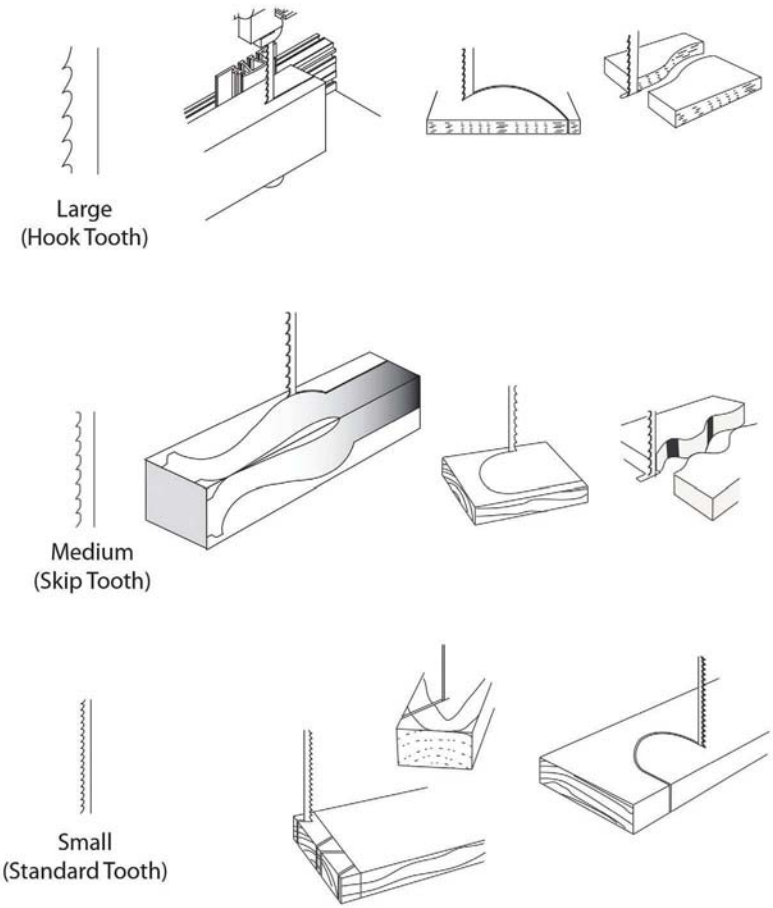


Fig. 3.17 – bandsaw blades are usually classified as large, medium and small. Large blades often have hook teeth with a raker set and a coarse pitch. Medium blades usually have skip-teeth with a raker set and a medium to coarse pitch. Small blades usually have standard – regular – teeth and a fine pitch

BLADE METALLURGY

Metallurgy refers to the composition and properties of the blade's metal ingredients and helps to explain why some blades last much longer and can cost 10 times as much as others. There is a lot of confusion and hype about bandsaw blades and their metallurgy.

To help sort out the technical information, I asked my friend Aaron Gesicki, who has a master's degree in metallurgical engineering, to help edit this section.

Fig. 3.26 shows the five most popular options for bandsaw blades, with the most durable on the left and the least durable on the right.

The most durable blade is the carbide tipped, then the bimetal, followed by the carbon steel, the spring steel with hardened teeth and the spring steel blade. The carbide-tipped blade costs roughly 10 times as much as the least expensive spring steel blade, but outlasts it by close to 100 times.

The bandsaw blade illustrates the problem common with many tools: how to make them hard without sacrificing their toughness. If the metal is too hard, it becomes brittle; if it is too soft, the edge doesn't stay sharp. This is especially complicated with the bandsaw blade because the body has the additional requirement of flexibility.

Measuring blade hardness

In the following pages are references to the hardness of bandsaw blades based on the Rockwell C Scale, one of the various hardness scales used in the industry and abbreviated 'Rc'. The test is simple. A sharpened diamond indenter of a specific shape is pressed into the material with a fixed load; then, the point's depth penetration is measured. The softer the material, the deeper the impression.

The higher the Rc number, the harder the material. Fig. 3.26 shows the blades and their Rc hardness numbers.

Because cutting material is so important to the manufacturing industries, a lot of research into machining has been done. Most of it relates to cutting metal, but some

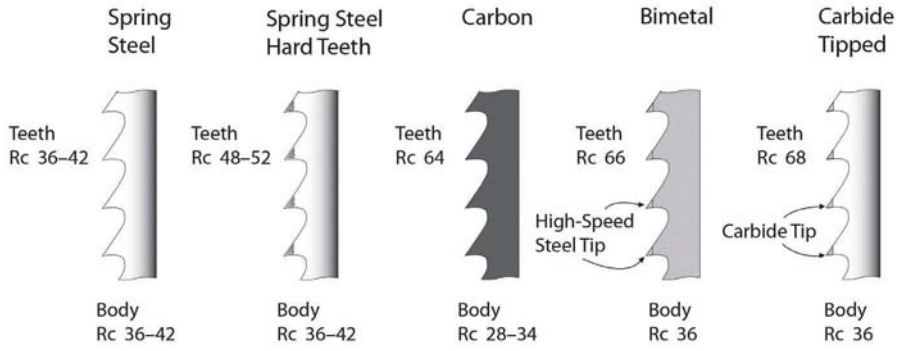
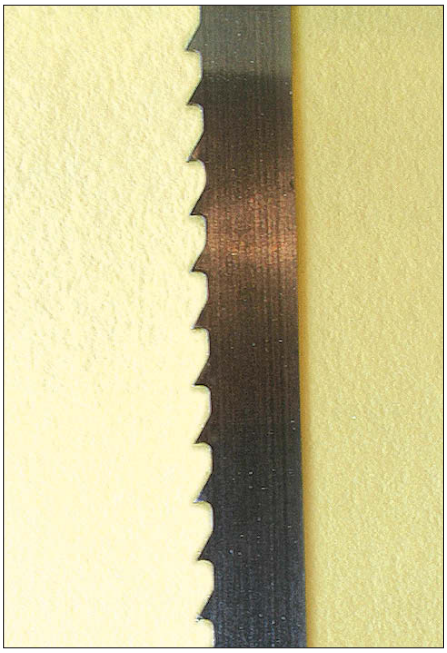
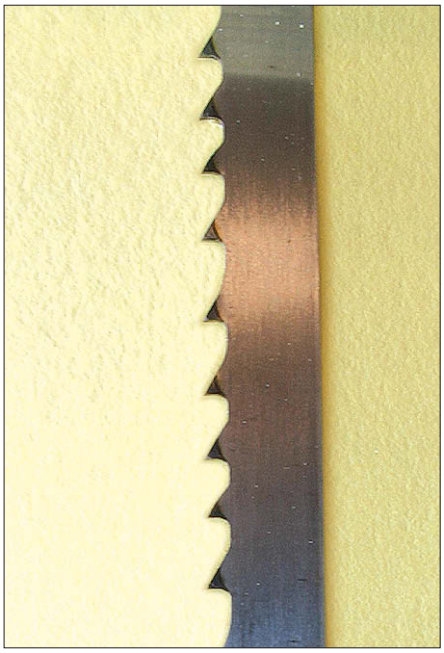


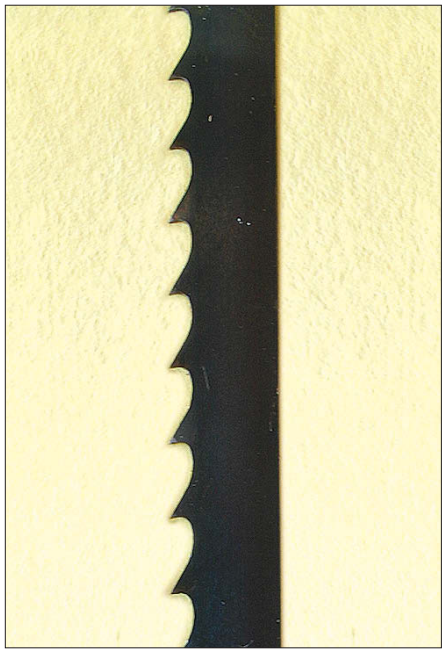
Fig. 3.26 – the three blades on the left are made from a single piece of metal. The bimetal blade has a hard piece of high-speed steel welded to the blade body to form the tooth. A piece of silicon carbide, which is very hard, is brazed to the body of the carbide-tipped blade



Spring steel blade



Blade with hardened teeth



Plain carbon steel blade

is useful for wood. Cutting tool performance can be measured by the tool's ability to cope with heat, flexing, shock and abrasion. Flex life is the ability of the bandsaw blade to withstand repeated flexing around the wheels of the bandsaw machine without breaking. Resistance to shock is its ability to withstand impact blows caused by the vibrations of cutting and impact with knots or even nails. Abrasion resistance refers to the ability of the tooth tips to hold up against tough materials. A tooth measured one point greater than another tooth on the Rockwell hardness scale is twice as abrasion resistant.

The big difference between iron – not to be confused with cast iron – and steel is the amount of carbon. Increased carbon content improves the ability of the material to be sharpened and to hold the edge during the cutting process.

Spring steel blades

The original bandsaw blades were made of spring steel, which is usually silver in colour. These are the blades that you find at local hardware stores and home centres. The teeth and body have the same hardness, Rc 36-42, which is not particularly hard. However, the body is soft enough to be flexible, thus avoiding band breakage. The teeth are hard enough to be used on softwoods, but they will dull quickly on hardwoods.

Spring steel is usually available in alloys specified as C1074, C1086, and C1095, where the last two digits indicate approximate carbon content. For example, C1074 has a carbon (C) content range of approximately 0.74% to 0.78%. C1086 is approximately 0.84% to 0.89%, and C1095 is approximately 0.94% to 0.96%. All are considered high-carbon steel.

In an effort to make an inexpensive blade, some manufacturers notch the blank, which is essentially punching the shape of the teeth with a die. Other spring steel blades are milled. Although most blades are .025in thick – which is the thickness of six pieces of paper – spring steel blades are available in thinner dimensions, down to a .014in blade, which is suitable for small tabletop saws.

Spring steel blades with hardened teeth

Another type of spring steel blade has a soft body with hardened teeth, which extend their life. Harder teeth stay sharp longer. The teeth are first cut in the soft body, then they are ground and set. The last stage is the hardening process. The tip can be induction hardened with an electrical current or flame hardened with torches. If the tooth tips of a spring steel blade are dark in colour, this indicates that they have been hardened.

Spring steel hybrid

The spring steel blade is also manufactured with variably spaced teeth for the meat cutting industry. This blade has sharp impulse-hardened teeth that produce a smooth cut on moderately hard wood. The impulse hardening process darkens the tips of the teeth. The body is a thinner .022in with minimal set, so the kerf is narrower than other blades. The blade is initially very sharp and produces a smooth surface, but it is not very durable when cutting wood.

Plain carbon steel blades – Flex-back

The plain carbon steel blade was designed during the 1930s to improve durability by increasing the carbon content. These blades are usually black in colour and are used for both wood and metal cutting. The teeth of carbon steel blades are very hard, measuring 64-66 on the Rockwell C Scale. This is about the hardness of a good chisel.

The higher carbon content of approximately 1.30% makes the steel stay sharp longer because the metal has increased wear resistance. The teeth of a carbon blade can withstand heat up to 400°F, which is important when cutting metal because of the high temperatures generated. This is less important when cutting wood, unless the blade is used in constant daylong production or is used to cut exotic woods, such as teak *(Tectona grandis)*, which not only are rather hard but also contain abrasive minerals.

The back of a flexible or flex-back carbon steel blade, at Rc 28-32, is

softer than the back of a spring steel blade. The teeth are hard and durable, and the blade's body is soft enough to not be brittle. These blades are the most reasonably priced for the serious woodworker.

There is also a hard-back version of the blade with a body hardness of Rc 43-47 that is used to cut metal in industrial settings. The increased hardness increases the tensile strength of the blade, while the hard back increases the beam strength, which helps the blade resist deflection under heavy sawing pressure in a production metal-cutting situation. The hard-back blade isn't especially important for woodworking and isn't worth the extra expense. A flex-back blade is sufficient.

Silicon steel blades

One variation of the carbon steel blade is blade stock with a high silicon content, from Sweden. Silicon steel blades have a carbon (C) content similar to C1074 spring steel, from 0.74% to 0.79%. Its silicon content is around 1.5%, whereas regular carbon steel has a silicon content of 0.16% to 0.19%. High silicon steel can tolerate heat. It is appropriately named 'friction band' and is used primarily for friction-sawing metal, that is, cutting at speeds between 6,000 and 14,000 surface feet per minute – SFM. The metal being cut is heated to a very high temperature by the cutting action of the blade and softens in front of the cut. Even though the blade is not designed for woodworking, it is aggressively marketed at a premium price. These blades have teeth in the Rc 60 range, with an Rc 30 blade body. They are initially sharp and cut well in the beginning, but I don't think they are as durable as a high-quality carbon steel blade. These blades are advertised as requiring less tension, but there is not a good technical explanation for using less tension than usual.

Bimetal blades

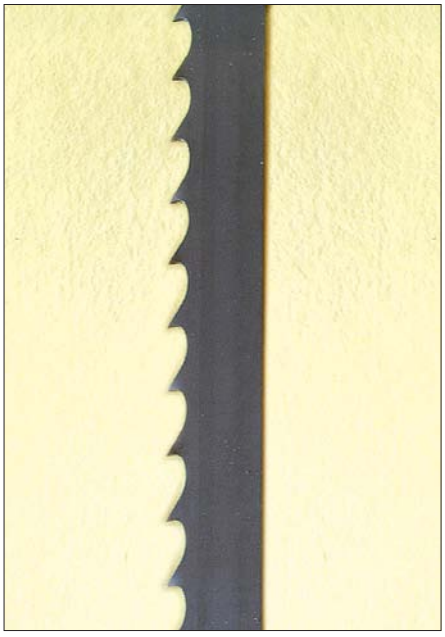
The bimetal blade was developed during the 1960s for cutting metal. The blade looks like a carbon steel blade but is a uniform medium grey in colour. Like the carbon steel blade, it has hard teeth and a softer body, but it is made in quite a different way. A small strip of flat high-speed steel – cobalt/molybdenum – wire is electron-beam welded onto a wider strip of alloy steel. The combined strip is then milled just like all the other bands, creating a blade with tooth tips of high-speed steel on an alloy steel body. Only the tooth tip cuts, so it's an ideal combination. The high-speed steel teeth have a hardness of approximately Rc 65, and the blade can withstand heat up to 1,000°F. The blade rarely reaches 300°F when wood is being cut. The bimetal blade also can withstand much higher tension than the carbon blades, which increases its beam strength. This is useful in metal cutting because so much feed pressure is used. Bimetal blades are now available in the .025in thickness for use on 14in saws, with tooth configurations specifically designed for cutting wood. Although bimetal blades are more expensive than standard carbon steel, they will outlast the steel blade by 10-25 times. They are not as sharp as some of the other blades, and they do tend to experience harmonic vibration, like a guitar string.

The bimetal blade may be best in situations that require abrasion resistance, such as when cutting plywood, particleboard, fibreglass and exotic woods with a high mineral content. My experience is that when resawing dense woods, such as hard maple, this blade will greatly outlast everything except carbide by quite a margin – up to 20 times longer than a standard carbon steel blade. If you do a lot of sawing and the finish doesn't have to be the smoothest, this is the most economical choice. The blade I use is a 3 TPI hook-tooth manufactured by Olson Saw and sold under the brand name MVP.

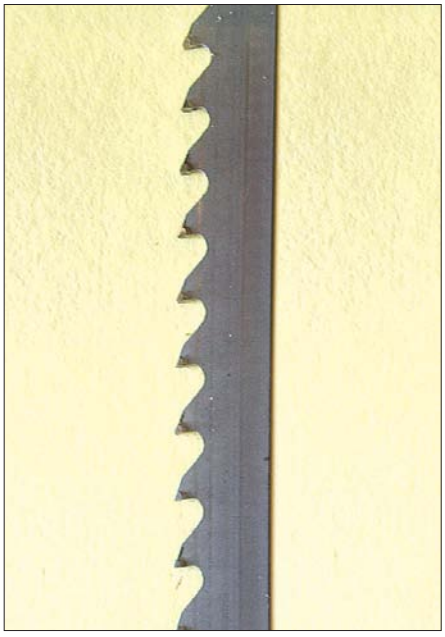
Carbide-tipped blades

Like circular saw blades, the carbide teeth on bandsaw blades are individually brazed onto the blade back, then they are precisely ground on the exposed surfaces. It is an expensive manufacturing process. This blade will outlast any other type of bandsaw blade and may be a good choice for woods like teak that have a high silica content, which dulls a regular blade very quickly. For the consumer grade 14in saws, this blade is available in the ½in by .025in thickness for about $100 (£62). The carbide blade requires some getting used to because it tends to vibrate unless the wood is fed at a smooth rate. It requires more tension to dampen vibration and should have the back rounded with a stone fairly often to prevent a crack from starting, which is the first step in blade breakage. It would be hard to find a local shop that could weld this blade if it should break.

For large saws, carbide-tipped blades are available in wide widths with a variable tooth spacing pattern. I have had one of these blades for years on my 20in Italian saw, which I use like a tablesaw for ripping. It produces a high-quality cut similar to that of a circular saw blade. I find that resawing with a wide carbide-tipped blade is a dream. ■



Bimetal blade



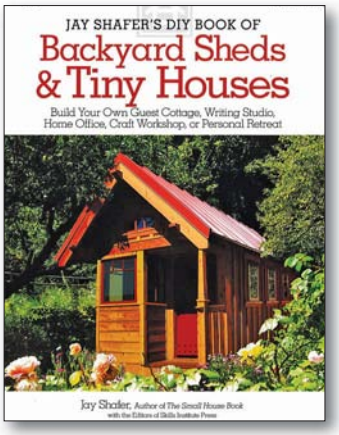
Carbide-tipped blade

Book reviews

Briony Darnley reviews three books and we also have a great book offer

Jay Shafer's DIY Book of Backyard Sheds & Tiny Houses

by Jay Shafer



This book by Jay Schafer is a guide to making your own small property, which could act as a guest cottage, writing studio, home office, craft workshop or personal retreat. The designs range from 100-120sq.ft. but with extensive instructions on how to apply the methods to any backyard project.

The thought of building a shed from the ground up may be tempting to a lot of people, but moving on to building a tiny house may be a little intimidating to some – but you needn't worry! Jay covers all necessary aspects of building, right from clearing the building site, sourcing your own wood and even what to wear in the process. As Oprah Winfrey has praised the book, the 'astounding' detail in which Jay delves is key to creating his designs. As author of *The Small House Book*, Jay really knows what he is talking about and expertly guides you through the process.

The images throughout the guide are brilliantly colourful, the elevation drawings are clear and the text as informative as possible. As Jay points out: 'design attention to energy and space efficiency in tiny houses can help us on the road to a sustainable world'.

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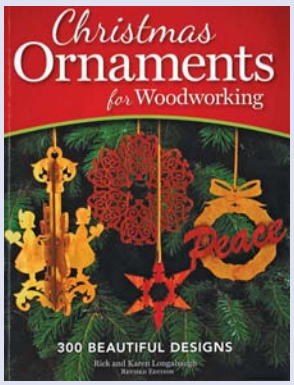

Outdoor Wood Projects: 24 Projects You Can Build in a Weekend

by Steve Cory

Steve Cory's *Outdoor Wood Projects: 24 Projects You Can Build in a Weekend* is a great guide for those who are looking for ideas to brighten up their garden. The basic projects included are planters, window boxes, trellises, outdoor furniture, and bamboo projects, all with a number of different design ideas included. Steve makes sure to cover all areas! The guide is aimed at those with beginner-skills and uses basic tools to create the 'elegant and unique' outdoor projects. All of the projects can be tailored to fit your landscape. Throughout the book, Steve includes clear and colourful images, in what are primarily text-based instructions, with drawings and illustrations where necessary. Steve doesn't skip a single step in the process, beginning with a chapter on materials, tools and techniques, going into detail on wood choice, the tools used and how to use them in different ways to different effects.

ISBN: 9781621138082
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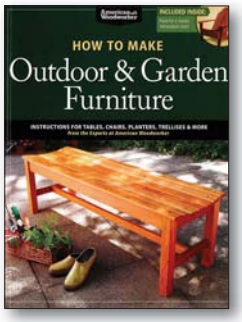
How to Make Outdoor & Garden Furniture

by *American Woodworker* magazine



There are 22 projects in *How to Make Outdoor & Garden Furniture*, by woodworkers such as Chad Stanton, David Radtke, Tim Johnson, Tom Caspar, Jonathan Benson and projects and an introduction by Randy Johnson. From *American Woodworker* magazine, the projects in the book are step-by-step, accompanied by colour photographs and detailed illustrations. For those woodworkers who are new to making outdoor furniture, or even furniture, there is a chapter included that looks at technical advice for outdoor finishes and varnishes. As well as the step-by-step images, the full-page photographs are bright, attractive and show off the furniture designs perfectly.

The majority of projects are on a larger scale, so this is potentially a book for the more experienced woodworker or brave beginner. The furniture designs include tables, patio bars, benches, chairs and ornamental trellises, hammock stand and many more!

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On the bench

– exploring a more modern idiom

In the third of **Peter Brett**'s series of bench articles, he brings you up-to-date with his own design variant

After making a couple of Hancock design benches I wanted to try out a few design ideas of my own using the router to create some through tenons, using a template and guidebush for the leg-to-top joints and dovetail 'T'-joints for joining the stretchers to the legs. The design I finally settled on was simple and elegant in style, but stable and strong too. It can also be adjusted to a range of heights and widths quite easily. It is good idea to keep an eye on the proportions, so they always remain pleasing. There are only five components in this design: a seat, two legs and two stretchers.

The key features of a bench are the width, length and height. A critical design feature is that the legs have to be placed in such a way that someone sitting near the end of it will not cause it to tip up, so it is therefore important to place the leg joints no further than 200-250mm from each end.

I have used oak *(Quercus robur)*, ash *(Fraxinus excelsior)* and pine *(Pinus sylvestris)* to make benches and each one has found a home. The most popular versions were the ash ones, as the timber had a very dramatic grain that showed up well under the oil finish.

The seat

1 For this particular bench – which is meant to be a bit more dramatic and a showpiece – you will need to edge joint the planks.

2 Luckily, I was able to get all my pieces prepared to thickness and the edges more or less straight and at right-angles to the faces, finding that my rail-saw was a great help.

3 Hold the plank to be jointed in a bench vice and as you plane along the plank, ensure the pressure is kept over the plane's centre of gravity. Once the planks balance well – edge-to-edge with no light showing through – mark out the biscuit joints. The legs are going to be fixed between 200-300mm from the seat end, so avoid biscuits at these points. Stand the planks edge-on-edge in the vice and use a pencil to mark where you want the biscuits. By doing this, you can decide the face side of the top.

PHOTOGRAPHS BY PETER BRETT

For Pull-out Plans see P40

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Using a try square, transfer the face lines across the edges as a datum for the jointer fence. Set the biscuit jointer so the blade is in the middle of the edge. Cut the biscuit slots, do a dry run with biscuits and then glue up and clamp.

The legs

4 I suggest joining the planks edge-to-edge to get the correct width for the legs – I find shorter lengths easier to join. Standard chair height is around 400-450mm, but allow a bit more for squaring off.

5 It is important to avoid the last 200mm of the bottom of the legs when placing biscuits, as a curved piece is to be cut out to form feet.

6 Once biscuited,you can then glue and clamp.

The stretchers

The stretchers are made from two pieces of timber, the same thickness as the seat and legs, but about 50mm and slightly longer than the designed distance between the legs. Cut these to width on the bandsaw before thicknessing accurately.

Mortising the seat

7 Having used through mortises before with a router, guidebush and template, I know that they are strong and decorative, especially if wedged with a contrasting timber. Begin by taking the seat cut slightly over length and cut to width. The length of the bench will determine the placement of the legs, so try clamping the legs at right-angles to the seat using mitre clamps and let your eye decide a good proportion. Once decided – mine was about 250mm from each end of a 1.5m long bench seat – mark out the through mortises on the top. Find a central joint – one on each side worked aesthetically. Avoid the joints being close to the edges as they may split when wedged.

8 Use a piece of 6mm MDF cut exactly to the seat width and with a generous length so that it can be clamped to the seat when routing the joints. Mark the joints exactly as they are on the seat. Then, mark out the enlarged lines, allowing for the offset of the guidebush and straight cutter.

9 Using a jigsaw with a metal cutting blade to avoid a rough cut, make the apertures for the guidebush. Try to avoid cutting the lines themselves, because the guide-bush will follow the smallest mistakes.

10 Use a metal file to tidy up the apertures.

11 Once the template is accurate and has been checked against the marks on the seat, use a 10mm diameter long straight cutter in the router with the template firmly clamped to the workpiece, so the edges and ends are lined up. Set the router depth stop to a fraction past the seat thickness. With the router running, plunge about 5mm deep into the work.


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12 The router needs to be fed anticlockwise around the template with the guidebush pushed firmly into the edge. Plunge slightly deeper with each pass until the cutter breaks through. All other mortises are completed in a similar way.

Leg joints

To make the corresponding leg joints it is necessary to square the ends and sides of the legs and mark a middle line. The seat has to have a middle line marked too; these are matched with each leg so the joint lines can be marked on the leg tops. It is important to be accurate. Assign a leg to an end, as there may be slight differences otherwise. Transfer the lines for the mortises to the faces using a try square, then use a marking gauge to mark the thickness of the seat on the top of the leg. Make the line a fraction deeper than the seat to allow for cleaning up later, once wedged.

13 It is easier to cut the waste from the tenons using a bandsaw, then use a sharp chisel, so the joints are pared to fit.

14 Round the corners to account for the round cornered mortises left by the router cutter.

15 After trial fitting, mark and cut the taper on the legs. The taper provides some extra stability for the bench and looks good too.

16 With the legs fitted in the mortises, mark where the seat and leg edges coincide.


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TOP TIP Plans & Projects

1. *With clean lined designs like this one, timber choice is really important because all the surfaces are on view. Make a point of choosing boards with unusual figure and detail in the grain – it will make the result more impressive.*

2. *Aim for tightish joints with no gaps but do not force joints that are too tight. Not only could you cause marking of the timber, but there may also be splits caused that will compromise the overall strength of the bench.*

17 Using a straightedge, draw a line to the bottom of the leg and cut the waste off with a bandsaw before planing smooth.

18 Mark and cut out the feet on the bottom of the legs. Using a compass on the centreline, create an arc that allows feet 45-50mm long.

19 Once done, you can then cut this away on the bandsaw…

20 … and clean up with a bobbin sander in the drill press.

21 Next, make the cuts to house the wedges. For aesthetic and strength reasons they need to be evenly spaced and not too close to the edges. Cut the wedges on the bandsaw using a jig. Contrasting colours give a good result, but the wedges must be made of strong straight-grained timber.

Initial assembly

22 Sand the pieces before assembly; this will save you some time and hassle. I used both a belt sander and random orbit sanders with a grit of about 120 or 150 at first.

23 The joints should fit comfortably and snugly, so all that is required is to apply the glue to the necessary surfaces and clamp them up accurately.

TOP TIP Plans & Projects

3. *This design is so simple in principle that any errors are highly visible. I advise applying tiny bevels to the dovetails. Bevelling arrises looks good on modern design, especially with oak and ash. Equally, the wedging of tenons not only looks good and functional, but it also helps close visible joint gapping.*

4. *Use router cutters that are no more than 6 or 8mm diameter – bigger ones will give a corner diameter that is too big for the aesthetics of the joint. Make sure that they are properly inserted into the router collet and tightened as there is considerable side pressure on the cutters when you are cutting the mortises.*


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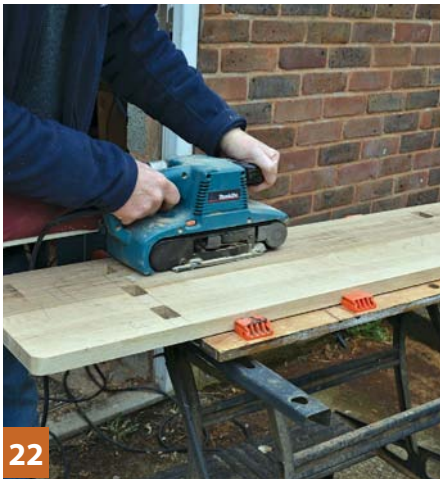
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24 Work on one joint at a time and clean up excess glue to avoid marks at finishing time.

25 Trap the wedges into place and trim off, nearly flush.

Stretcher joints

26 The stretchers are to be joined to the legs by through dovetail joints. They are meant to be seen so they need to be accurately cut and fitted. The stretchers need to be cut to length with square ends. Mark the dovetail ends using a dovetail square or sliding bevel. I cut and fit one joint at a time, but more confident workers might choose to cut all four dovetails at the same time. Placing the stretchers is an aesthetic judgement, but fixing them temporarily on the legs with Blu-Tack will help you decide what position they need to be.

27 Mark the dovetail positions from the stretcher joints on the legs and set a marking gauge to the thickness of the stretchers, to mark the depth of the cut. Once all the dovetail joints have been cut, it is possible to do a final sanding with finer grits on all exposed surfaces before gluing the dovetails.

28 You can highlight the dovetails with bevels for visual impact. During the making I routed small bevels on some of the arrises – edges – for example on the semi-circles forming the feet. This is a matter of taste, but the edges need to be relieved a bit, in order to avoid splinters and sharp edges.

Finishing

29 Once the bench is fully sanded it is time to finish it with a protective coating. For hardworking domestic pieces, I use a Danish oil finish. Thin the first coat with white spirit for deeper absorption and quicker drying. Once dried, it is necessary to sand with fine finishing abrasive – say 280-320 grit – and apply a second coat of full-strength oil. Once dried, sand this again and apply a third coat. Sand the third coat again with finishing paper and buff with good quality wax polish. This finish is quite durable and easy to renew in case of accidents. It only needs a maintenance coat of wax once or twice a year. ■


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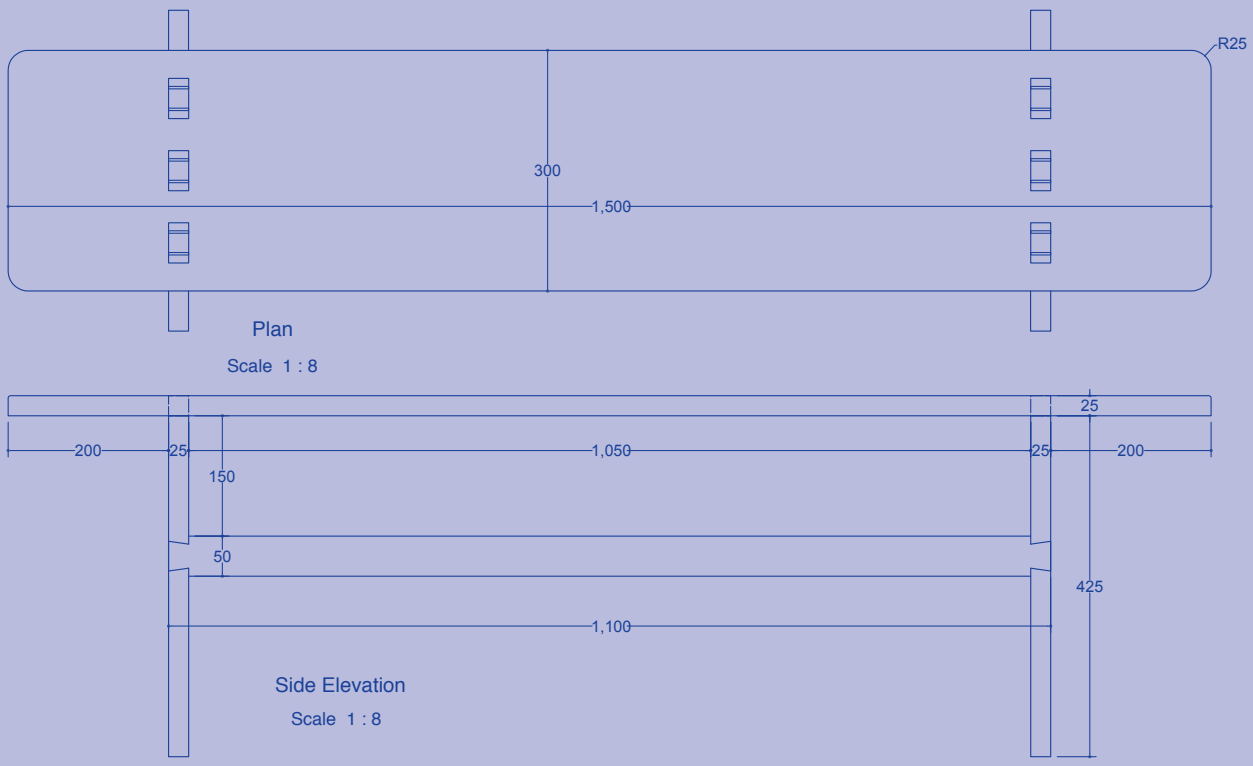
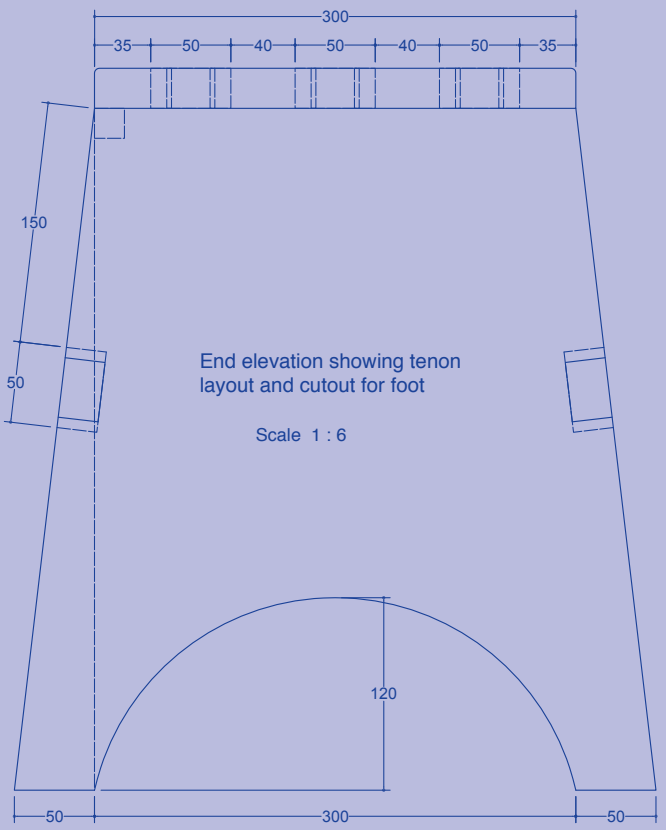
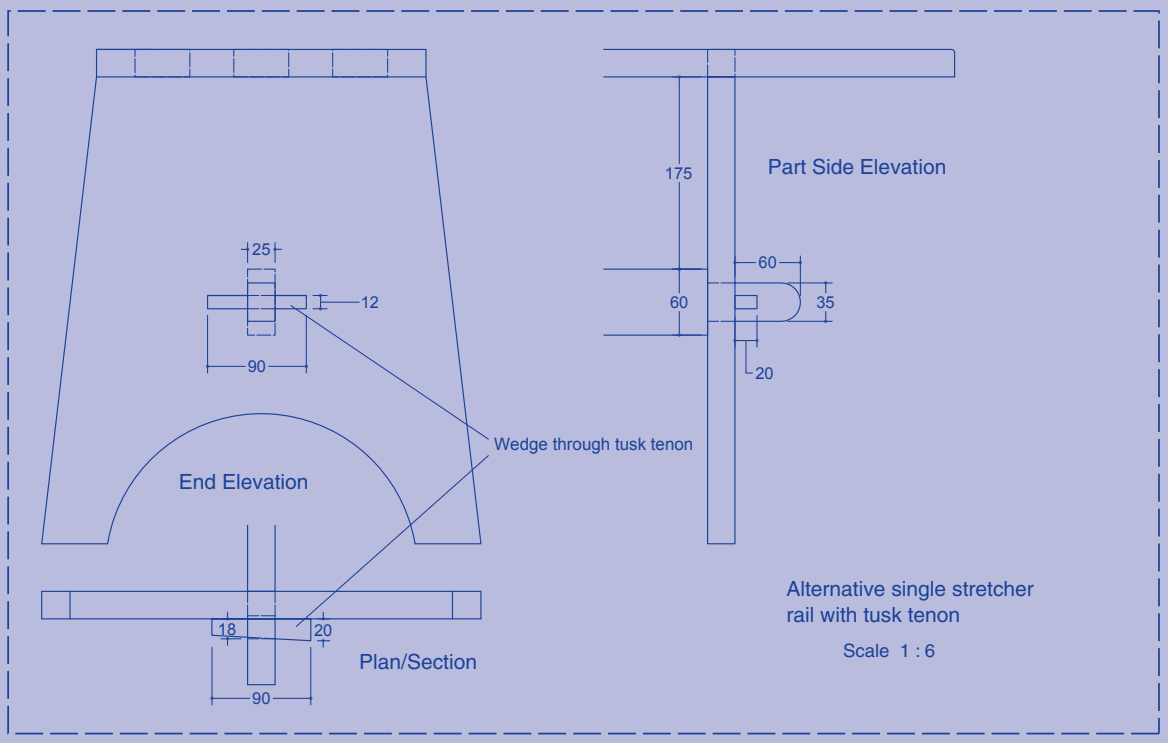
Your free stretcher bench plans





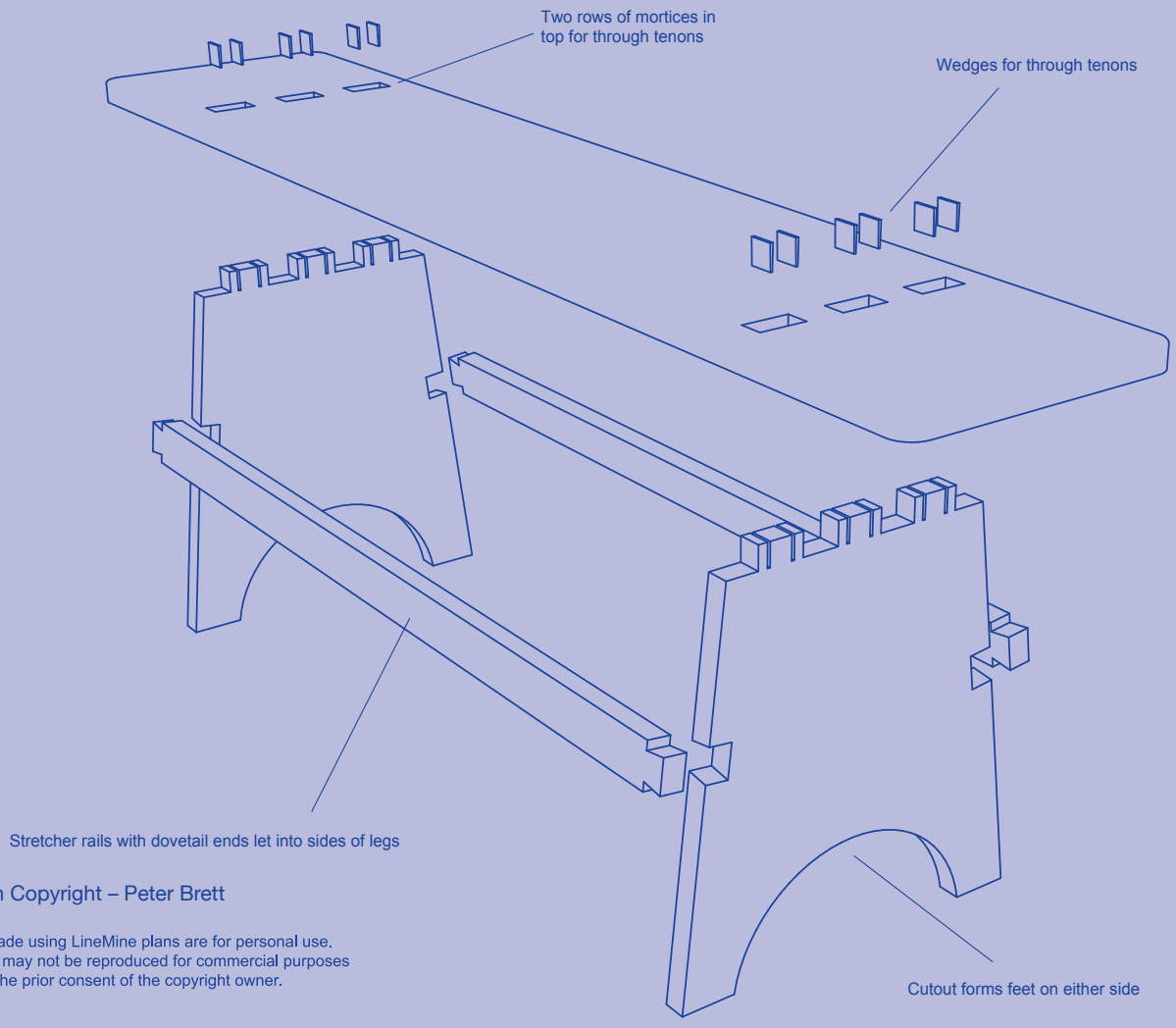
Cutting List

SEAT	1 @ 1,500 x 300 x 25
LEGS	2 @ 450 x 400 x 25
STRETCHER RAILS	2 @ 1,100 x 50 x 25



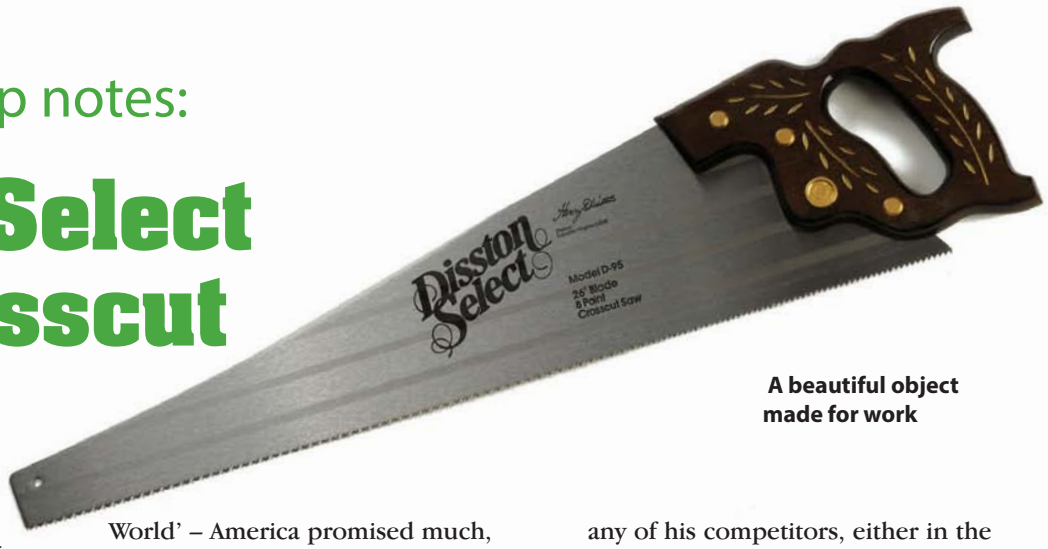
Alternative single stretcher rail with tusk tenon

Scale 1 : 6



Workshop notes:

Disston Select D-95 crosscut saw



A beautiful object made for work

The Editor gets his teeth into the subject of a very special brand of handsaw

In my late teens/early 20s I was on a mission to buy what I thought were good quality hand tools. Typical ones were Stanley and Record, Marples and a few others. There wasn't the wide range of choice in terms of price and quality that there is today. Back then it was more of a level playing field where competing manufacturers produced similar goods even with similar model numbers.

Disston

One brand stood apart from the others because, at that time, most tools were made in the UK even if the parent company, i.e. Stanley, was based in the USA. That 'stand out' brand was Disston, known for making world-class handsaws. I definitely needed to get one as far as I was concerned. I still have it today, although it did languish for many years due to a change of career and the state of the blade reflects that.

Background

Recently, my *Furniture & Cabinetmaking* Editor colleague, Derek Jones did an exercise in reviving an old Disston panel saw. This set me researching a little about Disston's origins and Derek was able to fill me in on quite a lot of it and it makes a fascinating story of Victorian 'rags to riches'. At the age of 14 Henry Disston left Derby, England with his family for Philadelphia, USA in 1833. Many people from different parts of Europe, including Great Britain, went to seek a new and hopefully prosperous life in the 'The New World' – America promised much, but the reality was very different and it was years of hard physical graft, true grit and determination on the part of young Disston, to make his way and his fortune in the United States, which to his credit he eventually did. He became exceptionally wealthy, known as a hard-nosed businessman making the highest quality tools for his new found country, both in peace and war and yet he was known for his concern and devotion to his workforce, treating them fairly and humanely in what must have been a very dirty, noisy, heavy industrial setting.

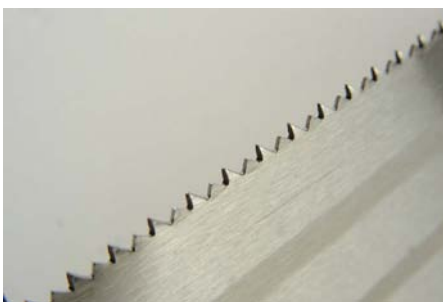
To the test

Disston saws were known for their superior characteristics in terms of the steel alloy, the cut and set and taper of the blades and the comfort of the handle designs. All in all, a vastly better product at that time than any of his competitors, either in the States or the UK, where many tools were still imported from.

Disston is a brand of myth and legend, but the bottom line is they make damn good saws. With that in mind, I was trawling through mine and everyone else's favourite online marketplace and what should I spy? None less than a brand new, but old stock, Disston Select panel saw, which was still in its damaged box. It looks great and feels great. To be honest, I've only just taken it for a test run, I wasn't disappointed! It has a 26in 8tpi – teeth per inch – crosscut blade and it cuts quickly and cleanly, just how it should be… ■

For more on the history of Disston Tools, pick up a copy of *Furniture & Cabinetmaking* issue 224. On sale in all good newsagents right now!

Nicely detailed handle with the Disston leaf and medallion design



PHOTOGRAPHS BY GMC/ANTHONY BAILEY

The saw features carefully crosscut sharpened and set teeth

Making a quick clean cut in some 50mm thick ash

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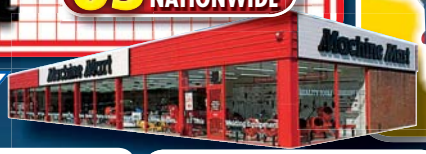


Clarke 4" BELT/ 6" DISC SANDER

CS4-6D

£84.99 EX.VAT
£101.99 INC.VAT

- Dust extraction facility
- 4" x 36" belt tilts & locks 0-90°
- 225mm x 160mm table, tilts 0-90°
- 370w, 230v motor

Clarke 6" BELT/ 9" DISC SANDER

- Includes stand
- 1 Hp/ 230v/ 1ph motor

CS6-9C

PRICE CUT £199.00 EX.VAT
£238.80 INC.VAT
WAS £262.80 inc.VAT

Clarke TABLE SAWS

LEG STANDS AVAILABLE FOR CTS11 & CTS10D £22.99 EX VAT £27.59 INC VAT

FROM ONLY £69.98 EX.VAT £83.98 INC.VAT

CTS10D

INCLUDES LEFT & RIGHT TABLE EXTENSION

*Moulded base

MODEL	MOTOR	BLADE	EX VAT	INC VAT
CTS800B	600w	200mm	£69.98	£83.98
CTS11*	1500w	254mm	£139.98	£167.98
CTS10D	1500w	254mm	£149.98	£179.98

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT

- Great for sawing, cutting, sanding, polishing, chiselling & much more
- 250w motor
- Variable speed

PRICE CUT £34.99 EX.VAT £41.99 INC.VAT
WAS £44.39 inc.VAT

CMFT250

Clarke BANDSAWS

PRICE CUT £109.98 EX.VAT £131.98 INC.VAT
WAS £143.98 inc.VAT

HUGE RANGE IN CATALOGUE & ONLINE

CBS250 INCLUDES STAND

‡ was £143.98 inc.VAT

MODEL	MOUNT	MOTOR	THROAT	EX VAT	INC VAT
CL CBS190 ‡	Bench	350w	190mm	£109.98	£131.98
CL CBS250	Floor	370w	245mm	£179.98	£215.98

Clarke POWER PLANERS

Makita

- 82mm cutting width

FROM ONLY £24.99 EX.VAT £29.99 INC.VAT

CON1020

MODEL	INPUT POWER	DEPTH OF CUT	EX VAT	INC VAT
Clarke CEP1	650w	2mm	£24.99	£29.99
Clarke CON1020	1020w	3mm	£36.99	£44.39
Bosch GHO26-82*	710w	2.6mm	£129.98	£155.98

*110v + 230v in stock

evolution 255mm MULTI-PURPOSE TABLE SAWS

FURY 5 ONLY £159.98 EX.VAT £191.98 INC.VAT
WAS £215.98 inc.VAT

MODEL	MAX DEPTH CUT 45°	MAX DEPTH CUT 90°	TABLE SIZE (mm)	EXC. VAT	INC. VAT
FURY5*	54mm	73mm	625x444	£159.98	£191.98
RAGE5‡	55mm	79mm	868x656	£279.00	£334.80

*FURY power: 1500w (110V available)
‡RAGE power: 1800w/230V (110V available)
table extensions included

‡ was £215.98 inc.VAT # was £341.99 inc.VAT

Clarke 1" BELT & 5" DISC SANDER

- Inc. 2 tilt/lock tables and mitre gauge
- 300w motor

CBS1-5

£59.98 EX.VAT £71.98 INC.VAT

Clarke ELECTRIC POWER FILE

CPF13

- Variable belt speed
- Tilting head

*Black & Decker

PRICE CUT NOW FROM £44.99 EX.VAT £53.99 INC.VAT
WAS £59.98 inc.VAT

‡ was £59.98 inc.VAT # £68.39 inc.VAT

MODEL	MOTOR	EXC.VAT	INC.VAT
CPF13 ‡	400w/230v	£44.99	£53.99
KA900E#*	350w/230v	£52.99	£63.59

Clarke CONTRACTOR CR2 ROUTER

PRICE CUT £109.98 EX.VAT £131.98 INC.VAT

- Powerful heavy duty machine ideal for trade use
- Variable speed control from 7,400-21, 600 rpm • 2100w motor • 0-60mm plunge depth. CR3 Router with 15 Piece Bit Set also available only £94.99 £113.99

INCLUDES 15 PIECE SET WORTH OVER £20

Clarke ROUTERS

BOSCH

CR1C

FROM ONLY £39.98 EX.VAT £47.98 INC.VAT

ACCESSORIES IN STOCK

* DIY

MODEL	MOTOR (W)	PLUNGE (mm)	EX VAT	INC VAT
CR1C*	1200	0-50	£39.98	£47.98
Bosch POF1400ACE NEW	1400	0-55	£74.99	£89.99

Clarke STATIC PHASE CONVERTERS

- Run big 3 phase woodworking machines from 1 phase supply
- Variable output power to match HP of motor to be run

PC60

ROTARY PHASE CONVERTERS ALSO AVAILABLE

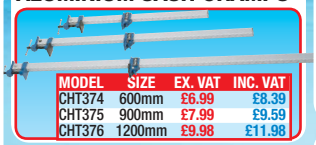
CONVERT 230V 1PH TO 400V 3PH

FROM ONLY £229.00 EX.VAT £274.80 INC.VAT

MODEL	MAX. MOTOR HP	FUSE	EX VAT	INC VAT
PC20	2Hp	10amps	£229.00	£274.80
PC40	3.5Hp	20amps	£269.00	£322.80
PC60	5.5Hp	32amps	£319.00	£382.80

Clarke LIGHTWEIGHT ALUMINIUM QUICK RELEASE ALUMINIUM SASH CRAMPS

FROM ONLY £6.99 EX.VAT £8.39 INC.VAT



MODEL	SIZE	EX. VAT	INC. VAT
CHT374	600mm	£6.99	£8.39
CHT375	900mm	£7.99	£9.59
CHT376	1200mm	£9.98	£11.98

Clarke JIGSAWS

Makita BOSCH Power Tools

CJS380

*DIY #Professional

PRICE CUT NOW FROM £12.99 EX.VAT £15.59 INC.VAT
WAS £17.99 inc.VAT

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EX VAT	INC VAT
Clarke CJS380* ‡	420w	55/6mm	£12.99	£15.59
Clarke CON750#+	750w	80/10mm	£24.99	£29.99
B & D KS600*▲	450w	60/5mm	£29.98	£35.98
Bosch PST700*	500w	70/4mm	£49.98	£59.98

‡ was £17.99 inc.VAT + was £35.98 inc.VAT
▲ was £40.79 inc.VAT

Clarke CONTRACTOR 18V PRO CORDLESS DRILL/DRIVERS

- 10mm chuck size
- 2 Speed, Variable control - 0-350/0-1250rpm
- 21 torque settings

PRICE CUT NOW FROM £64.99 EX.VAT £77.99 INC.VAT
WAS £83.98 inc.VAT

2 Batteries

INCLUDES 12 PIECE BIT SET

MODEL	BATTERIES	EXC. VAT	INC. VAT
CON18Ni‡	2 x Ni-Cd	£64.99	£77.99
CON18Li#	2 x Li-Ion	£84.99	£101.99

‡ was £83.98 inc.VAT
# £107.98 inc.VAT

Clarke CORDLESS DRILL/ DRIVERS

BOSCH Power Tools

PSR18

PRICE CUT NOW FROM £34.99 EX.VAT £41.99 INC.VAT
WAS £44.39 inc.VAT

HUGE CHOICE IN-STORE & ONLINE

MODEL	VOLTS	BATTS	EXC. VAT	INC.VAT
CCD180 ‡	18v	1	£34.99	£41.99
CCD240#	24v	1	£39.98	£47.98
Bosch PSR18 †	18v	1	£49.98	£59.98

‡ was £44.39 inc.VAT # was £56.39 inc.VAT
† was £71.98 inc.VAT

Clarke 12" CONTRACTORS SAW

INDUCTION MOTOR

£239.00 EX.VAT £286.80 INC.VAT

- 1600w motor
- 315mm blade
- 90mm max cut depth at 90°
- Dust extractor

CCS12

Clarke ENGINEER'S DRILL PRESS

- Tables tilt 0-45° left & right
- Depth gauge
- Chuck guards

PRICE CUT NOW FROM £59.98 EX.VAT £71.98 INC.VAT
WAS £77.99 inc.VAT

MODEL	WATTS/ SPEEDS	EXC.VAT	INC.VAT
CDP5EB	350/5 ‡	£59.98	£71.98
CDP101B	245/5	£79.98	£95.98
CDP151B	300/5	£106.99	£128.39
CDP10B	370/12	£169.98	£203.98
CDP301B	510/12	£199.98	£239.98
CDP451F	510/16	£239.98	£287.98
CDP501F	980/12	£429.00	£514.80

‡ was £77.99 inc.VAT

B=Bench mounted
F=Floor standing

Clarke CONTRACTOR BELT SANDER

- Two handles for increased control
- 1200w motor
- Belt size: 100x610mm
- Belt speed 480M/min

CBS2

PRICE CUT £69.98 EX.VAT £83.98 INC.VAT

Clarke BELT SANDERS

BOSCH Power Tools

BS1

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

MODEL	WATT	M/MIN	EX VAT	INC VAT
Clarke BS1	900w	380	£29.98	£35.98
Makita 9911	650w	75-270	£94.99	£113.99

Clarke DRILL BIT SHARPENER

CBS16

- Great for 3mm to 10mm HSS drill bits • 70W motor
- Drill bit guide ensures sharpening at the correct angle
- Saves cost of new drills

£21.99 EX.VAT £26.39 INC.VAT

Clarke SHEET SANDERS

CON300

PRICE CUT NOW FROM £12.99 EX.VAT £15.59 INC.VAT
WAS £17.99 inc.VAT

‡ was £17.99 inc.VAT
# was £68.39 inc.VAT

MODEL	SHEET SIZE	MOTOR	EX VAT	INC VAT
COS200‡	190X90mm	150w	£12.99	£15.59
CON300	230X115mm	330w	£29.98	£35.98
Makita# BO455	112X102mm	200w	£54.99	£65.99

Clarke RANDOM ORBITAL SANDER

CROS1

£27.99 EX.VAT £33.59 INC.VAT

- For sanding & polishing
- 125mm diameter sanding discs
- 4000-11000 opm

INC 5 DISCS

Clarke CONTRACTOR RANDOM ORBITAL SANDERS

CROS2

INC 6 DISCS

£49.98 EX.VAT £59.98 INC.VAT

- For fast removal of paint or for fine swirl free finishing
- 6 x 150mm diameter sanding discs • 4000-7000 rpm

Clarke PORTABLE THICKNESSER

- Max thickness capacity 130mm
- Planing depths adjustable from 0-2.5mm
- Powerful 1250w motor
- 8000rpm no-load speed

£179.98 EX.VAT £215.98 INC.VAT

CPT250

Clarke 1000MM VARIABLE SPEED WOOD LATHE

CWL1000V

SUPPLIED WITH ROBUST STEEL STAND

PRICE CUT £239.00 EX.VAT £286.80 INC.VAT
WAS £310.80 inc.VAT

- Large 350mm turning capacity • Variable speed
- Lockable tailstock • High quality cast iron build

Clarke 13" MINI WOOD LATHE

£129.98 EX.VAT £155.98 INC.VAT

CWL325V

- Ideal for enthusiasts/ hobbyists with small workshops
- 325mm distance between centres • 200mm max. turning capacity (dia) • 0.2Hp motor

Clarke BOLTLESS SHELVING BENCHES

- Simple fast assembly in minutes using only a hammer

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

ALSO EXTRA WIDE INDUSTRIAL UNITS AVAILABLE

SAVE 10% WHEN YOU BUY ANY MIX OF 5 FROM THIS RANGE SAVE AT LEAST £17.99 INC.VAT

CHOICE OF 5 COLOURS
RED, BLUE, BLACK, SILVER & GALVANISED STEEL

150 KG PER SHELF (evenly distributed) Strong 9mm fibreboard shelves

350 KG PER SHELF (evenly distributed) Strong 12 mm fibreboard shelves

MODEL	SHELF DIMS WxDxH(mm)	EX VAT	INC VAT
150Kg	800x300x1500	£29.98	£35.98
350Kg	900x400x1800	£49.98	£59.98

Clarke PLANERS & THICKNESSERS

CPT800

- Ideal for DIY & Hobby use • Dual purpose, for both finishing & sizing of timber (CP-6 planer only)

FROM ONLY £139.98 EX.VAT £167.98 INC.VAT

MODEL	MOTOR	MAX THICK. CAPACITY	EX VAT	INC VAT
CP-6	1100w	*	£139.98	£167.98
CPT600	1250w	120mm	£169.98	£203.98
CPT800	1250w	120mm	£189.98	£227.98

Clarke WOODWORKING LATHES

3 PCE CHISEL SET INCLUDED WITH CWL1000

CWL1000

SEE CATALOGUE FOR ACCESSORIES

MODEL	CENTRE TO CENTRE (mm)	TURNING CAP.	TURNING SPEEDS	EX VAT	INC VAT
CWL1000	1016	350mm	4	£114.99	£137.99
CWL12D	940	305mm	5	£189.98	£227.98

FROM ONLY £114.99 EX.VAT £137.99 INC.VAT

22642LH

MORTISING MACHINE CBM1B

£144.99 EXC.VAT £173.99 INC.VAT

- Accurately creates deep square recesses • Table size 150 x 340mm • Maximum chisel cap.76mm • Robust cast iron base & column ensures stability & accuracy • 95mm depth of cut

"It is fast and accurate with a good solid feel...Excellent value for money, I'm really pleased with it." See www.machinemart.co.uk

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WOODWORKING VICES

FROM ONLY £13.49 EX.VAT £16.19 INC.VAT

Record WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/61	£13.49	£16.19
Stanley Multi Angle	Clamped	72/60/40	£16.99	£20.39
Record V75B	Clamped	75/50/32	£18.99	£22.79
Clarke WV7	Bolted	180/205/78	£24.99	£29.99

WHETSTONE SHARPENER CWS200

- Produces accurate razor sharp cutting edges on chisels, scissors, tools etc • 120w motor • Grinding disc 200mm • Wet bath • Leather honing wheel

£109.98 EX.VAT £131.98 INC.VAT

TURBO AIR COMPRESSORS

airmaster

- Superb range ideal for DIY, hobby & semi-professional use

HUGE RANGE OF AIR TOOLS IN STOCK

CLARKE 8MM AIR HOSE FROM ONLY £5.99 EX VAT £7.19 INC VAT

MASSIVE PRICE CUT NOW FROM £79.98 EX.VAT £95.98 INC.VAT WAS £107.98 inc.VAT

8/250

MODEL	MOTOR	CFM	TANK	EX VAT	INC VAT
Tiger 8/250 ‡	2Hp	7.5cfm	24ltr	£79.98	£95.98
Tiger 7/250*	2 Hp	6	24ltr	£89.98	£107.98
Tiger 8/36	1.5 Hp	6.3	24ltr	£109.98	£131.98
Tiger 11/250	2.5Hp	9.5	24ltr	£119.98	£143.98
Tiger 8/510#	2Hp	7.5	50ltr	£129.98	£155.98
Tiger 11/510	2.5Hp	9.5	50ltr	£149.98	£179.98
Tiger 16/510	3 Hp	15.5	50ltr	£219.98	£263.98
Tiger 16/1010	3 Hp	14.5	100ltr	£269.98	£323.98
AM17EC150*	3Hp	14	150ltr	£419.00	£502.80

*Stationary belt driven ‡was £107.98 inc. VAT *was £119.98 inc. VAT # was £167.98 inc.VAT

TABLE SAW WITH EXTENSION TABLES (250mm)

£119.98 EX.VAT £143.98 INC.VAT

NEW CTS14

- Ideal for cross cutting, ripping, angle and mitre cutting • Easy release / locking mechanism for table extensions • 0-45° tilting blade • Cutting depth: 72mm at 90° / 65mm at 45° • 230V/50Hz, Motor: 1800W, No load speed: 4700rpm • Optional leg kit in stock

10" SLIDING MITRE SAW

- For fast, accurate cross, bevel & mitre cutting in most hard & soft woods • 1800w motor • Laser guide

£129.98 EX.VAT £155.98 INC.VAT

CMS10S2

MITRE SAW STAND

CFMSS1

£64.99 EX.VAT £77.99 INC.VAT

- Suitable for most sizes/makes of saw • Inc. outriggers & rollers

DISC SANDER (305MM)

- Powerful, bench mounted disc sander • 900W • No load disc speed: 1490rpm • 305mm Disc Diameter (1 x 60 grit sanding disc included) • Dimensions (LWH): 440x437x386mm • Weight: 28kg

PRICE CUT £119.98 EX.VAT £143.98 INC.VAT WAS £149.99 inc.VAT

CDS300B

DOVETAIL JIG

- Simple, easy to set up & use for producing a variety of joints • Cuts work pieces with a thickness of 8-32mm • Includes a 1/2" comb template guide & holes for bench mounting

£59.98 EX.VAT £71.98 INC.VAT

CDTJ12 Router not included

SCROLL SAWS

CSS16V

FROM ONLY £64.99 EX.VAT £77.99 INC.VAT

- 120w, 230v motor • 50mm max cut thickness • 400-1,700rpm variable speed • Air-blower removes dust from cutting area

‡was £101.99 inc.VAT

MODEL	MOTOR	SPEED RPM	EX VAT	INC VAT
CSS400B	85w	1450	£64.99	£77.99
CSS16V ‡	120w	400-1700	£79.98	£95.98
CSS400C*	90w	550-1600	£99.98	£119.98

Includes flexible drive kit for grinding/polishing/sanding

MITRE SAWS

evolution Makita Clarke

RAGE3

FROM ONLY £54.99 EX.VAT £65.99 INC.VAT

- Quality Range of Mitre saws and blades available

MODEL	BLADE DIA BORE (mm)	MAX CUT DEPTH/CROSS	EX. VAT	INC. VAT
TH-MS 2112	210/30	55/120mm	£54.99	£65.99
Fury 3	210/25.4	60/200mm	£119.98	£143.98
Evolution Rage 3	255/25.4	75/300mm	£169.98	£203.98
Makita LS1040	260/30	95/130mm	£199.98	£239.98

ROTARY TOOL KIT CRT40

£29.98 EX.VAT £35.98 INC.VAT

Kit includes:

- Height adjustable stand with clamp • Rotary tool • 1m flexible drive • 40x accessories/consumables

6" BENCH GRINDER WITH SANDING BELT

- For sanding/shaping wood, plastic & metal • Supplied with coarse grinding wheel & sanding belt

£49.98 EX.VAT £59.98 INC.VAT

CBG6SB

INDUSTRIAL ELECTRIC FAN HEATERS DEVIL 6003

- Rugged fan heaters for small to medium sized premises • Tough steel cabinets • Adjustable heat output with thermostat

FROM ONLY £37.99 EX.VAT £45.59 INC.VAT

MODEL	HEAT OUTPUT	EX VAT	NOW INC VAT
Devil 6002	0.7-2kW	£37.99	£45.59
Devil 6003	1.5-3kW	£59.98	£71.98
Devil 6005	2.5-5kW	£74.99	£89.99
Devil 6009‡	4.5-9kW	£129.98	£155.98
Devil 6015#	5-10-15kW	£189.98	£227.87

‡ was £167.98 inc.VAT # was £239.98 inc.VAT

ROUTER TABLE CRT-1

Router not included

- Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

£56.99 EX.VAT £68.39 INC.VAT

DUST EXTRACTOR/ CHIP COLLECTORS

PRICE CUT £119.98 EX.VAT £143.98 INC.VAT WAS £155.98 inc.VAT

METABO ALSO AVAILABLE

- Powerful 750w motor • 56 litre bag capacity • Flow rate of 850M3/h

‡was £155.98 inc.VAT

MODEL	MOTOR	FLOW RATE	BAG CAP.	EX VAT	INC VAT
CDE35B‡	750w	850 M3/h	56Ltrs	£119.98	£143.98
CDE7B	750w	850 M3/h	114Ltrs	£139.98	£167.98

DUST EXTRACTOR CDE1000

- 50 litre tank capacity • 183 m³/h flow rate • 1000W input wattage

OTHER MODELS AVAILABLE

£99.98 EX.VAT £119.98 INC.VAT

BENCH GRINDERS & STANDS

- Stands come complete with bolt mountings and feet anchor holes

6" & 8" AVAILABLE WITH LIGHT

FROM ONLY £27.99 EX.VAT £33.59 INC.VAT

STAND AVAILABLE FROM ONLY £41.99 EX.VAT £50.39 INC.VAT

CBG8W features 8" whetstone & 6"drystone. # With sanding belt

MODEL	DUTY	WHEEL DIA.	EX VAT	INC VAT
CBG6RP	DIY	150mm	£27.99	£33.59
CBG6RZ	PRO	150mm	£37.99	£45.59
CBG6RSC	HD	150mm	£47.99	£57.59
CBG6SB#	PRO	150mm	£49.98	£59.98
CBG6RWC	HD	150mm	£54.99	£65.99
CBG8W (wet)	HD	150/200mm	£55.99	£67.19

VAC KING WET & DRY VACUUM CLEANERS

FROM ONLY £47.99 EX.VAT £57.59 INC.VAT

- A range of compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.

MODEL	MOTOR	CAPACITY WET/DRY	EX. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£47.99	£57.59
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC25SS*	1400W	19/17ltr	£64.99	£77.99
CVAC30SSR*	1400W	24/21ltr	£86.99	£104.39

* SS = Stainless Steel

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FLUES, COWLS & ACCESSORIES IN STOCK

BUCKINGHAM £249.00 EX.VAT £298.80 INC.VAT 6kW

REGAL II £349.00 EX.VAT £418.80 INC.VAT 6.8kW

LARGE & XL MODELS IN STOCK

POT BELLY £94.98 EX.VAT £113.98 INC.VAT 11.8kW

BARREL £209.00 EX.VAT £250.80 INC.VAT 6.9kW

HARDWOOD WORKBENCH

- Includes bench dogs and guide holes for variable work positioning • 2 Heavy Duty Vices • Large storage draw • Sunken tool trough • LxWxH 1520x620x855mm

£129.98 EX.VAT £155.98 INC.VAT

CHB1500

RECIPROCATING SAW

PRICE CUT £49.98 EX.VAT £59.98 INC.VAT WAS £65.99 inc.VAT

- 850w motor • 24mm stroke length • Includes 3 wood & 3 metal blades

CON850

Machine Mart Xtra

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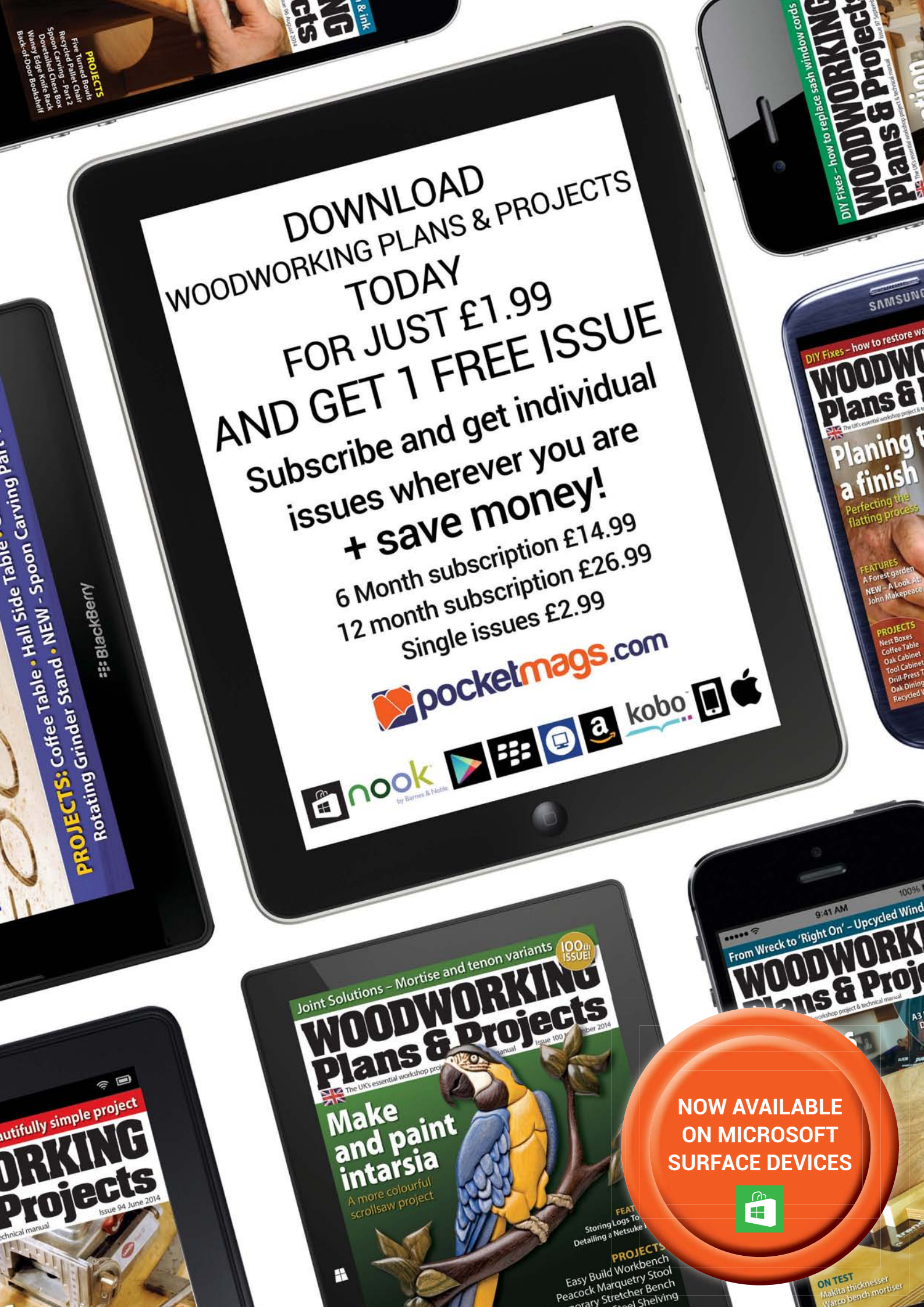
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Craftsman's corner

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

IRWIN Marples circular saw blades

If you're in the market for some new clean cutting, hard-wearing fast circular saw blades, then look no further than these from **IRWIN Marples**

IRWIN Tools launched their new IRWIN Marples range of circular saw blades a while ago. We have had the chance to use them in our workshop and I think it's fair to say they are really good performers.

The range

They are made in Udine, Italy to a very high-quality standard, with a low noise level. They are fast and clean cutting with a range to suit all machine types. The Marples blades have a blue PTFE coating with aluminium flakes in the coating, which keeps the blades running cooler. They are available in a variety of sizes from 216mm and 24 tooth up to 305mm and a maximum 100 tooth with plenty of choices in between. Kerfs are available in thicknesses between 2.5-3.2mm. The blade packets are clearly marked for each specific usage, e.g. mitre, table and mitre and multipurpose. The range is further broken down into alternate top bevel, high alternate top bevel and triple chip grind, which gives you 28 blades to choose from.

These blades give a really good cut finish

Verdict

We have been using a 250mm diameter general purpose blade in our tablesaw and a 300mm in a compound mitre and they both give a very fast, clean cutting result without imparting any stress on the motors at all.

THE NUMBERS

Prices for the Marples blue range start from £73.64 inc VAT (RRP)

WHERE TO BUY

Web: www.irwin.co.uk

MORE CHOICES

If the Marples blue range aren't quite what you require, then check out the WeldTec range with welded – not brazed – teeth for tackling metal found in wood or, alternatively, the construction range of blades. IRWIN now has an online digital circular saw blade selection guide, which is also available for iPhone and Android. It allows you to input your chosen machine and it gives you the available blade choices.

Craftsman's corner

Bosch GOF 1250 CE router

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

There aren't many new routers on the market, so it's cause for excitement now that **Bosch** have brought out their new GOF 1250 CE model. We had hoped to look at its big brother, the GOF 1250 LCE, which is a slightly higher spec machine, but it hadn't been released on the market at the time of writing

Both routers are mid-range super-routers designed for ¼in and 8mm shank cutters only but are backed with big 1,250W motors. Both of these models use a design that hasn't appeared very often, that is one grip knob and a pistol grip on the other side. The whole machine is built to professional standard with a very tough polyamide plastic casing with softgrip overmould rubberised panels. OK, it's a router – so 'what does it bring to the party?'

Features

There's a list of interesting features that Bosch have applied to these machines that should appeal to diehard router users. The asymetrical grips give a very solid hold while machining. There is an oversize thumb-operated sprung plunge lock with a ridged contact surface. The switch on the pistol grip can be locked in the 'on' position and a squeeze of the trigger releases it again. A rather discreet speed change wheel gives you control to suit the material and cutter in use.

A lot of attention has been given to plunge depth setting. There is an easy to set depth bar and a black slider for zeroing the scale against. On top is a large fine adjuster knob for critical accuracy. The depth setting turret has five stages, three of which are adjustable. There is no perceptible

One spanner plus spindle lock makes cutter changing easy

The new depth stop is reliable and quick setting – we can't wait to see the 2015 digital version!

This plunge lock has much more sprung leverage than previous iterations

Some things never change – Bosch's standard five-stage depth turret

Plenty of fine adjustment is possible, but shouldn't you be using the accessory guiderail instead?

The pistol grip is a new and useful feature on a Bosch machine

The accessory kit includes an adaptor base for Bosch and other router makes, so you can use the guiderail system

waggle on the plunge columns; when releasing the plunge lever it needs to be held while the motor body slides back up the columns to the rest position.

The spindle lock is a brand-new Bosch design; a large snap-action lever is pulled outwards and that is enough to engage the lock and a spanner used to undo the collet nut, which is very easy to use indeed. Pushing the lever back in disengages the spindle lock.

The base is unusual in having two flat faces perpendicular to each other for running against a fence if needed.

The adaptor base includes an accessory drop-pin to use with the holes in the special piece of guiderail, which features exactly 32mm spaced carcass drillings

The rest of the base is round in profile and will accept the standard Bosch large fence with fine adjuster. This wide base opening is a major plus and it allows you to get a good view of the work area, although the cutter opening in the transparent baseplate is a lot smaller. There is integrated base extraction with a spout in the base casting. The standard Bosch guidebushes can be fitted using a bayonet fitting adaptor that is screwed to the baseplate.

Differences with the LCE variant

The LCE is the all-singing, all-dancing version, which is due for release in 2015, I believe. It features a digital depth setting scale and LED worklights around the spindle underneath the motor body. These features will be a benefit to users but otherwise it is essentially the same machine.

There is even a sprung fit end stop so you can get the positioning exact on each carcass panel

FSN OFA 32 KIT 800 Professional

This pair of routers will work with the Bosch guiderail system as you would expect, but the accessory kit contains both the guiderail adaptor and a special length of guiderail so you can make repeat hole drillings for shelf studs, etc. It comes with clamps and stops to make the job easy. The rail can be used conventionally for slotting, etc. as well. ■

THE NUMBERS

Model: GOF 1250 CE Professional
Rated power input: 1,250W
No-load speed: 10,000-24,000 rpm
Collet sizes: 6mm & 8mm
Maximum plunge: 60mm
Guidebush diameters: 16mm & 17mm
Weight: 3.6kg
Price: £374.82 (RRP inc VAT) – 240V & 110V versions include an L-Boxx

Model: FSN OFA 32 KIT 800 Professional
Price: £146.88 (RRP inc VAT)

WHERE TO BUY

Web: www.bosch-professional.com/gb/en

Hot Stuff

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

Prices correct at time of printing and inclusive of 20% VAT. Photographs and information courtesy of the manufacturers

Jet DC-850 Extractor

This chip extractor can be used in small home workshops for common wood machining tasks where a higher airflow than that provided by a vacuum extractor is required. A quiet running induction motor provides plenty of power to extract from many small workshop machines and runs at a volume which will not annoy the neighbours. The inlet diameter is 100mm, the outlet into the bag is 125mm and the airflow is sufficient to handle the majority of waste likely to be produced by the home workshop. The base is fitted with castors and a grab handle for easy mobility.

One point to emphasise is that this is a chippings extractor and it should not be expected to collect fine dust. As with all the high volume, low pressure airflow machines, the inlet should not be restricted to below 75mm diameter and the bag should be emptied regularly. Price valid until 31 December, 2014.

£169

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WEB: www.brimarc.com

Trend Complete Sharpening Kit

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The kit comes complete with a double-sided credit card sized stone, 75mm taper file, 100ml lapping fluid, cleaning block, non-slip mat, instructional DVD and *Sharpening Made Easy* booklet. Trend are so confident of the sharpening stone and lapping fluid combination that they also offer a five-year guarantee.

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TEL: 01923 249 911
WEB: www.trend-uk.com

Dremel Micro

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The key to the Micro's performance is combining its compact, highly efficient DC motor, which is powerful enough to cut, together with the latest 7.2V using lithium-ion cells, an LED light to illuminate the work area, an LED to indicate the operating speed – 5,000-25,000rpm – and the battery fuel gauge, plus 35 Dremel accessories, all packed into a smart black nylon-covered case. Thanks to its bespoke docking station charger, this tool is always fired up and ready to go.

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Tormek T-4

This second generation compact sharpening machine from Tormek, Sweden takes precision and stability to a whole new level. Vital functions like the motor and the main shaft are mounted in the zinc cast top, which also includes the integrated sleeves for the Universal Support. The result is a rigid machine with a significantly improved level of precision for the Universal Support, which is the base from which the Tormek jigs operate. Tormek have been able to improve the rigidity by 300%. The new cast zinc top section also has an integrated handle and the new metal machine plate is a convenient place to store the Tormek AngleMaster, which has magnetic feet. Also includes the Stone Grader SP-650, handbook, DVD, AngleMaster and honing compound.

£299.95

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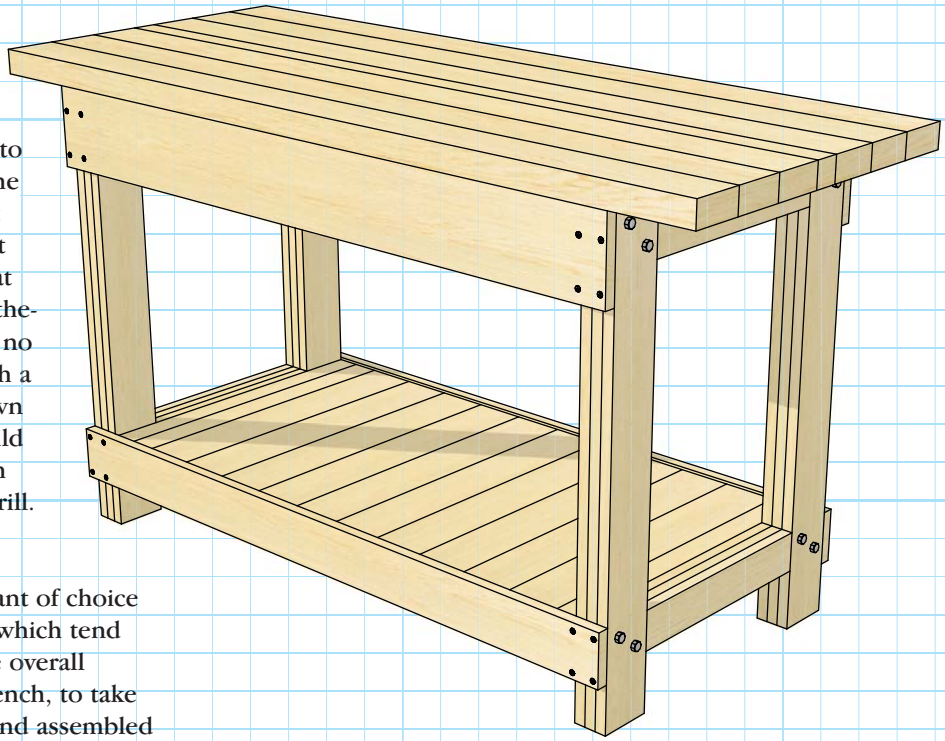
PLANS 4 YOU

Simple workbench

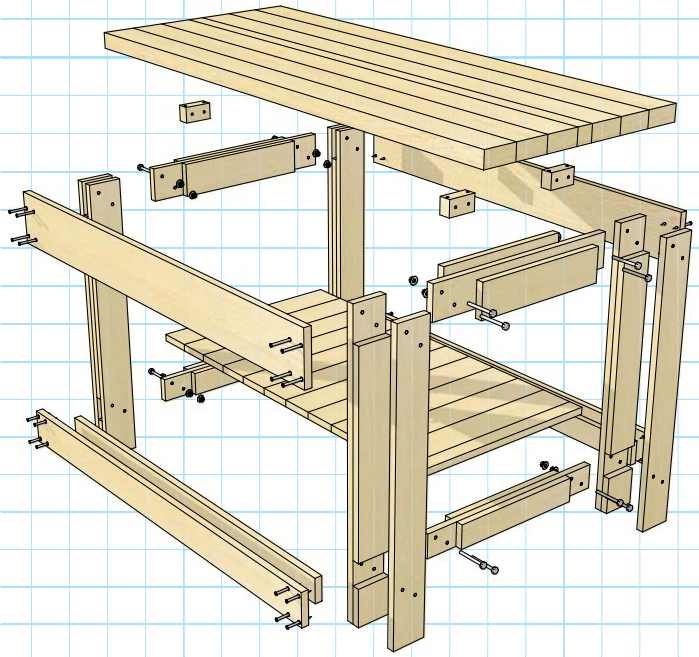
Simon Rodway shows how you can easily make your own simple workbench using lengths of off-the-shelf timber



A bit like toolboxes, workbenches come in a wide variety of shapes and sizes and they also range from the very basic to the bespoke hardwood colossus requiring a small crane to shift. This month's project falls more into the former category, but will do the job in most cases just as well. If you take a quick look at the cutting list, you will probably realise that it's designed to be made from standard off-the-shelf timber sections throughout, requiring no more than simple crosscutting to make, with a few bolts and screws and a bit of glue thrown in to finish the job. Consequently, you should be able to put this workbench together with just a few basic hand tools and a cordless drill.

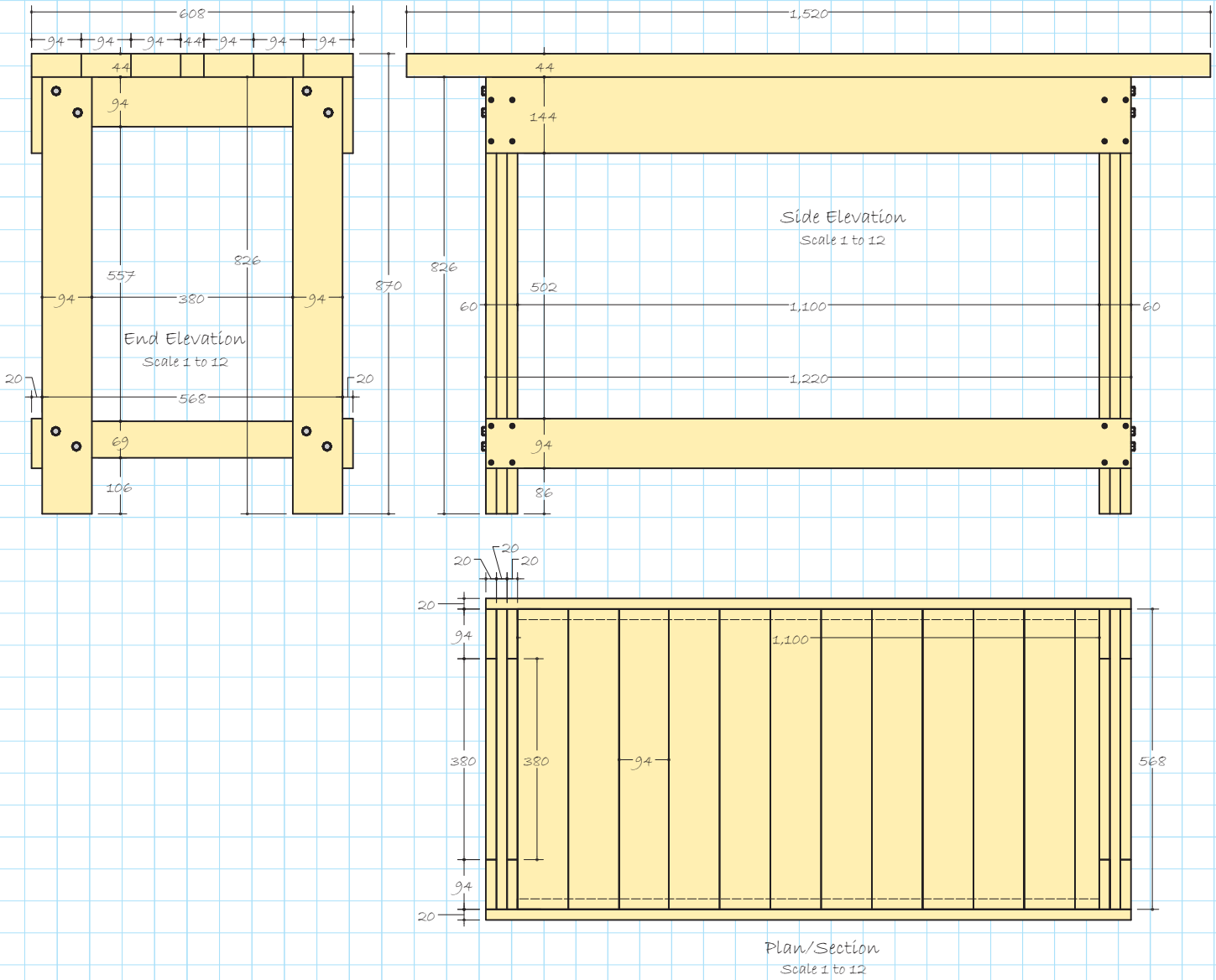
Sourcing materials

With that in mind, your local timber merchant of choice will have their own versions of these sizes, which tend to vary slightly, so please adjust some of the overall dimensions, particularly the depth of the bench, to take account of this. In fact, once you have cut and assembled the component pieces for the top, and then subtracted the thickness of the apron or top braces front and back, that will give you the exact length of your side rails and the overall depth of the frame. The top is simply glued together, so really good straight joints between each component piece are essential here.



Cutting list

Top	6 @ 1,520 × 94 × 44mm
Top	1 @ 1,520 × 44 × 44mm
Legs – outer	8 @ 826 × 94 × 20mm
Legs – infill	4 @ 106 × 94 × 20mm
Legs – infill	4 @ 557 × 94 × 20mm
Side bottom rails	4 @ 380 × 69 × 20mm
Side top rails	4 @ 380 × 94 × 20mm
Side bottom rails	2 @ 568 × 69 × 20mm
Side top rail	2 @ 568 × 94 × 20mm
Front/back top brace	2 @ 1,220 × 144 × 20mm
Front/back bottom brace	2 @ 1,220 × 94 × 20mm
Shelf supports	2 @ 1,100 × 69 × 20mm
Shelf	12 @ 568 × 94 × 20mm



The end frames

The next step is to make the end frames, by which I mean the two pairs of legs joined top and bottom with rails. As you can see from the drawings, both the legs and rails are made up by joining three standard sections of varying lengths together. In the case of the legs, the two outer pieces are full height, but the middle piece is divided into two, leaving gaps near the foot and at the top end, which effectively form a mortise for the bottom rail and bridle joint for the top rail. The rails are then assembled accordingly so that the centre pieces are full length, but the two outer pieces are shorter, forming a tenon at either end once the components are glued and screwed together. Lay the whole frame out unglued first, having cut the long leg and long rail pieces to length and then just mark off the shorter sections to fit. Check the diagonals for square at this point. Once the legs and rails are glued up, dry assemble the frame and drill a couple of bolt holes through each joint. Glue the joints together, and then bolt together using self-locking nuts on the inside.

The braces

The two end frames now need to be joined with the top and bottom braces. Start with the top braces, using at least four heavy-duty screws at each end, as you will be partly depending on these braces to give the bench lateral rigidity. The bottom shelf sits level with the top of the side rails, so adding the thickness of the shelf to the depth of the shelf support will give you the location of the bottom edge of the bottom brace. Fix the bottom braces in place front and back, again using at least four heavy-duty screws and then screw and glue the shelf supports to the inner faces of these braces. Finally, cut the shelf planks to length and screw onto the supports front and back. Unfortunately, you may have to rip the final plank to fit, but that depends on the width you use. With a bit of luck and good judgement, you may even be able to avoid this, as it isn't something I personally like doing with a handsaw these days.

Final fixing

The last stage is to fix the top to the frame. Use some heavy-duty screw blocks for this, along the inside face of the top rails. Make sure the holes for the screws that go up into the underside of the top are slightly elongated or larger than the screw diameter, as this will allow movement of the top across the grain, relative to the frame. Screw the top in place from underneath, and your new workbench is ready for its first project. ■

Adding colour to intarsia

In this extract from the *Big Book of Intarsia Woodworking*, **Kathy Wise** shows us how to make a macaw using intarsia techniques and then goes on to colour it

I prefer to use natural wood colours for my intarsia projects, but sometimes a piece requires an unavailable or impossible-to-find colour. Because bright blue wood is not available, I use acrylic paint washes and food colouring to achieve the characteristic colours on this beautiful intarsia macaw.

I add the black markings to the face with a woodburner. Test the blue dye or acrylic paint washes on several types of wood to determine which look you prefer. Let the coloured wood dry overnight and apply varnish or your top coat of choice to see exactly how the colour will look. For an easier project, cut this pattern from one piece of wood and stain or dye all of the pieces.

Start by making six copies of the pattern. Keep a master copy for future use. Cut the pattern apart and separate the pieces into colour groups. Tape contact paper flat on a board. Spray adhesive on the pattern pieces and position them on the shiny side of the contact paper. Cut the pieces adhered to the contact paper apart, peel the backing off the contact paper and stick them on the wood. Follow the grain direction arrows.

THINGS YOU WILL NEED...

Wood:

These are the woods I use; you can use your woods of choice:

- 25 x 200 x 430mm dark wood, such as wenge – for the branch and beak
- 25 x 230 x 100mm yellow wood, such as yellowheart or satinwood – for the breast and tail
- 12 x 125 x 125mm grey wood, such as blue pine – for the feet
- 6 x 50 x 50mm black wood, such as ebony – for the eye
- 25 x x 180 x 200mm light wood, such as sycamore – for the feathers, stained blue
- 25 x 63 x 63mm white wood, such as poplar – for the face
- 25 x 150 x 180mm green wood, such as lignum vitae – for the leaves
- 12 x 305 x 100mm light wood, such as sycamore – for the feathers, stained blue
- 6 x 380 x 560mm plywood or hardboard – for the backing board

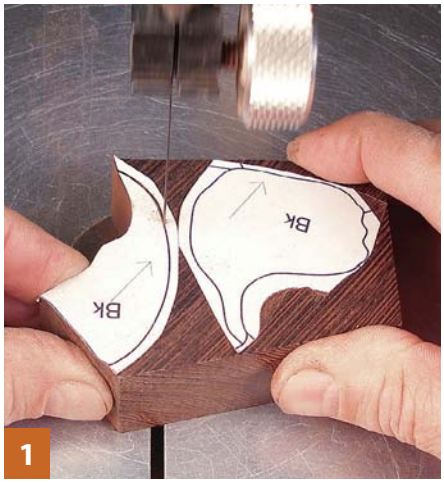
Other:

- Roll of clear contact paper
- Spray adhesive
- Wood glue
- Cyanoacrylate glue and accelerator
- Spray varnish
- Mirror-style hanger
- Blue and yellow paint or dye

Tools:

- No.3 and No.5 skip-tooth blades or blades of choice
- Drill press or drill with 1/64in diameter drill bit
- Pneumatic-drum sander with 120 and 220 grit sanding drums
- 220 grit sanding mop

PHOTOGRAPHS COURTESY OF SCROLLSAW WOODWORKING & CRAFTS MAGAZINE



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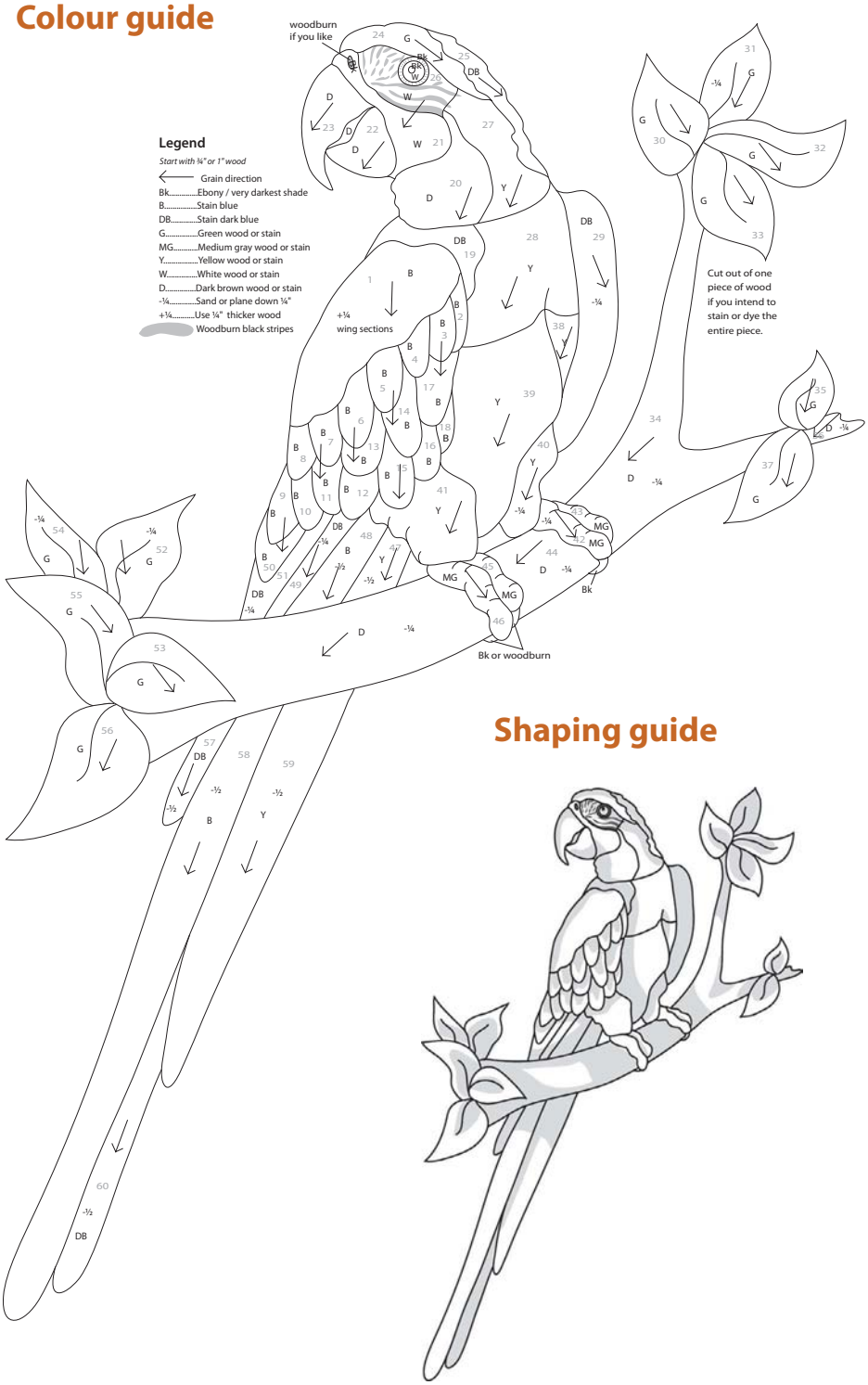
Colour guide



Shaping guide

Cutting the pieces

1 Cut the main sections. I use a No.5 skip-tooth blade. Make sure your blade is square to the saw table by using a square to check a cut piece. Plane any wood that is not flat. Number the back of each cut piece with a pencil. Do not divide the individual pieces cut from the same colour of wood.

2 Now cut the eyeball. Drill a 3mm-diameter hole for the pupil. Sand a small piece of ebony into a 3mm-diameter dowel by holding it against the drum sander with pliers, then glue the dowel into the hole. Cut the dowel flush with the surface and then cut the white of the eye. Round the eyeball on the drum sander.

3 Finish the eye. Drill a blade-entry hole in the centre of the black ring around the eye and cut the centre hole, then cut the perimeter and test the fit of the eyeball. Cut the adjoining face piece and test the fit of the black ring.

4 Cut the feathers and individual pieces. Use a No.3 skip-tooth

3

4

blade to cut the individual feathers. The smaller blade gives you a smaller kerf so the pieces will fit together better. Use the same blade to divide the yellow belly section.

5 Dry fit the pieces. Position the cut pieces on a full-size pattern taped to a piece of plywood. Check the fit of the pieces and adjust as needed. If you do not like the wood colour or grain of the pieces, change them now.

6 Adjust the fit of the pieces. Practice on scrap wood first. Hold two pieces together and recut along the line with a No.3 blade. You may have to recut the line a few times, but each cut will draw the pieces closer together.

Shaping and detailing

7 Prepare to shape the pieces. Shade the deepest areas using the shaping guide as a reference. I use a 200mm-diameter drum equipped with 120 grit sandpaper for fast wood removal and a 50mm diameter drum equipped with 220 grit sandpaper for the final sanding. Work slowly and constantly replace your pieces next to adjoining pieces to check your progress.

8 Shape the lower section. Shim up the leaf marked No.53 on the pattern and shape all of the leaves. Then round the branch. The branch should be about 6mm lower than the feet. Use an oscillating spindle sander or rotary power carver for the tight areas. Sand and shape the feet and tail, checking them against the branch. The branch is below the feet, but above the tail.

9 Finish shaping the bird. Use shaped pieces to mark the sanding depth on surrounding pieces. Remove a lot of wood between the upper and lower beak. Hold one or two feathers together and sand the top edge of the entire group of feathers. Put a sharp angle on each feather.

10 Buff the pieces. Assemble all of the shaped pieces on the full-size pattern and check for fit and flow. Make any necessary adjustments. Use a 220 grit sanding mop to buff each piece. The mop gives the pieces a nice sheen and makes it easier to apply a smooth coat of finish.

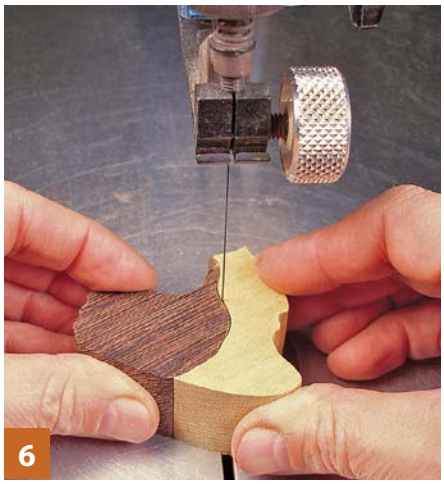
TOP TIP — Mixing colours

1. *Test your paint or dye on several pieces of wood to determine which wood and concentration of paint or dye will look best. You want the wood figure to show through the colour. I used sycamore for the blue parts of the macaw because it has a nice figure that shows through the paint wash.*

2. *To make a wash, add a small amount of water to ultramarine blue acrylic paint. Additional coats of the paint wash will intensify the colour. Write down the ratio of paint to water for later reference.*

3. *Food colouring mixed with water is another option for adding colour to your work. I used this method to intensify the bright gold of the macaw. You could also use green dye or paint to enhance the leaves.*

5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10

11 Add the details to the face. Apply white gel stain to the white areas of the face. Use a woodburner to add the black feathery lines around the eye using the grey lines on the pattern as a guide. Use a woodburner to add small texture lines to the feet and around the edges of the black eye ring.

12 You can now add the colour. Use diluted yellow food colouring on the yellow pieces. Apply two coats of the blue paint wash to the light blue areas and three coats to the dark blue areas. Let the pieces dry overnight. If the grain raises, rub the pieces lightly with fine steel wool, sandpaper or a paper bag.

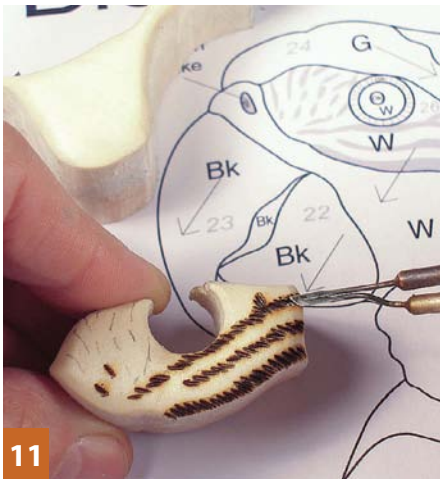
Finishing the project

13 Cut the backing board. Glue the macaw pieces into three sections using cyanoacrylate (CA) glue. Sand the bottom flat for a level gluing surface. Trace the outline of the macaw onto a piece of 6mm-thick plywood or hardboard for a backing board. Cut 1.5mm inside the lines. Sand the edges of the backing board with the sanding mop and paint the edges and back black.

"Replace the section of the macaw and press firmly until the CA glue sets up"

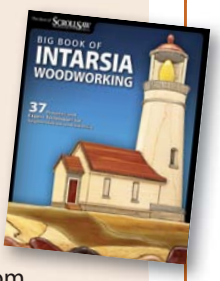
14 Glue the project to the backing board. Place the three sections in position on the backing board. Lift one section and add dots of wood glue to the backing board, then add a few drops of CA glue between the wood glue. Replace the section of the macaw and press firmly until the CA glue sets up. Use the same process to glue down the two other sections.

15 Finish the macaw. Trim any overhanging backer board and touch up the paint on the edges. Apply several coats of spray varnish or your finish of choice to the intarsia. Allow the finish to dry overnight. Cover the macaw's eye with clear glossy finish for a lifelike shine. The final step is to attach a mirror-style hanger to the back. ■



Big Book of Intarsia Woodworking

This extract was taken from the *Big Book of Intarsia Woodworking*, a collection of all-time favourite intarsia and segmentation projects from the archives of *Scroll Saw Woodworking & Crafts* magazine.



ISBN: 9781565235502
Price: £17.99 (plus P&P)
From: www.gmcpubs.com

Joint solutions

Mortise and tenons – part 1

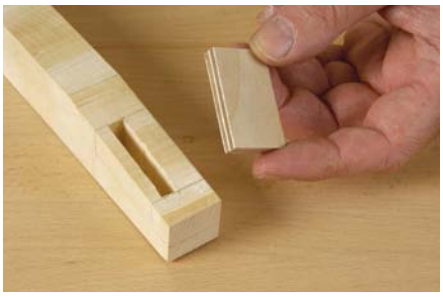
The Editor has saved the all-important mortise and tenon for our 100th issue and here he shows us how and why it matters so much

The mortise and tenon has existed for thousands of years unlike some joints, such as the dovetail, for example, which is purely a cabinetmaking joint. The M&T as it is sometimes known, is a basic constructional joint.

It's that simple, whether used to create a massive timber framed communal building or a lady's boudoir chair, the mortise and tenon is generally the only practical joint to use.

PHOTOGRAPH BY JOHN BULLAR

PHOTOGRAPHS BY GMC/ANTHONY BAILEY, UNLESS OTHERWISE STATED



• It comes in many guises and sizes; it is the indispensable joint when you want to hold timber components together rigidly and securely.

• It works under tension and compression and copes with bending stresses pretty well too.

• It can be glued or it can be done dry, if certain steps are taken to prevent the joint from separating.

• It can be cut ready for later assembly, such as for use on timber framed buildings.

• Mortise and tenon joints can be made by hand or machine, in the workshop or on site.

• The joints not only lock together, but they can also create accurate assemblies, which can then be used as datum for later construction stages.

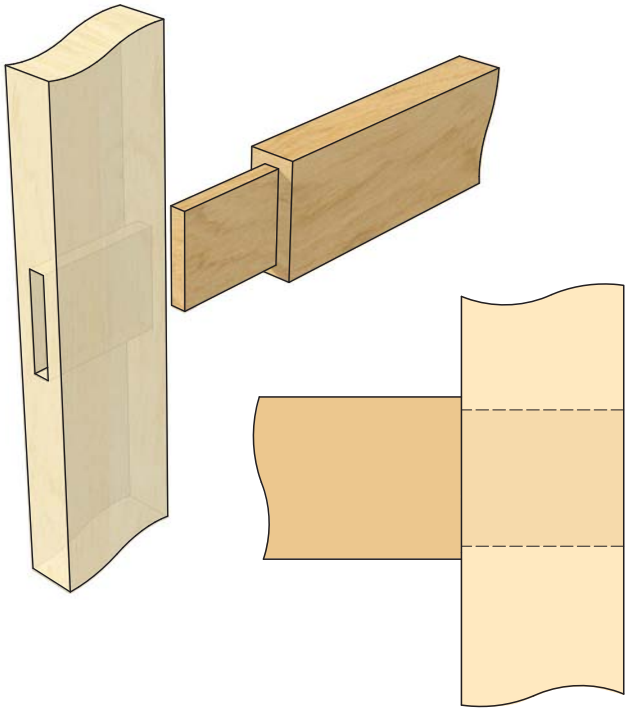
• It can be a discreet joint or one for deliberate 'show'.

Some of the above qualities are also true of certain other joints, but the mortise and tenon has all of these qualities, which makes it both a basic tool for building wooden structures in the woodworker's arsenal, and also unique.

JOINT TYPES

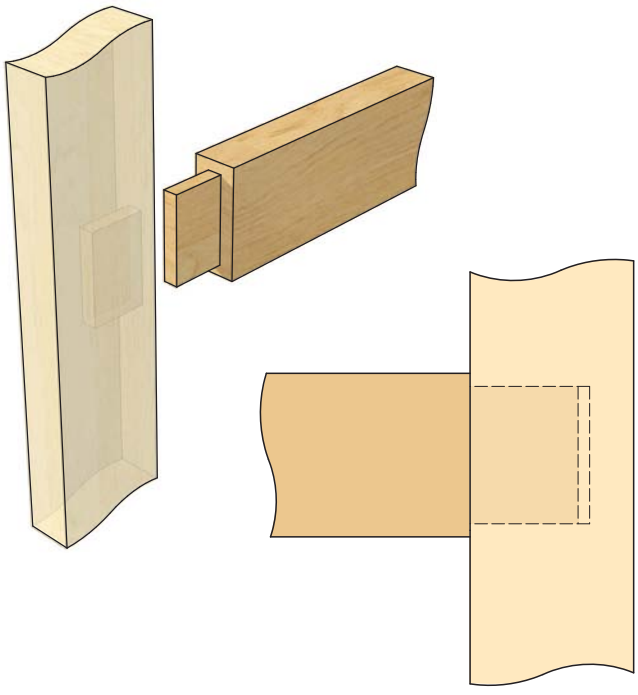
Through tenon

The most basic and useful of all, the tenon is shouldered all round so it stops securely in the mortise and the shoulders hide any gapping around the mortise where the tenon fits it. Being a through joint it gives a longer, stronger tenon at the expense of taking more wood away to create the mortise.



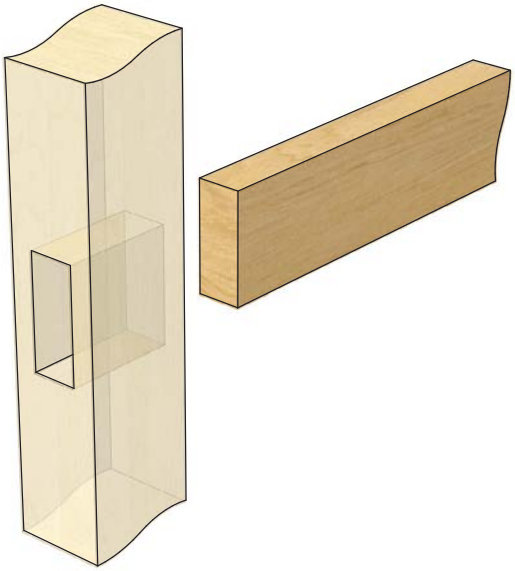
Stopped or stub

This is where the tenon does not go right through the wood, because the mortise stops short. It is more discreet and a natural for furniture construction. It needs to be deep enough in order to have enough strength.



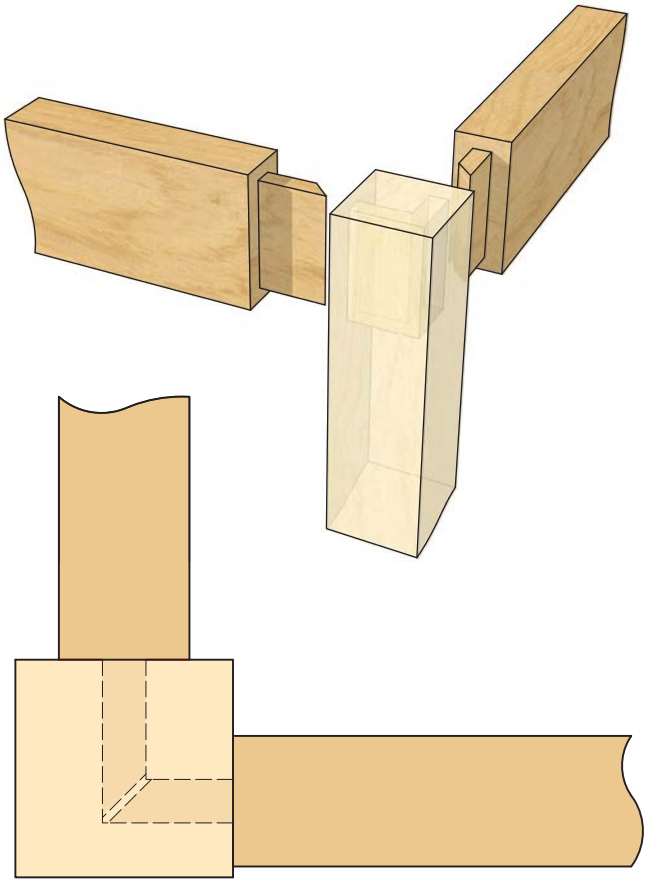
Bare-faced

The least lovely of this series of joints, it doesn't give any positive registration or have any shoulder strength so not much use in compression and any gapping is readily visible. The most practical application is for rustic fencing where the meeting rail tenons overlap where they meet in the post mortise.



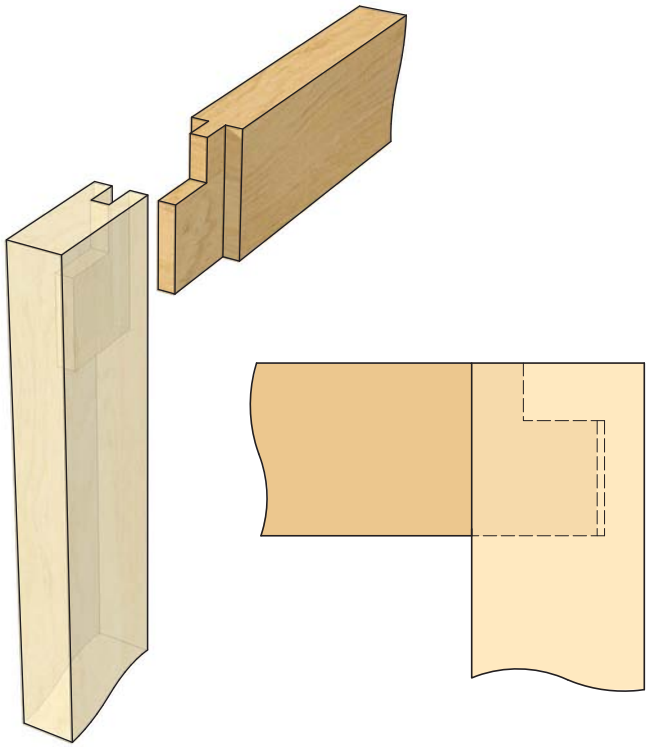
Leg tenons

A variation of the above where a chair or table leg have two mortises meeting. The tenons have bevelled ends cut so they meet neatly at the corner. A much used furniture joint.



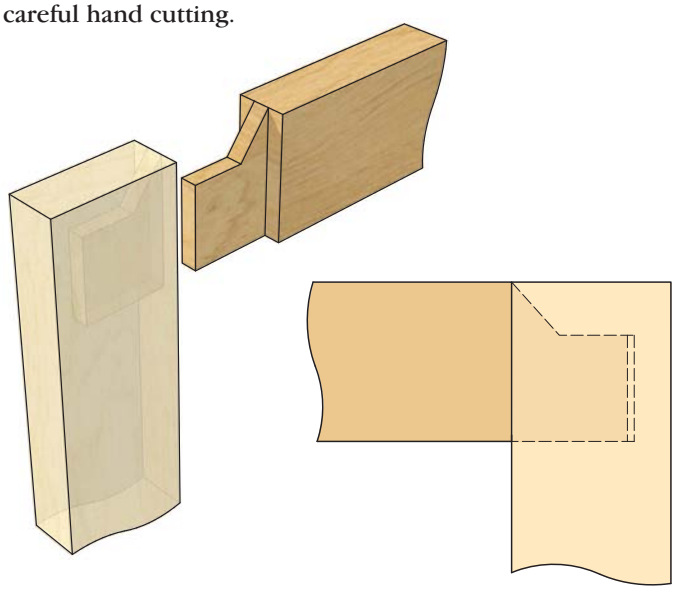
Haunched

Mortise and tenons are often used at the end of components, such as a chair or table leg. If the tenon went right to the top, then it would be a bridle joint instead and not be able to resist twisting. Haunching allows the tenon to be shouldered and still leave a small piece projecting at the top; this resists sideways twisting while keeping the joint strong.



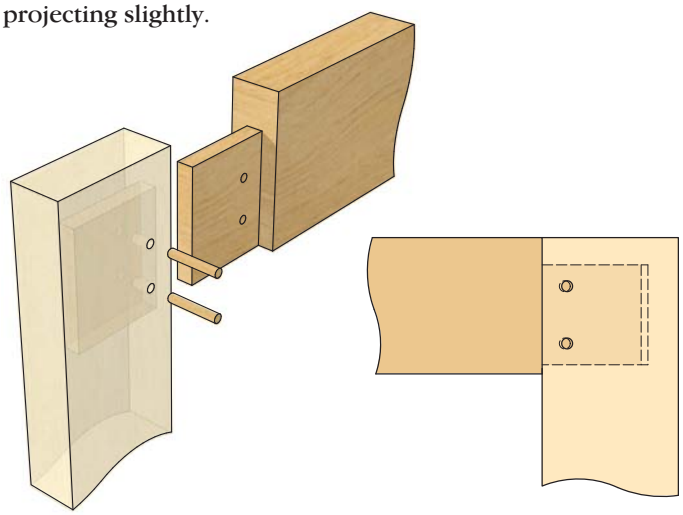
Franked

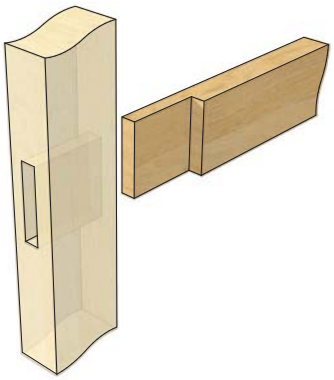
A more discreet method than haunching. It hides the projection because it is bevelled and therefore cannot be seen where the joint is closed, while still offering some sideways twist resistance. Not a machine joint; it needs careful hand cutting.



Pegged

Normally done where tenons are long enough for the pegging to hold securely. It can be used on dry or glued joints to lock them together. It is often done as a decorative feature on traditional style oak *(Quercus robur)* furniture. It is also an essential structural component used in timber-framed buildings. The correct method for assembly is to drill offset holes and use a drawbore spike to force a way through the wood fibres before tapping the dowels in the holes. This technique pulls the joint together firmly and dowels are then either trimmed off flush afterwards or left projecting slightly.



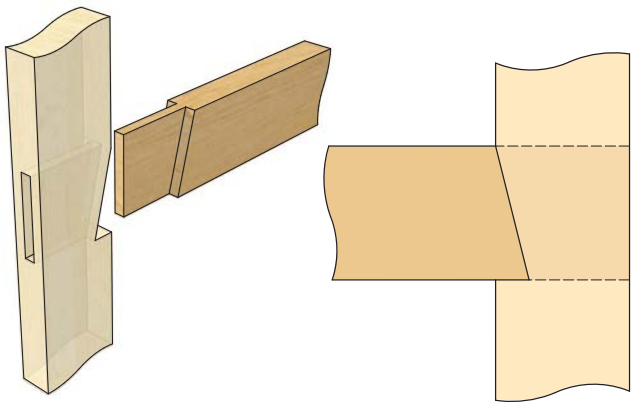


Half shoulder

There are occasions, such as with a ledged and braced door, where one face of a component needs to be flush – the half shoulder allows this.

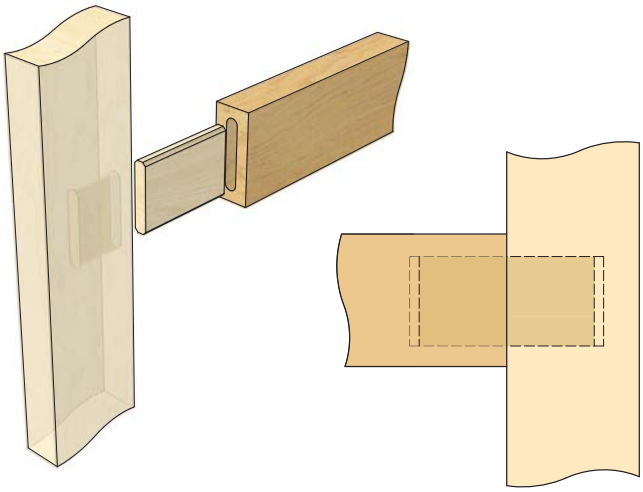
Bevel shouldered

The bevel helps lock the joint together in a more positive way and, like many woodwork joints, it also provides a nice visual detail.



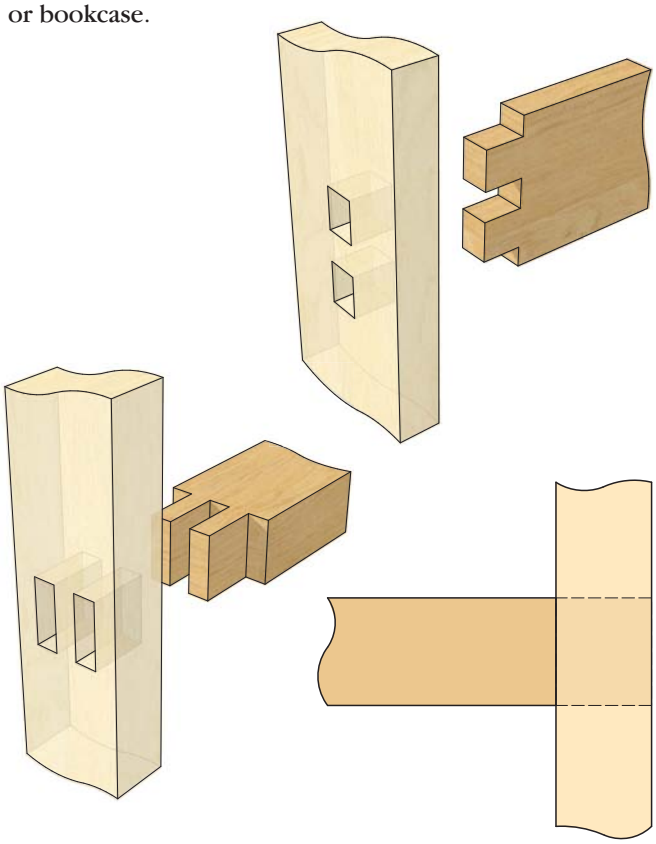
Loose tenon

This joint is described as two mortises connected by a loose tenon. In theory, it can go through three in-line components in one go, i.e. rail-post-rail. The tenon can be square in cross-section or round, depending as to how the mortises have been made. The Festool Domino system is an example of a ready-made loose tenoning system. However, you can make your own quite easily. If you have a lot of mortise and tenons to make, this can be a very convenient time saver with no loss of joint strength.



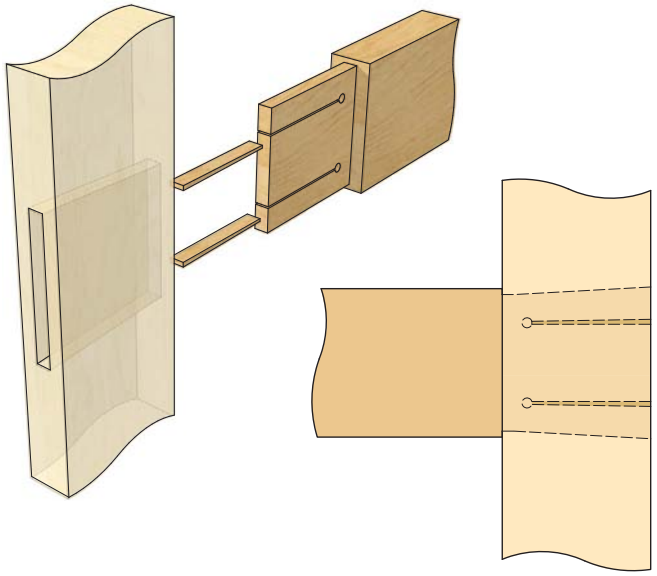
Twin tenon

Having twin tenons can be both decorative and functional. Two neat visible tenon ends can look good as surface detail while they also serve to strengthen wide joints, if you have square section components. In fact, you can have a line of tenons as an effective way to strengthen and display the construction of a piece of furniture, such as a stool or bookcase.



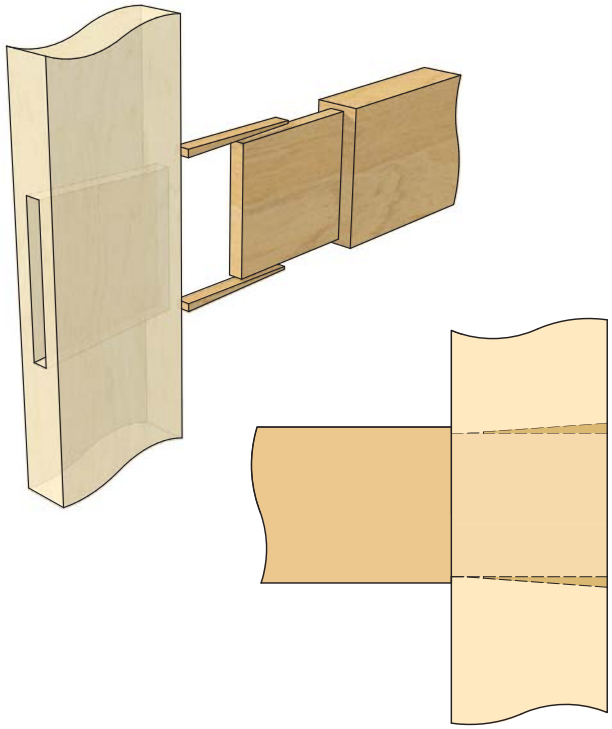
Wedged

The reason for wedging tenons is to lock them firmly into place. The tenon slides into a dovetail shaped mortise – which can be opened out to shape with a chisel – and two slim wedges tapped into kerfs in the tenon. The wedges are then trimmed off flush. This joint looks good, is incredibly strong and irreversible. The same technique using iron and wood wedges is used to hold the head on a traditional pattern of hammer.



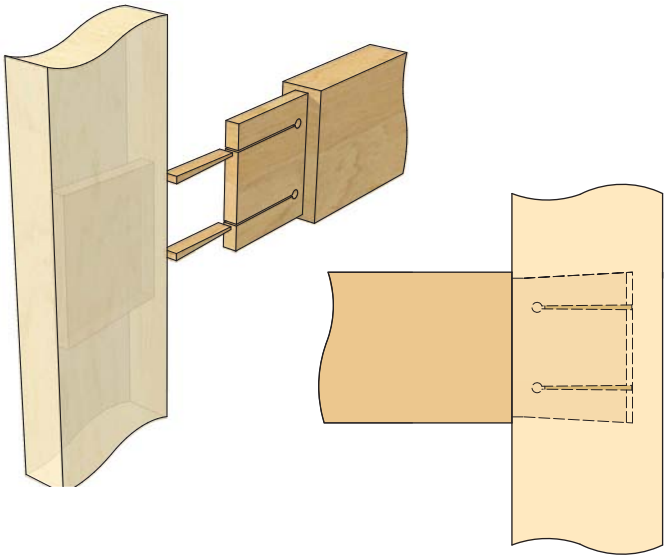
Joiner's wedge

Incidentally, unlike cabinetmakers who fit wedges into kerfs in the tenon, joiners fit wedges to doors on the outside of each tenon. I haven't discovered a reason for this difference in practice apart from the size and strength of door tenons making it harder to tap wedges in, but it doesn't appear to affect the structural strength of the door. However, the wedges won't get cut away if a lock is fitted in a mid-rail.



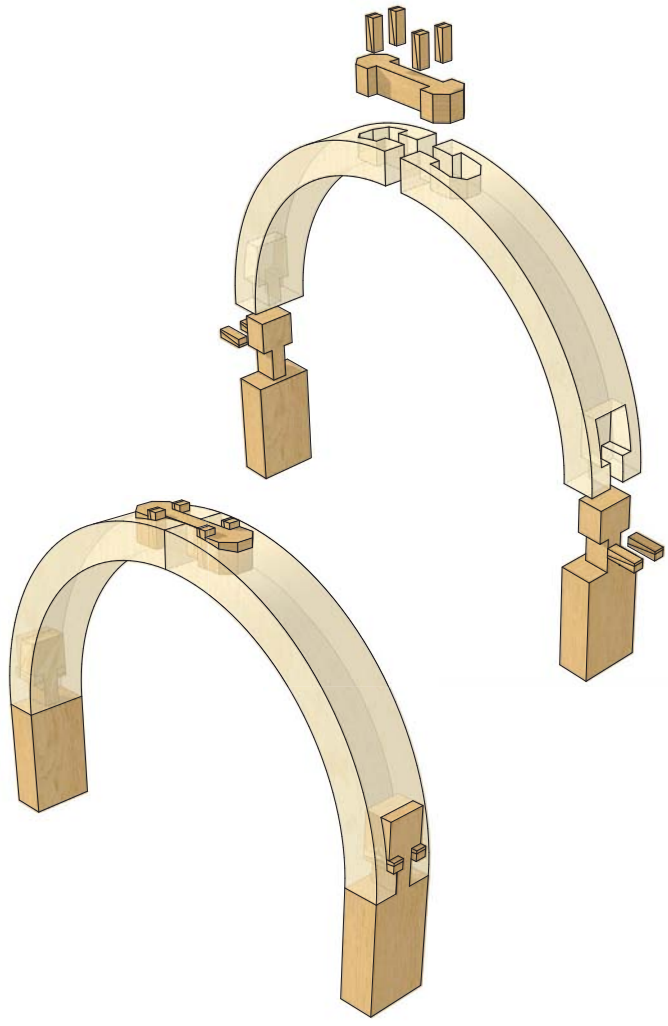
Fox-wedged

A bit trickier to do than the previous joint as the mortise is stopped and therefore creating the dovetail slope angle and fitting the right size wedges is a little more problematic. Correctly done, the joint construction is invisible and virtually indestructible.



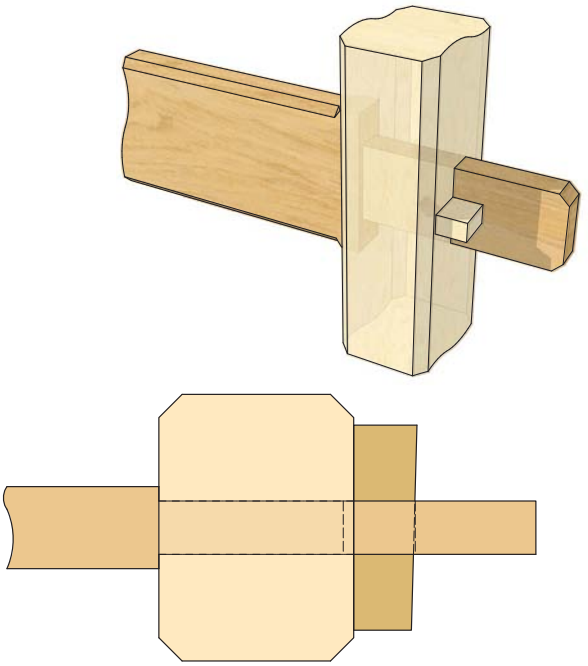
Hammer-headed

A self-locking joint needed on curved components that cannot be clamped. Used primarily for the curved head of a Roman arch top – semi-circular – door or window frame.



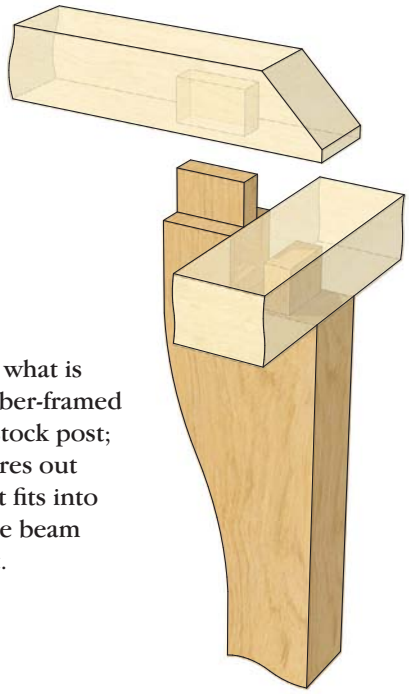
Tusk tenon

Where a tenon projects through a mortise some way and has a wedge fitted through a tapered hole in the tenon, thus locking it in position tightly. Often found on refectory tables where it effectively holds the leg ends on to a centrerail under the table.



Teasel tenon

A tenon on top of what is described in a timber-framed building as a gunstock post; that is one that flares out towards the top. It fits into a mortise with a tie beam sitting on top of it.

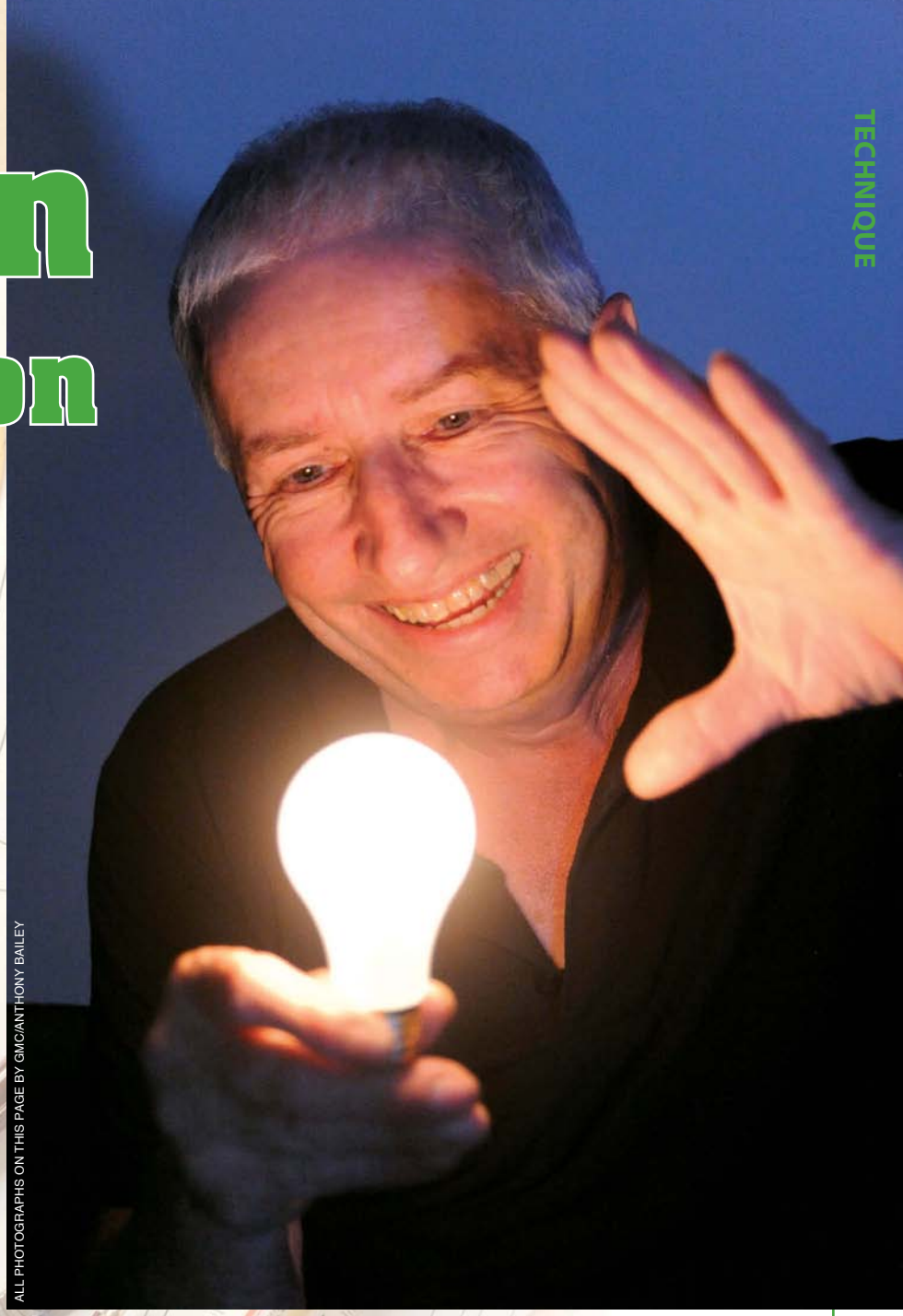


As you can see, there are many possible ways to use a mortise and tenon. The list above isn't entirely exhaustive and you can create slight variants to suit the job in hand. There are general principles which state how big a tenon should be in relation to the mortise. It isn't a hard and fast science but commonsense is needed when setting out any of these joints.

In the next issue, we put theory into practise and create several different mortise and tenon joints. ■

Design inspiration

Due to interest by several readers, **the Editor** has agreed to follow his article on technical drawing basics in issue 96 by looking at the whole subject of design. To start with he was busy scratching his head for a good idea…



ALL PHOTOGRAPHS ON THIS PAGE BY GMC/ANTHONY BAILEY

DO NOT try the 'bare bulb' trick at home; it won't work and it's very dangerous – but we have the magic…

The design process potentially has a number of 'entry points'. It can be a 'light bulb moment' – a sudden thought or idea, which sparks something more tangible. Or maybe a messy scratching on the back of an envelope. It could be a very specific brief for a project whose essential requirements have to be followed or it can be that awkward: awkward spell sitting in front of a blank sheet of paper waiting for some inspiration to come.

Often I find myself in the latter position. Thankfully, like writer's block it doesn't last, but something has to trigger 'that great idea', which sets me on the path to designing something. I don't rate myself as a fantastic designer; I'm not, but I do know what I like in terms of design when others do it and this is the basis for my own design ethic. So here is the starting point as far as I am concerned: learn from others and the world around you.

Something has to trigger 'that great idea', which sets you on the path to designing something

Sketching some ideas down is a good starting point

INFLUENCES – SUCH AN ECLECTIC MIX

I have written down a random list of things that inform the way I think and see the world. By them I have put the word associations they bring to 'the mix'. There is method in my madness, trust me. Why not create your own list and their word associations? Everyone is different so the lists will also be different and interesting.

An original Morris Minor

PHOTOGRAPH COURTESY OF SHUTTERSTOCK/BEN SMITH

My childhood

- Lino
- Woodgrain painted doors
- Massive sledge in my sandpit
- Avenue of fruit trees
- Victorian school building
- Dad's Morris Minor
- Grandpa's old radio casing that I climbed inside!
- Anderson bomb shelter
- Black and white suburban semi-detached house
- Octagonal oak book table

This is not an exhaustive list but some things at age 60 that have still stuck in my memory

Nature

- Flowers – close up
- Tree trunks and bark
- Insect shapes
- Crashing waves
- Cloud development
- Pebbles on the beach
- Wood rotting in soil
- Blown leaves
- Birds hovering
- Gusts of wind
- Sun creating shadows that move

PHOTOGRAPH BY GMC/ANTHONY BAILEY

An example of colourful flowers

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Pebbles on the beach

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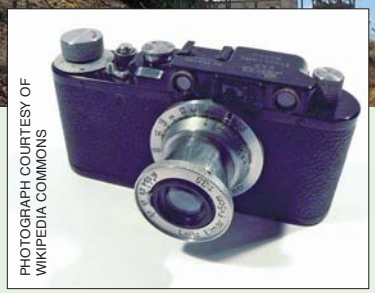


PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

From top to bottom: an example of work by Buckminster Fuller; Oscar Barnack, designer of the Leica camera and Marcel Breuer's iconic 'Long Chair'

Designers

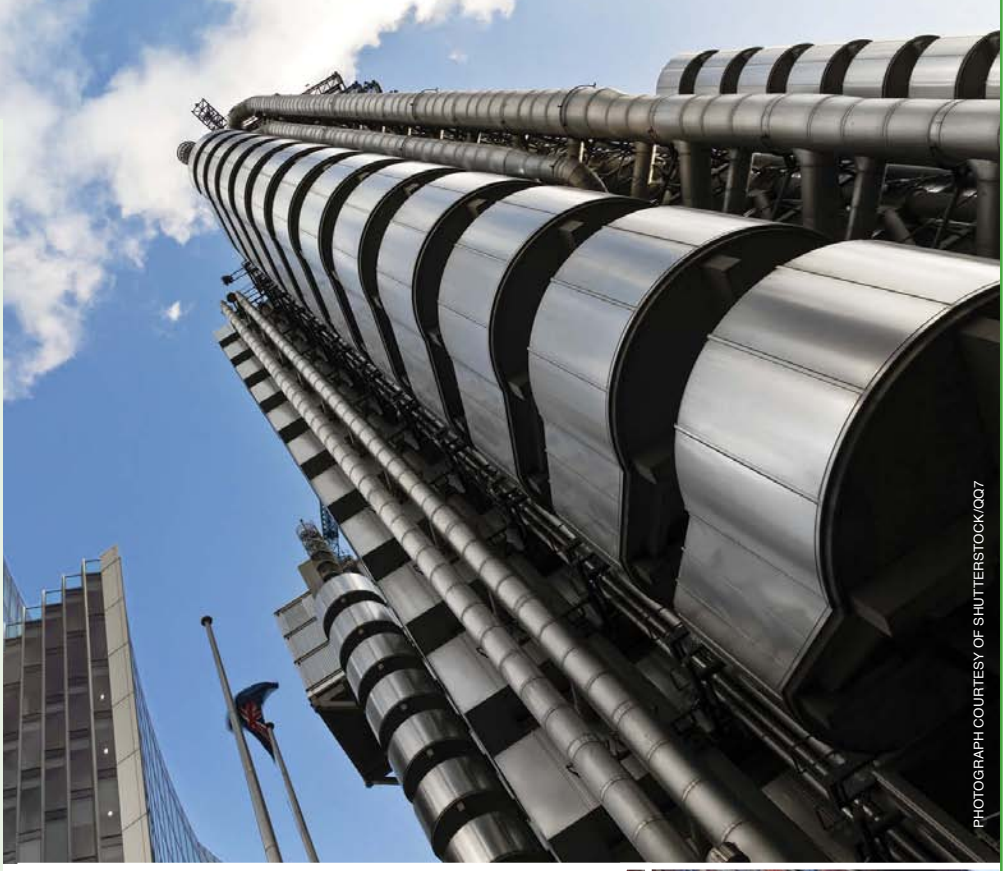
- Bauhaus
- Raymond Loewy
- Jony Ive
- Buckminster Fuller
- Marcel Breuer
- Richard Sapper
- Philip Starck
- Oskar Barnack
- Ettore Sottsass

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Architecture

- Tower Bridge
- Bodiam castle
- Richard Rogers – Lloyds Building
- Herstmonceux observatory
- Corbels and brackets
- Classical architecture – Roman and Greek
- Berlin Tempelhof hanger
- Frank Lloyd Wright
- The 'Future' building – on the westbound M25
- Edwin Lutyens – Cenotaph and Thiepval memorials
- Giles Gilbert Scott – Battersea power station, K2-6 series of red phones boxes
- Le Corbusier
- New flood defence wall – Dymchurch, Kent

Clockwise from above right: The Lloyds Building by Richard Rogers; an example of corbels and brackets; Cenotaph and Thiepval memorials by Edwin Lutyens; the new flood defence wall in Dymchurch, Kent; the Berlin Tempelhof hanger and iconic red phones boxes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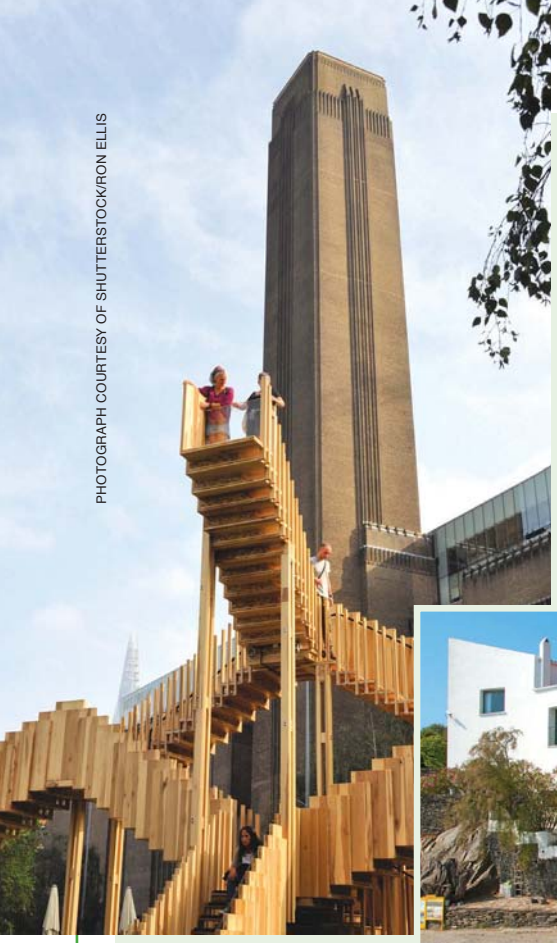


PHOTOGRAPH COURTESY OF SHUTTERSTOCK/RON ELLIS

An art installation based on the work of M.C. Escher

Art

- J.M.W. Turner
- Salvador Dali
- Rene Magritte
- Roy Lichtenstein
- William Hogarth
- M.C. Escher
- Edward Hopper
- Edgar Degas
- Breugel The Elder
- Antony Gormley

PHOTOGRAPH COURTESY OF SHUTTERSTOCK/NITO

Salvador Dali's home in Port Lligat, Costa Brava

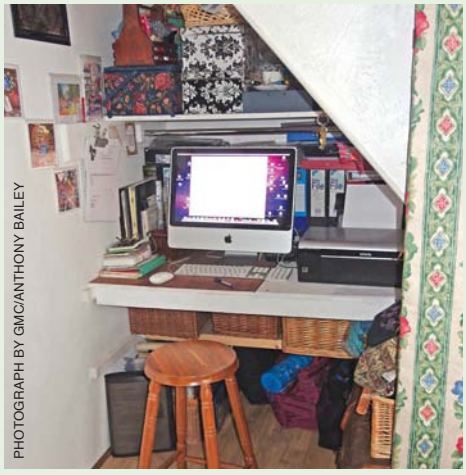
There are many other possible categories, including flea-markets, history, having fun, other cultures, music, toys, magazines and books. All of these could generate more inspiration that could inform design.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

A wooden sink top surface with drip grooves

Necessity

- Fitting a computer desk under the stairs
- A lightweight ply portfolio case
- A rectangular dining table to eight that can be extended
- A wooden sink top surface with drip grooves
- Massive glass topped coffee table



PHOTOGRAPH BY GMC/ANTHONY BAILEY

An under stairs area is a handy place for storing a computer

DESIGN ORIGINS

None of the above is an exhaustive list, I think that, if we trawl through our memory banks, we can all find an amazing array of influences, which can imperceptibly affect how we see the world and how we can in turn can affect it. Most readers want to make useful objects in wood that can possibly be decorated as well. So how does any of the list above affect how I design something?

I'm impressed by the 'monumental' so whether it is Edwin Lutyens massive Thiepval monument or Antony Gormley's 'Angel of The North' I can't help being affected by the power and presence of these manmade physical wonders.

But then again, the first iteration of the red phone box – the rather grand K2 design of Sir Giles Gilbert Scott's – was a sign of a ubiquity to come in the form of the standard K6 phone box once seen everywhere, now left scruffy or scrapped, but the initial inspiration

Neo-classicist Sir John Soane's tomb – inspiration for the well known red phone box

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

was the tomb of Sir John Soane, St Pancras Old Church Gardens.

For instance, the dated looking linoleum flooring and artificially wood-grained interior doors of my childhood 1930s semi-detached home have since come back into fashion in new trendier guises.

While Salvador Dali puts before us all sorts of improbable and uncomfortable physical and metaphysical associations, fellow surrealist Rene Magritte in his own rather restrained suburban way, manages to take this even further.

The largely industrial purity of the Bauhaus design style has been carried forward to the era of Apple's chief designer Jonathan Ives who is a self-confessed fan of Braun Chief Design Officer Dieter Rams, himself a successor to the Bauhaus – see the photo of the Braun Nizo cine camera.

Nature is the prime designer if you like. Study any aspect of it and it is quite overawing, from an iridescent beetle carapace to the fractal shape of leaves or coastline; the painful beauty of delicate scented roses – sorry I'm waxing a little lyrical here – nature shows us how clever it is, so much so that scientists regularly plunder its secrets to create new technological solutions. I could go on but I hope you get an insight into what influences me even if it's just scratching at the surface.

Efficient design

Design at its most spare, stripped back to the essential has to be 'form follows function' – purely meeting a need. A chair needs to be 'X' high and comfortable; a table needs to fold up after use; a door must open on the right; a shelf must be strong and steps must be safe. Each thing needs to be a particular size, possibly a certain weight or weather resistant, for example. But if you look at 'efficient' design, usually it is also visually pleasing too.

So although it isn't always the case, plain and simple doesn't have to mean dull or uninteresting – take the furniture created by the Shaker movement as an example, which happens to be another of my influences. They created beautifully simple, useful things that were and still are pleasing to look at and own, to the extent that original pieces are now worth thousands of dollars.

PHOTOGRAPH COURTESY OF SHUTTERSTOCK/DONSIMON

PHOTOGRAPH COURTESY OF SHUTTERSTOCK/TOMMASO LIZZUL

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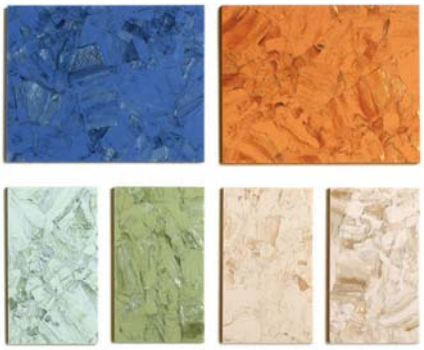

PHOTOGRAPH COURTESY OF SHUTTERSTOCK/ OLGA POPOVA

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Clockwise from top: Antony Gormley's 'Angel of The North'; a modern interpretation of one of Magritte's most famous paintings; examples of linoleum flooring; Apple's chief designer Jonathan Ives was influenced by the work of Bahaus and 'Isn't nature wonderful?'

PHOTOGRAPH BY ANTHONY BAILEY

PHOTOGRAPH BY ANTHONY BAILEY

Above: A functional kitchen layout
Right: A shaker-style tripod table

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

ADDED DECORATION

However, throughout history, decoration has frequently been applied to buildings and objects, such as furniture – incidentally, design-wise architecture and furniture are closely linked. The decoration of buildings internally and externally in Egyptian, Greek, Roman and other early civilisations, or the mortar 'pargetting' of some half-timbered Essex houses or vast Victorian cast-iron railway station roofs and columns, are all testament to that. Indeed the classical style of decoration was effectively reintroduced and refined by Andrea Palladio in the 16th-century. Nowadays we are often copying earlier decorative styles by incorporating them into our own work to make them more attractive and fit in with other objects or settings. There is nothing wrong with this but it is very much a matter of taste. Personally, I favour a very simple, stripped down contemporary style, so whatever the design, for me there shouldn't be anything extraneous, but that isn't so for everyone.

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Clockwise from top left: Villa Foscari, near Venice, northern Italy; the County Museum, in Clare, Suffolk and Liverpool Street Station concourse, London

IMITATION IS THE SINCEREST FORM OF INSPIRATION

Paraphrasing the expression that ends in 'flattery' – but in fact all great artists, musicians, designers and architects copy what has gone before. Edwin Lutyens got caught up in the 'Tudor-Bethan' myth when he designed his country houses in concert with the garden designer Gertrude Jekyll. When I look at an iPhone or an iPad, although they are much simpler in design, they bear a distinct heritage to designs such as the clean lined, very organised design of the sophisticated Braun Nizo 560 Super 8 cine camera from 1976 – both Bauhaus influenced or rather their respective designers, are or were. Don't get me started on artists either – copying in the art world has always been rife, but it has created genius too. So don't get the idea that you can create a unique style – someone has done it before! What you can do is put your own interpretation on it, as the saying goes: "I'm unique – like everybody else." That can apply to your furniture design too... ■

Anticlockwise from right: Great Dixter House, Northiam, East Sussex; the Nizo 560 Super 8 cine camera from 1976. Every single person is unique, but we all have similar ideas

PHOTOGRAPH COURTESY OF THE OAST HOUSE ARCHIVE

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PHOTOGRAPH COURTESY OF SHUTTERSTOCK/NITO

In the next issue, the Editor looks at the rather uncomfortable subject of ergonomics

The smallest room

The Editor boxes clever by enclosing a low level WC cistern, making it a posh and pleasant place to while away some time reading his own magazine…

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Why is it that the smallest and, some might argue the most essential, room in the house is often so unlovely? Our upstairs loo is quite pleasant for a toilet, but the ground floor equivalent – part of an extension many years ago – isn't or now I should say, wasn't, so pleasant. Just a square box with a toilet suite and sink, but not the best place to linger. Upgrading the appearance was complicated by the fact that it was a low level 'coupled' WC, which means the cistern sits directly on the toilet bowl, rather than having a connecting supply pipe. Adding to the complication, I had boxed and insulated the cistern many years ago to prevent condensing on the glazed china. My wife wanted something done to smarten up the general appearance, which included hiding all the pipework behind. Here was my solution, which you can now be privy to…

Framework

The levels were marked in pencil on the walls and a light framework then bonded to the walls using a builder's mastic adhesive – Gripfill or PinkGrip 'solvent' versions are good. This was done in several stages and the frame components held in place with gaffer tape until they had set. Where the framework needed to bond to the varnished tank boxing, I opted for a PU – polyurethane – glue, because it expands to fill any uneven gaps, will stick to most surfaces and is ideal because it is cured by moisture, often found around cold water plumbing!

My wife's cunning plan was to store cleaning items, loo rolls, etc. in the new boxing, so it would need shelves and doors. The shelves I cut on my compound mitre saw using some spare laminate flooring. It is hard, dense, smooth and doesn't need any finishing. I have used it for other shelving projects before, very successfully, in lieu of proper wood. The next job was to cut two pieces of ply to fit neatly around the rear of the bowl. It was not intended to be a

The framework was bonded to the walls using a builder's mastic adhesive

To bond the framework to the varnished tank boxing, PU glue was used

Shelves were put in for storage

100% fit, just close enough. This took quite a while using an MDF template first. However, the toilet wasn't symmetrical so the template for marking out was adjusted to suit each side.

Panelling

These pieces, the doors and top, are all birch ply, which is stable and pleasant to work with. All the doors were carefully cut to suit each aperture and then a Forstner bit used to create a finger-pull hole. The lower right-hand panel had to be cut to fit around the pipework and all the removable panels had to be trimmed carefully to fit in their own spaces.

Finishing

However, before I started applying my favourite finish – Sadolin Exterior Woodstain, antique pine colour – my wife pointed out that we had discussed using T&G board to create a wainscot effect. I responded by saying that it would be impractical if lots of strips of wood were glued together to make small panels. So, I removed the plastic toilet seat, which was due to be replaced by a wooden one, and brought my biscuit jointer and a T-square into action to machine shallow slots in the new in-situ birch ply tank covering. Some of the cuts were 'stopped' because the jointer couldn't cut right to the bottom, but it didn't matter.

The removable doors were all slotted at the workshop bench using a batten as a fence for the jointer base. All the doors were given the same treatment on the workbench and everything painted with three coats of Sadolin for the right depth of colour. The last act was fitting magnetic catches to each little door. Not only does the smallest room now look very smart, domestic harmony is also now assured… ■

Two pieces of ply were cut to fit around the rear of the bowl

The birch ply was stable to work with

The panels were then cut to fit around the pipework

Shallow slots were cut into the ply

The doors were slotted by mounting them in the vice

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A look at… *Netsuke frog*

This month **Peter Benson** explains the three main skills required when we look at carving netsuke

Many people associate the tiny toggle carvings of netsuke exclusively with ivory. In fact a huge number of these were, and are, carved from a variety of woods – mostly fruit or boxwood *(Buxus sempervirens)*.

To the woodcarver something as small as these that can be largely carved with traditional techniques, is a wonderful opportunity to explore original design, getting away from the common habit of 'copying'.

In addition, there are a few other techniques generally common with netsuke but not usually seen on larger carvings. Three of these are the inclusion of inlaid eyes, the himotoshi – where the cord is attached – and ukibori – the addition of bumps.

Really, from the practical point of view, the only difference between a netsuke and any other carving is that everything is much smaller, so the effects of making a mistake are much more dramatic. However, as the design is essentially for a functional item, there are constraints – you need to ensure that there are no bits 'sticking out' that don't feel right or are in danger of breaking. You should be able to hold a netsuke comfortably in the hand.

In this article we will therefore only cover the three previously mentioned elements – the eyes, himotoshi and ukibori as applied to my carving in apple wood *(Malus sylvestris)* of a frog.

Eyes

The eyes are made from amber with buffalo horn inserts for the pupils – a similar effect can be achieved by painting the pupil on the back of the eye.

The socket needs to be drilled and then carefully cut with a scalpel or micro-gouge to the shape of the eye. Using a small handsaw or piercing saw, cut a stick of amber to the rough shape and grip in a pin vice, or glue onto a small piece of wood with hot melt glue, leaving the material for the eye exposed. Shape by scraping with a scalpel, or file with a fine needle file. Be careful, as amber is very brittle.

Carefully offer this up to the cut socket without pushing deep into the hole. Once happy with the fit, cut the groove in the end for the pupil. Paint this with black paint, making sure the edges are neat as they will show in the finished eye. If you are inlaying the pupil, the inlay is applied on the outside of the eye. Any painting is done on the inside. Before final fitting, put some gold leaf or gold toffee wrapper into the socket for a nice, bright finish.

To speed up the finishing process, cut down the amber stick roughly where the surface of the eye will be, put a small amount of CA adhesive in the hole and insert the eye before carefully cutting off the surplus material. Ensure the two pupils are aligned correctly, then smooth off the surface with your scalpel, finally sanding and polishing with fine abrasive paper and polish.

The himotoshi

The himotoshi is not absolutely necessary with a netsuke and can be left out if there is an alternative way to attach the cord but if it is included, it is vital that it is placed in the correct position.

PHOTOGRAPHS BY PETER BENSON; DRAWINGS BY ROBIN SPRINGETT

The eye glued onto a stick, ready for shaping

The attachment holes – himotoshi

The hollows in the body that become bumps when wetted

For a netsuke to serve its purpose, it must be shown off to the best advantage when sitting on the obi, or sash, of the kimono.

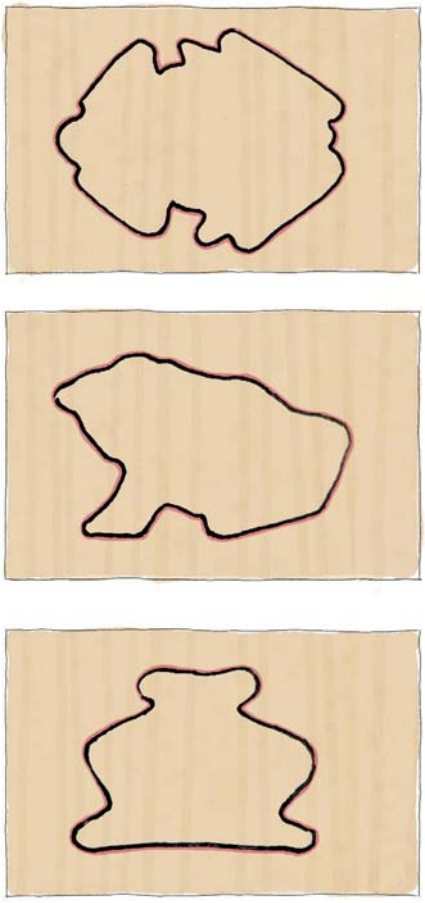
Before drilling any holes, check thoroughly that their position is accurate. There should be two holes – one slightly larger than the other to house the knot in the cord. These holes should be joined together with a smooth 'tunnel' in the body of the carving. They can be simple holes or lined with a variety of materials. In the case of this frog, they are lined with ram's horn but I have used contrasting timber, ivory and tagua nut at different times. This is one part of the carving process that is probably better done with something like a micromotor, or other power drill, and a small ball-shaped rotary burr, as you will get a much smoother finish. Take your time with this as the himotoshi is the one characteristic that is very much the essence of a netsuke.

Ukibori

This is the process of getting small round bumps on the surface of your carving. To do this you need something that will make round, hemispherical dents on the surface. It could be a ball-shaped punch used with a hammer, or better still, an automatic centre punch with the end rounded off and polished.

Once you have finished carving the surface, make a succession of dents with your punch and sand it down until it is level with the bottom of the dents. If the resulting sanded surface is now wetted, preferably with hot water – the reaction is quicker than with cold water – the dents will reconstitute into neat, round bumps. The same process can be used by pressing your punch into the surface and then dragging it along, making dented lines. This can be useful to get the veins in hands or seams in clothing, amongst other things.

You need to be careful not to damage the fibres of the wood or this will show in the finished result and, if you don't sand down far enough or go too far, the bumps may be deformed, or disappear altogether. It is certainly worth practising on a piece of spare timber the same as that used for your carving, as it is easy to lose the effect you want with careless sanding. ■



A full step-by-step process for carving this frog, plus several other projects, together with techniques and superb images of netsuke, can be found in Peter Benson's book, *The Art of Carving Netsuke*, priced at £16.99 plus P&P.

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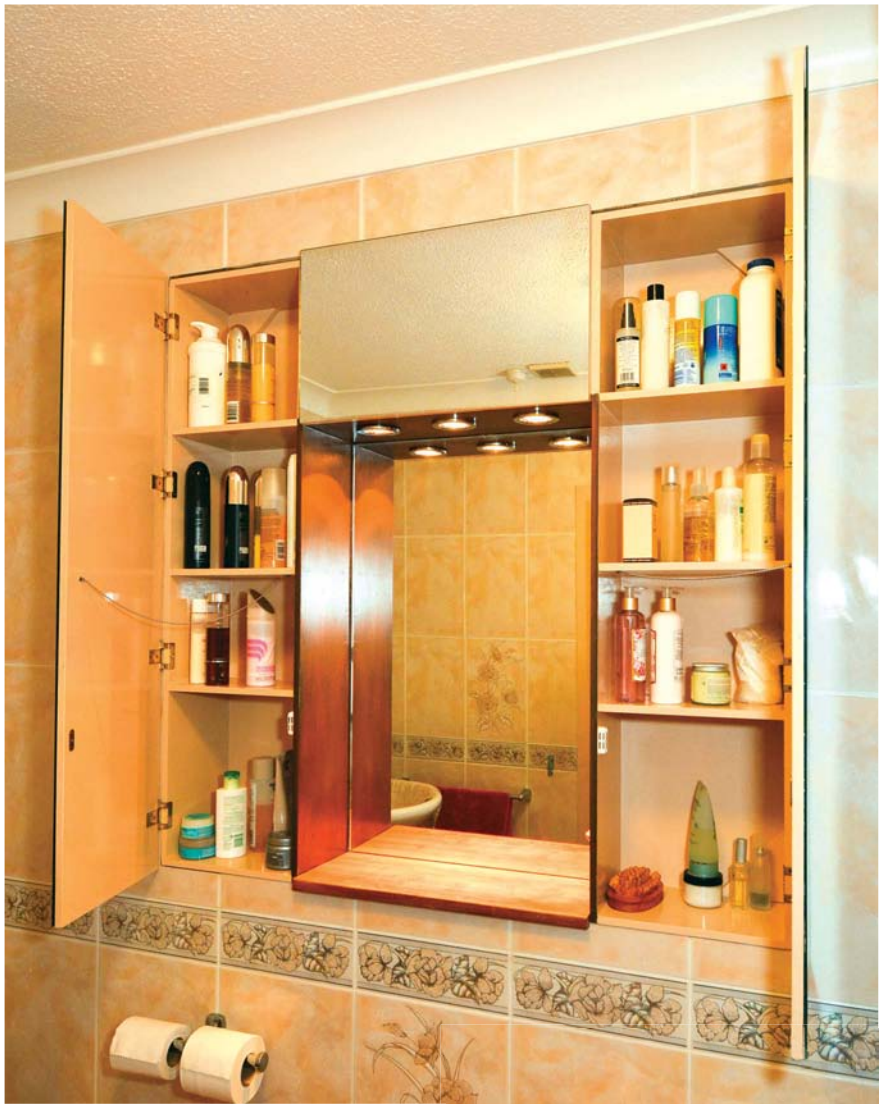

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Patented Rack & Pinion System

switches from plunge to fixed-base router

Electronic Speed Maintenance

utilises constant speed feedback for precise results in all types of materials

Soft Start & Variable Speed

for all cutter types and eliminates kickback for a precision start

Micro Winder

for fine depth adjustment and through-table adjustment for fixed applications

Dual Mode Precision Plunge Router

TRA001 2400W / 3¼ hp

Designed by woodworkers for woodworkers, the multi-award winning TRA001 has been the benchmark in professional routers around the world since its release.

One of the most significant features of this machine is its ability to switch from a conventional plunge router to a fixed-base mode router with rack and pinion height adjustment at the push of a button.

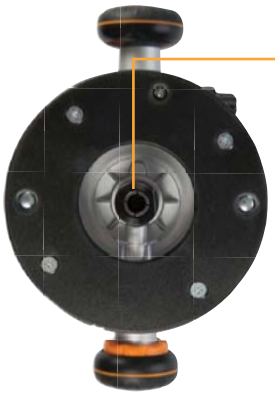
Simple ideas are often the best and the 3-stage, pre-set height adjustment system is a perfect example. It only takes seconds to remove the plunge return spring, which then allows for easy lifting and adjustment of the machine when mounted in a router table.

Safety has also been carefully considered, especially where bit changes are concerned. The automatic spindle lock will only engage when the power switch safety cover is closed, ensuring the tool cannot be accidentally switched on during the bit-changing procedure.

Micro Winder
enables continuous fine depth adjustment through the full plunge range

Soft Start & Variable Speed
provides the perfect speed for all cutter types

Removable Plunge Spring
for easy bit adjustment when table mounted



Single Wrench Bit Change
through the base with the automatic spindle lock

Compatible with

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RTA300	Precision Router Table System	Pg 90-91
BJA300	Biscuit Joiner	Pg 93
FJA300	Finger Jointer	Pg 93
AJA150	Overhead Mounting Kit	Pg 89

Optional Accessories

TGA001	Template Guide Kit with Brass Guide Bushes in 7 Sizes
TGA150	Accessories Kit includes Template Guides, Dust Chute, Guide Plates, Alignment Bush and Table Spacer

Included Accessories

Table Height Winder, 1/2" & 1/4" (EU: 1/2" & 12mm) Collets
Multi-Function Fence, Collet Wrench

Easy Access Brushes

allows the end user to change worn brushes

Safety Switch Shutter

locks closed in bit-change mode to prevent router being switched on

Single Button Switches from Plunge to Fixed-Base Router

with rack & pinion adjustment

Side Air Vents

reduce intake of dust into the motor casing when mounted upside-down in a router table

Fully Enclosed Guarding

provides maximum protection from the cut zone & assists dust extraction

½" & ¼" (EU: ½" & 12mm) Collets

for a greater range of bit fitment

Quick-Fit Pins

for fast fitment & removal from the fence & the **RTA300** Router Table

3-Stage Turret

with direct reading scales for precise pre-set cut depths

Automatic Spindle Lock

engages only when the power switch cover is closed

Technical Specification

Power	2400W / 3¼ hp / 15A
Speed	8000 – 20,000rpm Speed Maintenance Under Load
Soft Start	Yes
Electronic Speed Maintenance	Yes
Collets	½" & ¼" (EU: ½" & 12mm)
Depth Adjustment	1. Winder Handle Rack and Pinion 2. Micro Winder 3. Conventional 'Free' Plunge
Plunge Range	0 – 68mm / 0 - 2 21/32"

Dust Extraction	Yes
Bit Changes	Through-Base, Single Wrench Action, Auto Shaft Lock
Micro Adjustment	Infinite
Spindle Lock	Auto
Safety Power Switch	Yes
Removable Plunge Spring	Yes
Guide	Extended Baseplate with Adjustable Fence
Weight	6kg / 13.2lbs

Dual Mode Precision Plunge Router

MOF001 1400W / 2¼ hp

Developed from the multi-award winning TRA001, the MOF001 has won many prestigious awards around the globe since its release.

Quiet, easy to control and simple to adjust, this compact machine is ideal for those looking for a router equally suited for table-mounted and hand-held use.

Soft start allows close control during hand-held use, with even greater control available by fitting the multi-function fence, which is ideal for circle cutting. Variable speed ensures the router will handle a wide variety of bits for exact shaping of material.

For table mounting, quick-fit pins are located in the base, allowing rapid fitment to the mounting plate, so the MOF001 is completely compatible with the RTA300 Router Table.

Micro Winder
enables continuous fine depth adjustment through the full plunge range

Soft Start & Variable Speed
provides the perfect speed for all cutter types

Removable Plunge Spring
for easy bit adjustment when table mounted

Single Wrench Bit Change
through the base with the automatic spindle lock

Compatible with

DCA300	Dust Collector	Pg 88
RTA300	Precision Router Table System	Pg 90-91
BJA300	Biscuit Joiner	Pg 93
FJA300	Finger Jointer	Pg 93
AJA150	Overhead Mounting Kit	Pg 89

Optional Accessories

TGA001	Template Guide Kit with Brass Guide Bushes in 7 Sizes
TGA150	Accessories Kit includes Template Guides, Dust Chute, Guide Plates, Alignment Bush and Table Spacer

Included Accessories

Table Height Winder, 1/2" & 1/4" (EU: 1/4" & 8mm) Collets
Multi-Function Fence, Collet Wrench

Easy Access Brushes
allows changing of worn brushes

Safety Switch Shutter
locks closed in bit-change mode to prevent router being switched on

½" & ¼" (EU: ¼" & 8mm) Collets
for a greater range of bit fitment

Automatic Spindle Lock
engages only when the power switch cover is closed

3-Stage Turret
with direct reading scales for precise pre-set cut depths

Single Button Switches from Plunge to Fixed-Base Router
with rack & pinion adjustment

Side Air Vents
reduce intake of dust into the motor casing when mounted upside-down in a router table

Fully Enclosed Guarding
provides maximum protection from the cut zone & assists dust extraction

Quick-Fit Pins
for fast fitment & removal from the fence & the **RTA300** Router Table

Technical Specification

Power	1400W / 2¼ hp / 13A
Speed	8000 – 20,000rpm Speed Maintenance Under Load
Soft Start	Yes
Electronic Speed Maintenance	Yes
Collets	½" & ¼" (EU: ¼" & 8mm)
Depth Adjustment	1. Winder Handle Rack and Pinion 2. Micro Winder 3. Conventional 'Free' Plunge
Plunge Range	0 – 59mm / 0 - 2 5/16"

Dust Extraction	Yes
Bit Changes	Through-Base, Single Wrench Action, Auto Shaft Lock
Micro Adjustment	Infinite
Spindle Lock	Auto
Safety Power Switch	Yes
Removable Plunge Spring	Yes
Guide	Extended Baseplate with Adjustable Fence
Weight	4.7kg / 10.4lbs

Compact Precision Plunge Router

JOF001 1010W / 1½ hp

Completing Triton's range of award-winning professional routers is the JOF001 Compact Precision Plunge Router.

Light and exceptionally compact in design, the JOF001 is the ideal machine for freehand work.

With automatic spindle lock for one-handed bit changes, and micro winder for continuous fine depth adjustment through the full plunge range, this compact precision router incorporates many of the award-winning features of the TRA001 and MOF001.

Quick-fit pins enable fast fitment and removal from the Triton RTA300 router table and the above-the-table height winder allow quick and easy fine tuning of depth setting when the router is table-mounted.

Ideal for hand-held use, the soft start enables complete control whilst the machine powers up, and variable speed ensures the perfect speed is available for all cutter types.

Micro Winder

enables continuous fine depth adjustment through the full plunge range

Single Wrench Bit Change

through the base with the automatic spindle lock

Compatible with

DCA300	Dust Collector	Pg 88
RTA300	Precision Router Table System	Pg 90-91
BJA300	Biscuit Joiner	Pg 93
FJA300	Finger Jointer	Pg 93
AJA150	Overhead Mounting Kit	Pg 89

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TGA001	Template Guide Kit with Brass Guide Bushes in 7 Sizes
TGA150	Accessories Kit includes Template Guides, Dust Chute, Guide Plates, Alignment Bush and Table Spacer

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Quick-Fit Pins
for fast fitment & removal from the fence & the **RTA300** Router Table

Technical Specification

Power	1010W / 1½ hp / 9A
Speed	8000 – 20,000rpm Speed Maintenance Under Load
Soft Start	Yes
Electronic Speed Maintenance	Yes
Collets	½" & ¼" (EU: ½" & 12mm)
Depth Adjustment	1. Micro Winder 2. Conventional 'Free' Plunge
Plunge Range	0 – 59mm / 0 - 2 5/16"

Dust Extraction	Yes
Bit Changes	Through-Base, Single Wrench Action, Auto Shaft Lock
Micro Adjustment	Infinite
Spindle Lock	Auto
Safety Power Switch	Yes
Weight	4.7kg / 10.4lbs


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for increased comfort and control with clear view of the cutting line

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Plunge Track Saw

TTS 1400 165mm / 6½"

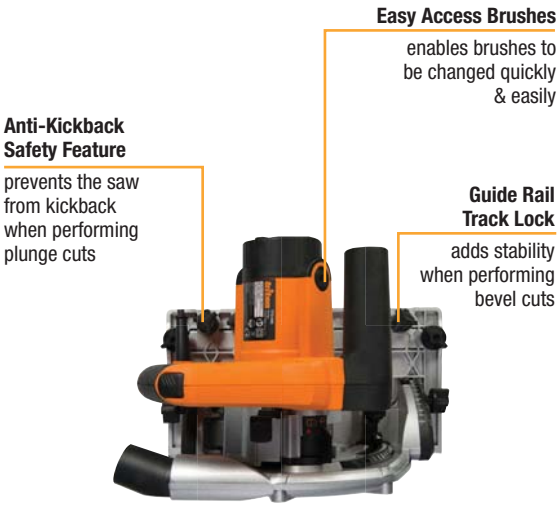
The TTS1400 Plunge Track Saw is a highly versatile, feature-packed tool with easy mode selection, fast set-up and advanced safety features.

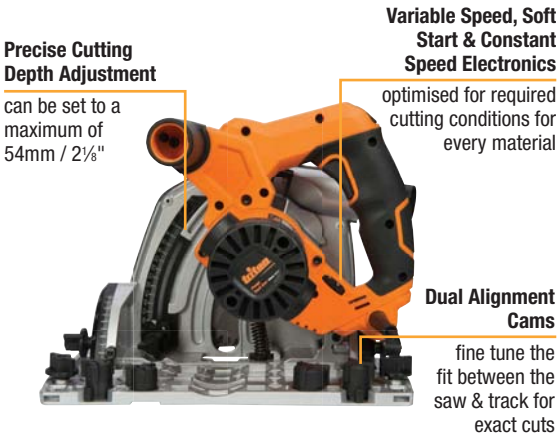
When fitted to a track, the TTS1440 delivers long, straight cuts, and the flat design of the blade housing means the saw will work right up to the edge of the workpiece – ideal for trimming doors and cutting hardwood flooring.

The mode selector allows quick change between free plunge, scribe or blade change, and cutting width indicators show the exact point at which the blade plunges into the workpiece.

Blade changing is safe and easy. The power switch locks out during the blade-changing process, and the blade is easily accessed through the blade guard without having to remove the cover.

For straight, clean, accurate cuts through any type of wood, Triton's TTS1400 Plunge Track Saw delivers a professional result every time.





Optional Accessories

TTSTP	Track Pack
TTST1500	1500mm / 59" Track
TTSWC	Pair of Clamps
TTSPG	Parallel Guide
TTSAG	Angle Guide
TTSTS	T-Square
TTSDES	Dust Extraction System
TTSSB	Track Saw Bag
TTSCB1500	1500mm Track Bag
TTSCB700	700mm Track Bag
TTSTC	Track Connectors
TTS60T	60TCT Saw Blade

Included Accessories

60 TCT Saw Blade

Non-Slip Rubber Over-Moulded Grip
offers increased support, safety & control

Blade Change Mode
& power switch lock-out for easy blade changes

Mode Selector
for quick change between free plunge, scribe & blade change modes

Plunge Lock
secures the blade inside the guard when not in use

Scribe Mode
eliminates splintering & tear-out

Precision Bevel Cut
angle adjustment from 0 - 48º

Highly Efficient Dust Extraction
with universal adaptor & 360° outlet

Width of Cut Indicators
for exact positioning of blade on the workpiece

Fast Blade Replacement
easily accessed through the blade guard

Dual Bevel Quadrants
provide stability for precision cutting

Technical Specification

Power	1400W / 12A
No Load Speed	2000 - 5300rpm
Blade Diameter	165mm / 6½"
Bore Diameter	20mm / 25/32"
Bevel Range	0 - 48°
Blade Type	60 TCT
Depth of Cut @ 90° with Track	54mm / 2⅛"
Depth of Cut @ 90° without Track	59mm / 2 21/64"
Depth of Cut @ 45° with Track	38mm / 1½"
Depth of Cut @ 45° without Track	42mm / 1 21/32"
Weight	5.5kg / 12lbs

Precision Circular Saw

TA 184CSL 185mm / 7¼"

Powerful yet lightweight, the TA184CSL hand-held saw features a powerful motor that will take on some of the toughest timbers with plenty of power in reserve.

Accurate and safe to use, the built-in laser line generator produces accurate cuts and increases productivity. Handling is also made easy with the front bail handle, which offers a greater level of control and comfort over the traditional handle design.

Aluminium alloy construction on the upper and lower guards and base ensures greater strength and durability, resulting in a significantly lighter weight tool.

For a clean, safe working environment, the dust port is fitted to the guard for easy connection to a dust extraction system, while the oversized rubber-tipped guard return lever is easy to reach and grip.

Easy Access Brushes
enables brushes to be changed quickly & easily

Front Bail Handle
offers greater grip & control at various operating angles

1800W / 2½hp Motor
provides enough power for even the toughest timbers

Compatible with

WCA201	Series 2000 Workcentre System	Pg 86-89
TCB100	Saw Table	Pg 95

Optional Accessories

ABA020	Saw Stabilising Bracket

ABA020

Stabilising Bracket

Helps control and support the workpiece.

Included Accessories

24 TCT Blade, Parallel Guide, Pin Wrench & Hex Key, Dust Extraction Adaptor

Dust Extraction Port

for easy connection to a dust collection system

Power Neon-On

increases operator safety

Laser Line Generator

for increased accuracy, safety & maximum productivity

Rubber-Coated Return Lever

for easy access & control of the lower guard

Bevelling to 45°

increases range of adjustment

Technical Specification

Power	1800W / 2½hp
No Load Speed	5000rpm
Insulation Class	Double Insulated
Blade Diameter	185mm / 7¼"
Blade Teeth	24 TCT
Bevel Range	1° - 45°
Depth of Cut	0° - 62mm / 0° - 2 31/64" 45° - 39mm / 45° - 1 17/32"
Laser	Class: 2, Wave Length: 650nm
Weight	5.1kg / 11.2lbs

"The Triton name sells itself - it's down to an energetic mix of innovation, opportunism and, above all, good products that do what they say on the box."

Woodworking Plans & Projects Magazine

Precision Circular Saw

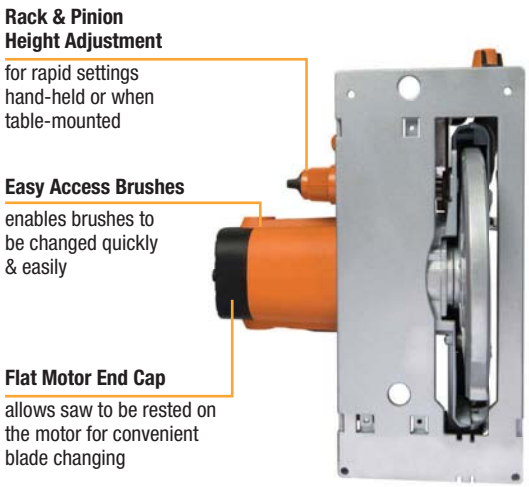
TA 235CSL 235mm / 9¼"

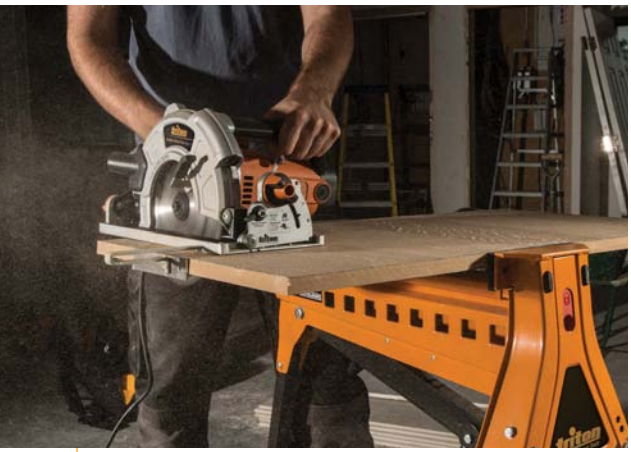
Maintaining all the key features of the TSA001 that has earned the respect of so many woodworkers, the TA235CSL is host to many new features including aluminium guards and base, and laser sighting.

Location holes allow easy and rapid fitment to the Triton saw table, and height micro adjustments enable fine tuning for maximum accuracy. A rack and pinion height adjustment system has also been introduced for fast, accurate adjustments when mounted upside down in the Workcentre.

Laser sighting increases user safety, allows faster set-up and improves accuracy. The flat motor end cap is a convenient feature, allowing the saw to be rested on the motor during blade change.

Supplied with a premium quality 40-tooth tungsten carbide-tipped (TCT) blade for smooth and accurate cuts, the TA235CSL also comes with a fitted dust extraction port for a cleaner, safer working environment.





Compatible with

WCA201	Series 2000 Workcentre System	Pg 86-89
TCB100	Saw Table	Pg 95

Optional Accessories

ABA020	Saw Stabilising Bracket

ABA020

Stabilising Bracket

Helps control and support the workpiece.

Included Accessories

40 TCT Blade, Parallel Guide, Hex Key, Long Lower Guard Wrench

Adjustable Depth Cut
from 0 - 82mm / 0 - 3 15/64" at 90° enables cutting of thick material

Power Neon-On
increases operator safety

Laser Line Generator
for increased accuracy, safety & maximum productivity

Bevel Cuts 0° to 45°
with positive stops at 0°, 15°, 22.5°, 30° & 45° for fast & convenient setting of angle cuts

Micro Bevel Adjustment
for fine tuning of the bevel setting

Technical Specification

Power	2300W / 3⅛hp
No Load Speed	4500rpm
Insulation Class	Double Insulated
Blade Diameter	235mm / 9¼"
Blade Teeth	40 TCT
Bevel Range	0 - 45°
Positive Bevel Stops	0°, 15°, 22.5°, 30° & 45°
Depth of Cut	0° - 82mm / 0° - 3 15/64" 45° - 60mm / 45° - 2⅜"
Laser	Class: 2, Wave Length: 650nm
Weight	7.7kg / 17lbs

"It's well made, with aluminium alloy construction, so will take a bit of rough and tumble. If you cut deep stock regularly or need the power, look no further."

Woodworking Plans & Projects Magazine

Precision Power Saw

TSA 001 235mm / 9¼"

Engineered to provide maximum accuracy for table mounting and hand-held use, this feature-packed, high-performance circular saw delivers power and precision for all cutting requirements.

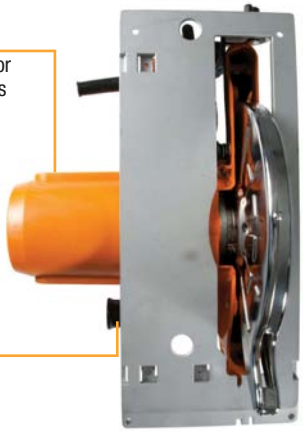
Maximum rigidity is achieved with the strong, aluminium die-cast base, which has alignment cam location holes for easy fitting and fine tuning in Triton Saw Tables.

Smooth cutting is easily achieved with the needle and ball-bearing constructed 2000W / 3hp motor which, combined with micro angle and blade height adjustment, gives accurate and professional results every time.

Spindle lock and on-board storage of the blade changing spanner assists with quick and easy blade changes. The quick-action bevel stops, with a highly accurate calibration scale, are convenient and provide precise settings.

Easy Access Brushes
allows changing of worn brushes

Bevelling to 45°
with indents at 0°, 15°, 22.5°, 30° & 45° for quick & easy setting



2000W Motor / 3hp
provides extra power for smooth & accurate cuts

Front Handle
for solid grip & control

Compatible with

WCA201	Series 2000 Workcentre System	Pg 86-89
TCB100	Saw Table	Pg 95

Included Accessories

Rip Fence, 40 TCT Blade, Blade Adjustment Spanner

Micro Adjuster

for accurate, fine tuning of blade height

Dust Extraction Port

for easy connection to a dust collection system

Micro Angle Adjustment

for precise setting of the saw blade

Steel Return Lever

for easy access & control of the lower guard

Die-Cast Aluminium Base Plate

for maximum rigidity when table-mounted

Technical Specification

Power	2000W / 3hp
No Load Speed	4100rpm
Blade Diameter	235mm / 9¼"
Blade Teeth	40 TCT
Bevel Range	1° - 47°
Positive Bevel Stops	0°, 15°, 22.5°, 30° & 45°
Depth of Cut	0° - 82mm / 0° - 3 15/64" 45° - 58mm / 45° - 2 9/32"
Weight	8kg / 17.6lbs

"Triton continually push boundaries with their innovation, both for power tools and the Workcentres they fit in."

Anthony Bailey, Woodworking Plans & Projects Magazine

T12 Cordless

The power core of the Triton T12 system is contained within the highest quality Samsung cells. Stored energy is unleashed with precise control by the finest Mabuchi motors supported by sintered steel metal gears. A sculptured, natural rubber grip allows total control with maximum comfort.

Lithium-Ion Power Cells

with intelligent charging ensure a longer battery life and greater power delivery

Powerful Motors

with variable speed and reverse, utilise the available power efficiently for maximised runtime

Sintered, All-Metal Gears

for controlled torque and speedy delivery to the workpiece

Over-Moulded Grip

for comfort and control combined with lightweight design which reduces fatigue during prolonged use

Drill Driver 12V

T12DD

The Triton T12DD Drill Driver features a high-performance Mabuchi RS-550 motor and precision metal gearing for long life, even when used at high speed and torque.

Featuring a quick-release removable Sanou 10mm (⅜") keyless chuck and concealed ¼" magnetic bit holder, the T12DD is ideal for switching between screwdriving and drilling applications instantly.

The T12DD delivers 22Nm of torque, 2 gears and a 17+1 torque selector for setting the screw depth for a wide selection of screws and materials. A built-in LED worklight provides clear visibility in confined areas and rubber over-moulded grips reduce vibration and fatigue.

Battery runtime is maximised with the intelligent 1-hour charger, and the battery reaches an 80% charge level after 30 minutes. A range of safety features protects the batteries, charger and the tool. Includes 2 x 1.5Ah battery packs fitted with high-performance Samsung Li-Ion cells, and is supplied with a soft case.

Included Accessories

2 x 1.5Ah Li-Ion Batteries, Battery Charger, Soft Carry Case

17+1 Torque Settings
for setting the screw depth for a wide selection of screws & materials

Mabuchi RS-550 Motor
for class-leading performance & long life

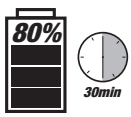
Precision Metal Gearing
for long life even when used at high speed & torque

Quick-Release Sanou 10mm (⅜") Keyless Chuck & Concealed Magnetic ¼" Bit Holder
for rapid switching between drilling & driving

Fast 30-Minute 80% Charge
ensures a charged battery pack is always available

2 x 1.5Ah Li-Ion Batteries with Samsung Cells
for extended runtime with no tool downtime

Intelligent 1-Hour Charger
protects tool, batteries & charger & minimises charge time



Lithium technology

Technical Specification

Power	12V
No Load Speed	0 - 400rpm Low / 0 - 1300rpm High
Battery Type	2 x 1.5Ah Li-Ion Samsung Cells
Chuck Type	10mm / ⅜" Single Sleeve Removable Chuck
Torque Settings	17 + 1
Max Torque	22Nm Hard / 15Nm Soft
Speed	2-Speed with Variable & Reverse
Motor Type	Mabuchi RS-550
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Light	LED Worklight
Weight	1.18kg / 2.6lbs

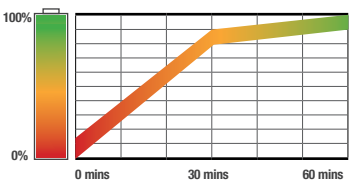
Optional Accessories

T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

High Capacity 3.0Ah Lithium-Ion
battery provides longer runtime & battery life

No Memory & Low Self-Discharge
for maximum productivity & less downtime



Interchangeable across T12 range

Impact Driver 12V

T12 ID

The Triton T12ID features a powerful Mabuchi RS-550 motor and precision metal gearing for long life, even when used at high speed and torque.

Delivering up to 90Nm of torque at up to 2000rpm with 3000 impacts per minute, the T12ID is fitted with a quick-release ¼" hex bit holder for compatibility with standard hex screwdriver bits and adapters for sockets and other fasteners.

A built-in LED worklight provides clear visibility in confined areas, and rubber over-moulded grips reduce vibration and fatigue.

Battery runtime is maximised with the intelligent 1-hour charger, and the battery reaches an 80% charge level after 30 minutes. A range of safety features protects the batteries, charger and the tool. Includes 2 x 1.5Ah battery packs fitted with high-performance Samsung Li-Ion cells, and is supplied with a soft case.

Optional Accessories

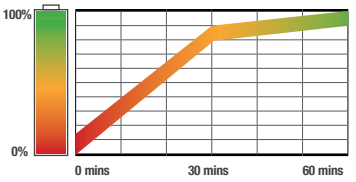
T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

High Capacity 3.0Ah Lithium-Ion
battery provides longer runtime & battery life

No Memory & Low Self-Discharge
for maximum productivity & less downtime

Interchangeable across T12 range



Included Accessories

2 x 1.5Ah Li-Ion Batteries, Battery Charger, Soft Carry Case

Quick-Release ¼" Hex Bit Holder
for fast-changing of screwdriver bits & adapters

Powerful Mabuchi RS-550 Motor
for class-leading performance & long life

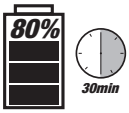
Precision Metal Gearing
for long life even when used at high speed & torque

90Nm Maximum Torque, 2000rpm & 3000 Impacts Per Minute
for high performance driving of screws, bolts & fasteners

2 x 1.5Ah Li-Ion Batteries with Samsung Cells
for extended runtime with no tool downtime

Fast 30-Minute 80% Charge
ensures a charged battery pack is always available

Intelligent 1-Hour Charger
protects tool, batteries & charger & minimises charge time



Lithium technology

Technical Specification

Power	12V
No Load Speed	0 - 2000rpm
Battery Type	2 x 1.5Ah Li-Ion Samsung Cells
Chuck Type	6mm / ¼" Hex with Quick Release
Bolt Capacity	M4 - M12
Max Torque	90Nm Sustained Torque
Speed	Single-Speed with Variable & Reverse
Motor Type	Mabuchi RS-550
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Light	LED Worklight
Weight	1.14kg / 2.5lbs

12V Twin Pack also available

T12TP

Angle Drill 12V

T12AD

The T12AD Angle Drill features a Mabuchi RS-550 motor for long life and delivers 18Nm of torque. All-metal precision gearing through a 90° angle provides durability and efficient power delivery with excellent driving and drilling performance.

Optimised for easy handling, the compact design allows the tool to be held in multiple positions for access to confined spaces. Rubber over-moulded grip reduces vibration and the built-in LED work light ensures clear visibility in confined areas.

The 90° drill head with low-profile Sanou 10mm (⅜") keyless chuck reduces the drill head depth to a fraction of that of a conventional design drill/driver, enabling the T12AD to access a wider range of drill points and screw heads.

The intelligent 1-hour charger maximises battery runtime and reaches an 80% charge level after 30 minutes. A range of safety features protects the batteries, charger and the tool. Includes 2 x 1.5Ah battery packs fitted with high-performance Samsung Li-Ion cells, and is supplied with a soft case.

Included Accessories

2 x 1.5Ah Li-Ion Batteries, Battery Charger,
Soft Carry Case

90° Drill Head & Sanou Low Profile 10mm (⅜") Keyless Chuck
for accessing confined spaces

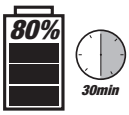
Precision Metal Gearing
for long life even when used at high speed & torque

Variable Speed Extended Length Trigger
for precise control & multi-position handling

Mabuchi RS-550 Motor
for class-leading performance & long life

Rubber Over-Moulded Grips
for secure holding & reduced vibration

2 x 1.5Ah Li-Ion Batteries with Samsung Cells
for extended charge with no tool down time



Lithium technology

Technical Specification

Power	12V
No Load Speed	0 - 620rpm
Battery Type	2 x 1.5Ah Li-Ion Samsung Cells
Chuck Type	10mm Sanou Chuck
Max Torque	18Nm Sustained Torque
Speed	Single-Speed with Variable & Reverse
Motor Type	Mabuchi RS-550
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Weight	1.5kg / 3.3lbs

Optional Accessories

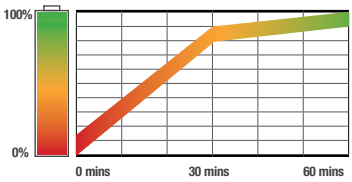
T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

High Capacity 3.0Ah Lithium-Ion
battery provides longer runtime & battery life

No Memory & Low Self-Discharge
for maximum productivity & less downtime

Interchangeable across T12 range



Oscillating Multi-Tool 12V

T12 OT

The T12 Oscillating Multi-Tool features a Mabuchi RS-550 motor for superior performance and long life. Precision metal gearing and blade mounting ensures superior durability, and variable oscillating speed from 6300 to 16,000opm with 6 graduations allows precise control of cutting, sanding, grinding, polishing and scraping tasks.

Optimised for easy handling, the compact design allows operation in confined spaces, and the rubber over-moulded grip reduces vibration and fatigue for repetitive work.

The universal accessory mounting allows a wide range of blades and accessories to be fitted and the bolt-secured mounting ensures accessories are securely locked in place.

The intelligent 1-hour charger maximises battery runtime and reaches an 80% charge level after 30 minutes. A range of safety features protects the batteries, charger and the tool. Includes 2 x 1.5Ah battery packs fitted with high-performance Samsung Li-Ion cells, and is supplied with a soft case.

Universal Accessory Mounting

for a wide choice of blades & accessories

Rubber Over-Moulded Grip

for secure handling & reduced vibration

Included Accessories








Description	Sawing Blade	Segment Blade	Plunge Blade	Segment Blade	Scraping Blade	Grout Removal	Sanding Pad	Sanding Paper
Application	Wood, Plastic	Wood, Plastic, Soft Metal	Plasterboard, Wood, Plastic & Metal Profiles	Plasterboard, Wood, Plastic & Metal Profiles	Scraping	Grout & Mortar Removal	Sanding	Sanding
Diameter	-	88mm	-	80mm	-	63.5mm	-	-
Cutting Width	32mm	-	28.5mm	-	-	-	-	-
Blade Thickness	0.6mm	0.6mm	0.8mm	0.8mm	0.8mm	1.0mm	-	-
Total Length	90/40mm	-	90/40mm	-	80/30mm	66/51.5mm	-	-

Included Accessories

2 x 1.5Ah Li-Ion Batteries, Battery Charger,
Soft Carry Case, 30 x Accessories

Variable Oscillating Speed
6300 to 16,000opm

for precise control of cutting, sanding, grinding, rasping, polishing & scraping

Compact & Lightweight Design

allows single-handed operation & working in confined areas

2 x 1.5Ah Li-Ion Batteries with Samsung Cells

for extended charge with no tool down time

Lithium technology

Precision Metal Gearing

for long life even when used at high speed & torque

Mabuchi RS-550 Motor

for class-leading performance & long life

Fast 30-Minute 80% Charge

ensures a charged battery pack is always available

Technical Specification

Power	12V
No Load Speed	5000 - 16,000rpm
Battery Type	2 x 1.5Ah Li-Ion Samsung Cells
Speed	6-Speed Variable
Motor Type	Mabuchi RS-550
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Weight	1.14kg / 2.5lbs

Optional Accessories

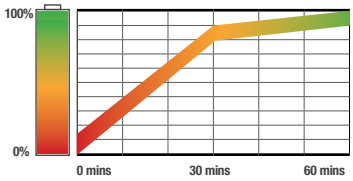
T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

High Capacity 3.0Ah Lithium-Ion
battery provides longer runtime & battery life

No Memory & Low Self-Discharge
for maximum productivity & less downtime

Interchangeable across T12 range



Reciprocating Saw 12V

T12 RS

The T12RS Reciprocating Saw features a high-performance Mabuchi RS-550 motor and precision metal gearing for long life - even when used at high speed. A variable speed of 0-3400spm with 12.2mm stroke length allows fast sawing through a wide range of materials

The rubber over-moulded grip reduces vibration and fatigue and the compact, angled body design makes this tool ideal for sawing and working in confined spaces.

Supplied with uni-directional blades which are suitable for single-handed operation, bi-directional blades for higher speed two-handed operation can also be fitted. Benefits include easy tool-free blade change and a ½" universal shank to suit a wide range of saw blades.

The intelligent 1-hour charger maximises battery runtime and reaches an 80% charge level after 30 minutes. A range of safety features protects the batteries, charger and the tool. Includes 2 x 1.5Ah battery packs fitted with high-performance Samsung Li-Ion cells, and is supplied with a soft case.

Mabuchi RS-550 Carbon Brush Motor

The maximum efficiency of the motor is achieved at low currents and speeds, delivering high levels of controlled torque whilst maximising battery runtime.

Included Accessories

2 x 1.5Ah Li-Ion Batteries, Battery Charger, Soft Carry Case, 2 x Blades

½" Universal Shank
for a wide choice of blades

0-3400spm & 12.2mm Stroke Length
for fast sawing through a wide range of materials

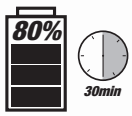
Precision Metal Gearing
for long life even when used at high speed & torque

2 x 1.5Ah Li-Ion Batteries with Samsung Cells
for extended life with no tool down time

Powerful Mabuchi RS-550 Motor
for performance & long life

Electric Brake
for enhanced control

Rubber Over-Moulded Grip
for secure handling & reduced vibration



Lithium technology

Technical Specification

Power	12V
No Load Speed	0 - 3400spm
Battery Type	2 x 1.5Ah Li-Ion Samsung Cells
Blade Change	Tool-Free
Stroke Length	12.2mm / ½" Approx
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Weight	1.3kg / 2.9lbs

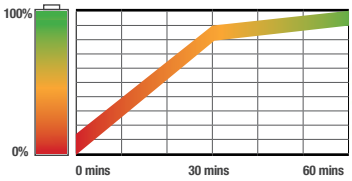
Optional Accessories

T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

High Capacity 3.0Ah Lithium-Ion
battery provides longer runtime & battery life

No Memory & Low Self-Discharge
for maximum productivity & less downtime



Interchangeable across T12 range

Swivel Head Torch 12V

T12 FL

The T12FL Swivel Head Torch provides exceptionally long runtime – more than 10 hours with the T12B 1.5Ah battery, and more than 20 hours with the T12HCB battery.

Housed in a durable case with a super-bright LED lamp, this robust go-anywhere torch will hold on to its power even months after charging, as the T12 Li-Ion battery packs have incredibly low self-discharge rates.

Compact and lightweight, the T12FL Torch features a rubber over-moulded grip and rubber-coated on/off switch for weather resistance, and the 135° swivelling head allows light to be directed exactly where it's needed.

Swivel Head with 135° Angle Adjustment

Swivel Head with 135° Angle Adjustment
to position light exactly where required

Compact & Lightweight Design
for ease of portability

Rubber Over-Moulded Grip & Durable Case
for holding securely & resisting damage

Powered by T12 Range Batteries
for exceptionally long run time & ready for use months after being charged

Lithium technology

LED

Technical Specification

Power	12V
Battery Type	T12 1.5Ah or 3.0Ah Li-Ion Batteries (Sold Separately)
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Light	LED Worklight
Weight	0.2kg / 0.44lbs (without Battery)

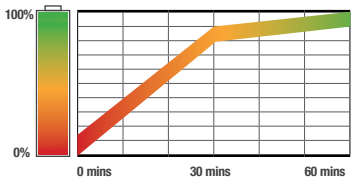
Optional Accessories

T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

High Capacity 3.0Ah Lithium-Ion
battery provides longer runtime & battery life

No Memory & Low Self-Discharge
for maximum productivity & less downtime

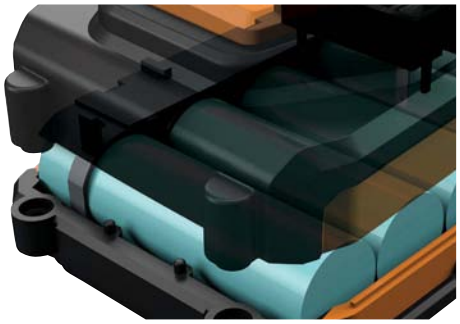


Interchangeable across T12 range


triton
11 9 7

T20 Cordless

The Triton T20 cordless system maximises the power advantage and long-term performance of the Samsung power cells. Super-fast recharge rates and electronic control enable the power-matched Mabuchi motors and sintered steel metal gears to deliver unique levels of combined speed and torque precisely where and when required.



Lithium-Ion Power Cells

with intelligent charging ensure a longer battery life and greater power delivery

Powerful Motors

with variable speed and reverse utilise the available power efficiently to maximise runtime

Sintered, All-Metal Gears

for controlled torque and speedy delivery to the workpiece

Over-Moulded Grip

for comfort and control combined with lightweight design reduces fatigue during prolonged use

Impact Driver 20V

T20 ID

Equipped with a powerful Mabuchi RZ-735 motor and a driving speed of 2400rpm, the T20 Impact Driver delivers enough power and force for the toughest driving and fastening applications.

Features include variable speed and reverse for controlled application, and a quick-release hex bit holder allows fast, single-handed bit changing.

Compact and lightweight, the T20ID is easy to handle and control, and features a comfortable, ergonomic grip for safe, prolonged use in confined areas.

Delivering 3300 impacts per minute and 160Nm sustained torque for high-speed driving, the durable, all-metal gears provide long-life and reliable, consistent operation.

Supplied with 2 x 4Ah Samsung Li-Ion batteries and intelligent charger, the T20ID is well-equipped for powerful, continuous driving in almost any situation.

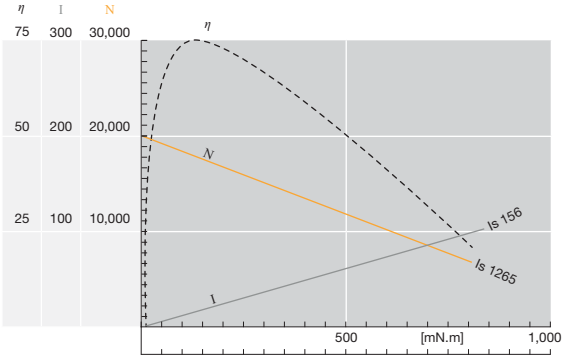
Mabuchi RZ-735 Carbon Brush Motor

η EFFICIENCY [%]

I SPEED [r/min]

N CURRENT [A]

The maximum efficiency of the motor is achieved at low currents and speeds, delivering high levels of controlled torque whilst maximising battery runtime.



Included Accessories

2 x 4Ah Li-Ion Batteries, Battery Charger, Soft Carry Case

Powerful Mabuchi RZ-735 Motor with Variable Speed & Reverse

utilises the available power efficiently for maximum runtime

6mm Quick-Release Bit Holder

allows rapid single-handed bit changes

Sintered Steel, All-Metal Gears

for controlled torque & speed, delivering power to the workpiece

Uniquely Efficient Impact Mechanism

delivers 160Nm sustained torque & 3300 impacts per minute

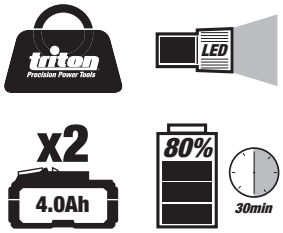
Belt Clip

keeps the tool to hand

Compact Lightweight Design

for prolonged use in confined areas

Lithium technology



Technical Specification

Power	20V
No Load Speed	0 - 2400rpm
Battery Type	2 x 4Ah Li-Ion Samsung Cells
Chuck Type	6mm / ¼" Hex with Quick Release
Bolt Capacity	M4 - M12
Max Torque	160Nm Sustained Torque
Speed	Single-Speed with Variable & Reverse
Motor Type	Mabuchi RZ-735
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Light	LED Worklight
Weight	1.7kg / 3.75lbs (with 4.0Ah Battery)

Drill Driver 20V

T20 DD

The compact T20 Drill Driver features a Mabuchi RZ-735 motor with 2-speed gear box and drilling speed of 1600rpm for a powerful, controlled performance in any situation.

A single-sleeve keyless chuck allows fast bit changes, and sintered, all-metal gearing and electronic brake provide efficient power transmission and long life.

Equipped with 19-stage torque adjustment for a variety of materials and screw sizes, the T20DD also incorporates an LED worklight to illuminate the work surface, and for enhanced comfort and control, the ergonomic grip helps reduce fatigue during prolonged, repetitive work.

Supplied with 2 x 4Ah Samsung Li-Ion batteries and intelligent charger, the T20DD is perfect for continuous drilling and driving applications in most materials, and the keyless 13mm / ½" Sanou chuck allows compatibility with all commonly-used drill bits and accessories.

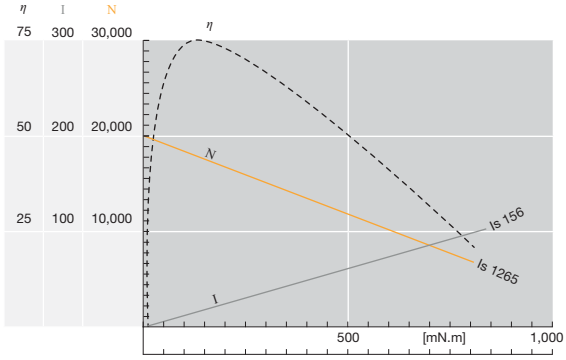
Mabuchi RZ-735 Carbon Brush Motor

η EFFICIENCY [%]

I SPEED [r/min]

N CURRENT [A]

The maximum efficiency of the motor is achieved at low currents and speeds, delivering high levels of controlled torque whilst maximising battery runtime.



Included Accessories

2 x 4Ah Li-Ion Batteries, Battery Charger, Soft Carry Case

Powerful Mabuchi RS735 Motor with Variable Speed & Reverse

utilises the available power efficiently for maximum runtime

Keyless Single Sleeve 13mm / ½" Sanou Chuck

for rapid tool-free bit changes

19+1 Torque Settings

for controlled driving with a wide variety of materials & screw settings

2 Speed Sintered Steel All-Metal Gearbox

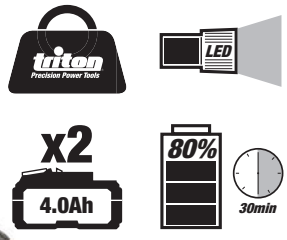
for controlled torque & speed, delivering power to the workpiece

Compact Lightweight Design

for prolonged use in confined areas

Belt Clip

keeps the tool to hand



Lithium technology

Technical Specification

Power	20V
No Load Speed	0 - 450 / 0 - 1600rpm
Battery Type	2 x 4Ah Li-Ion Samsung Cells
Chuck Type	13mm Keyless Sanou Chuck
Max Torque	33Nm
Speed	2-Speed with Variable & Reverse
Motor Type	Mabuchi RZ-735
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Light	LED Worklight
Weight	1.9kg / 4.2lbs (with 4.0Ah Battery)

20V Twin Pack also available

Combi Hammer Drill 20V

T20 CH

The compact T20 Combi Hammer Drill features a Mabuchi RZ-735 motor with 2-speed gear box, driving speeds of up to 1600rpm, and a hammer action mode delivering up to 25,600 impacts per minute for a powerful, controlled performance in any situation.

Featuring a single-sleeve keyless chuck for fast bit changes, the T20CH boasts sintered, all-metal gearing and electronic brake for efficient power transmission and long life.

Equipped with a 19+2-stage torque adjustment for a variety of materials and screw sizes, the T20CH also incorporates an LED worklight to illuminate the work surface, and for enhanced comfort and control, the ergonomic grip helps reduce fatigue during prolonged, repetitive work.

Supplied with 2 x 4Ah Samsung Li-Ion batteries and intelligent charger, the T20CH is perfect for continuous drilling, hammer drilling and driving applications in all materials, including masonry, and the keyless 13mm / ½" Sanou chuck allows compatibility with all commonly-used drill bits and accessories.

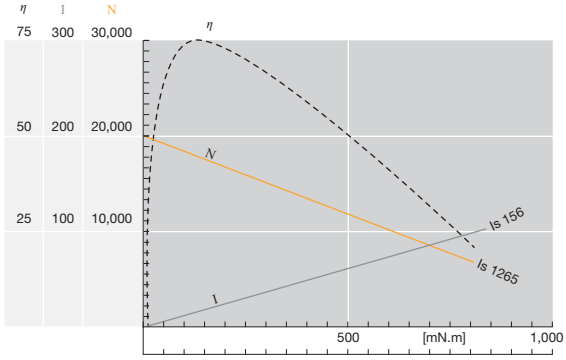
Mabuchi RZ-735 Carbon Brush Motor

η EFFICIENCY [%]

I SPEED [r/min]

N CURRENT [A]

The maximum efficiency of the motor is achieved at low currents and speeds, delivering high levels of controlled torque whilst maximising battery runtime.



Included Accessories

2 x 4Ah Li-Ion Batteries, Battery Charger, Soft Carry Case

Powerful Mabuchi RZ-735 Motor with Variable Speed & Reverse

utilises the available power efficiently for maximum runtime

Keyless Single Sleeve 13mm / ½" Sanou Chuck

for rapid tool free bit changes

19+2 Torque Settings & Hammer Mode

for controlled driving with a wide variety of materials & screw settings including masonry

2-Speed Sintered Steel All-Metal Gearbox

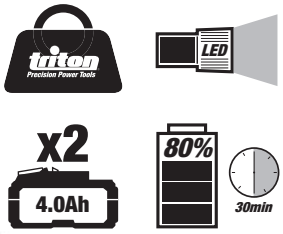
for controlled torque & speed, delivering power to the workpiece

Compact Lightweight Design

for prolonged use in confined areas

Belt Clip

keeps the tool to hand



Lithium technology

Technical Specification

Power	20V
No Load Speed	0 - 450 / 0 - 1600rpm
Battery Type	2 x 4Ah Li-Ion Samsung Cells
Chuck Type	13mm Sanou Chuck
Bolt Capacity	M4 - M12
Max Torque	33Nm Sustained Torque
Speed	2-speed with Reverse
Motor Type	Mabuchi RZ-735
Impact Rate	25,600ipm
Charger	30-Minute Fast Charge / 1-Hour Full Charge
Light	LED Worklight
Weight	1.9kg / 4.2lbs (with 4.0Ah Battery)


triton

Unbeatable Sanding

A Triton Sander is a sound investment for controlled, rapid material removal. The refined feature set includes highly effective dust extraction and natural rubber grips for comfort and control over extended periods. Whatever material you are working with, the Triton sanding range has the power to deliver a smooth finish every time.

Powerful Motors

for the toughest surfaces in wood, metal, resin and plastics

Effective Dust Extraction

means a cleaner working environment and extends the life of the abrasive

Belt Tracking

enables the sanding belt to be aligned perfectly

Lock-On Button

for comfort and safety during prolonged use

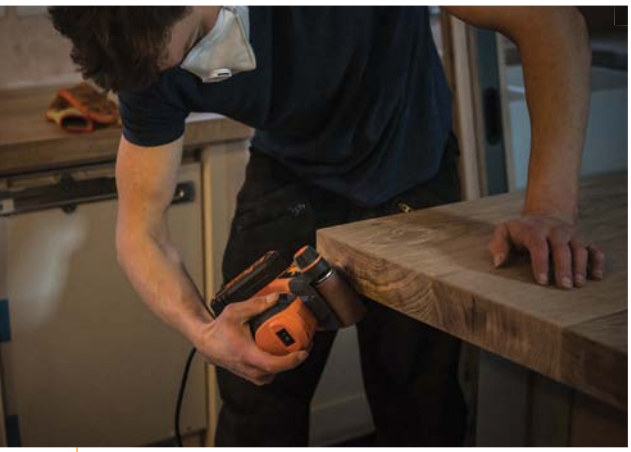
Palm Belt Sander

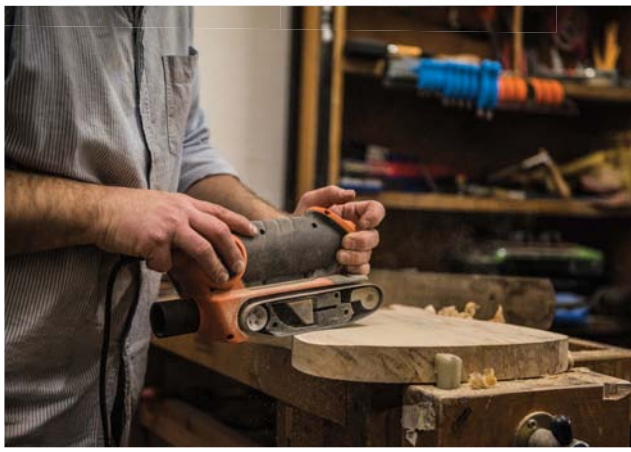
TCMBS 64mm / 2½"

Slim and lightweight with a powerful 450W / 3.5A motor, the TCMBS Palm Sander is designed for single-handed use on most wood surfaces.

Delivering ample power for a high rate of stock removal across a broad range of materials, the flush side allows sanding up to the edge of the workpiece. For confined areas or intricate projects, the small diameter front roller allows sanding in tight, awkward spaces.

Fitted with a comfortable, over-moulded grip and dust extraction port for safe, clean working, the Triton Palm Sander is designed for on-the-spot convenience and makes light work of most common sanding applications.





Included Accessories

3 x Sanding Belts 60 Grit (1 fitted),
Dust Extraction Adaptor

Compact Lightweight Design
fits in the palm of your hand

Rubber Over-Moulded Grip
increases control & safety

Dust Extraction
for a cleaner, safer working environment

Belt Tracking Adjustment
enables the sanding belt to be re-centered

Technical Specification

Power	450W / 3.5A
No Load Speed	340m/min
Belt Dimensions	64 x 406mm / 2½" x 16"
Weight	2.1kg / 4.6lbs

Optional Accessories

TCMBS40G	64 x 406mm / 2½" x 16" 40G Sanding Belt 3pk
TCMBS60G	64 x 406mm / 2½" x 16" 60G Sanding Belt 3pk
TCMBS80G	64 x 406mm / 2½" x 16" 80G Sanding Belt 3pk
TCMBS100G	64 x 406mm / 2½" x 16" 100G Sanding Belt 3pk
TCMBS120G	64 x 406mm / 2½" x 16" 120G Sanding Belt 3pk
TCMBSCPK	64 x 406mm / 2½" x 16" 40/60/80G 3pk
TCMBSFPK	64 x 406mm / 2½" x 16" 80/100/120G 3pk

"The Sander's strong point is in its design, which means the belt is flush to the side, allowing sanding up to a wall."

Système D Magazine

Belt Sander

TA 1200BS 76mm / 3"

Triton's TA1200BS Belt Sander is host to many significant features, from variable speed control for improved versatility, to belt tracking adjustment for accurate alignment of the sanding belt.

Fitted with a small diameter front roller ideal for sanding in awkward areas, the TA1200BS boasts a rubber over-moulded grip and removable bail handle for increased support, safety and control of the tool.

A powerful, variable speed motor drives the sanding belt at between 200 and 450m/min, complemented by the lock-on button which provides convenience and comfort during extended use.

For a cleaner, safer working environment the TA1200BS is fitted with a side dust port that connects to the dust bag supplied with the machine, or can be connected to a dust extraction system.

Optional Accessories

TBSIS	Sanding Frame
TAS40G	5pk Sanding Belt 76 x 533mm 40G
TAS60G	5pk Sanding Belt 76 x 533mm 60G
TAS80G	5pk Sanding Belt 76 x 533mm 80G
TAS120G	5pk Sanding Belt 76 x 533mm 120G
TASB180G	5pk Sanding Belt 76 x 533mm 180G

TBSIS

Sanding Frame

Keeps sander flat and helps prevent tilting and gouging

Included Accessories

Inversion Clamps, Sanding Belt,
Dust Extraction Bag

Rubber Over-Moulded Grip
offers increased support, safety & control of the tool

Lock-On Button
adds convenience with extended use

Powerful 1200W / 10A Motor
for rapid stock removal

Easy Access Brushes
allows changing of worn brushes

Variable Speed Control
improves versatility when working with different workpieces

Belt Tracking Adjustment
for accurate alignment of the sanding belt

Technical Specification

Power	1200W / 1⅗hp / 10A
Variable Speed	Yes
No Load Speed	200 - 450m/min
Belt Size	76 x 533mm / 3 x 21"
Actual Sanding Area	76 x 150mm / 3 x 6"
Gear Casing	Cast Aluminium
Weight	4.8kg / 10.6lbs

"A tough sander, light enough and comfortable enough to be used for long periods of time."

The Woodworker Magazine

Geared Eccentric Orbital Sander

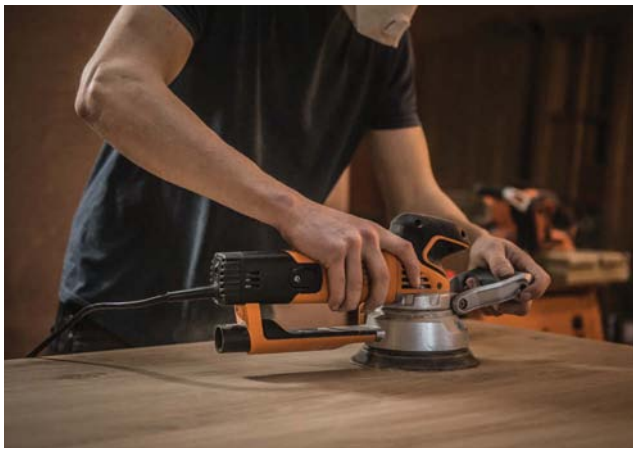
TGEOS 150mm / 6"

Equipped with a powerful 500W motor and metal gearing, the Triton Eccentric Orbital Sander tackles the most demanding sanding and polishing tasks with ease. Variable speed control enables the tool to be used with nearly all kinds of materials, and electronic speed maintenance holds the sanding speed constant under load, giving professional results.

Features include a 150mm diameter hook-and-loop backing pad and two sanding modes. Free-run mode delivers fine, uniform sanding results with slow material removal, while forced orbit rotation mode is used for rapid material removal.

Dust is easily controlled with the highly effective vacuum dust extraction port, and the auxiliary front handle is equipped with a quick-release lever. The handles feature vibration-reducing, rubber over-moulded grips, for maximum protection and comfort.

Includes soft carrying case and various grit sanding discs, so the TGEOS can be used straight out of the box. A pair of spare carbon motor brushes is also included, providing this innovative machine with a long service life.



Included Accessories

Soft Carry Case, 6 x Sanding Discs
& 1 x Spare Carbon Brushes

All-Metal Gears
for maximum durability & controlled delivery of torque & speed

Soft-Start & Electronic Speed Maintenance Under Load
ensures maximum control at all times

Variable Speed Control & Backing Pad Braking System
adapt to a variety of materials & prevent workpiece damage

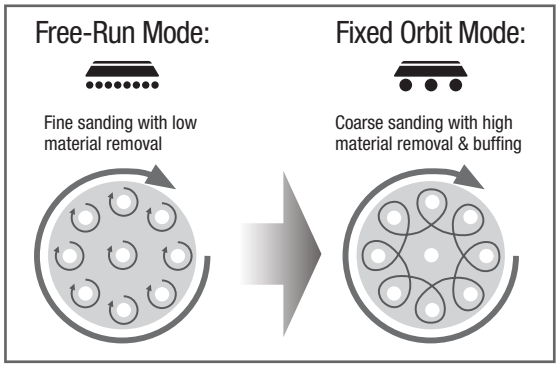
Adjustable Auxiliary Handle
adapts the tool to the job & matches operator preference

Vacuum Dust Extraction Port
for increased operator safety & clean work areas

Dual-Orbit Sanding Action
with free-run mode for fine sanding, & geared fixed orbit mode for fast material removal & buffing

Technical Specification

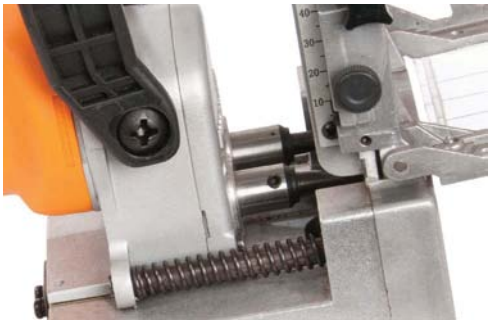
Power	500W / 4.5A
No Load Speed	4000 - 12,000rpm
Plate Pad Diameter	150mm / 6"
Orbit Eccentricity	5mm / 3/16"
Adjustable Bail Handle	Rotating & Swivel
Sanding Disc	Hook & Loop
Power On Neon	Yes
Sanding Modes	Dual (Random & Fixed Orbit)
Weight	2.5kg / 5.5lbs




triton

Accurate Jointing

Dowel jointing provides a swift and secure solution for simple joints. A Triton jointer can effortlessly reproduce consistently accurate joints in a variety of materials. Calibrated rules and an innovative rack and pinion movement help maintain precision, allowing you to dial in the required angle and depth for simultaneous, synchronised pockets.

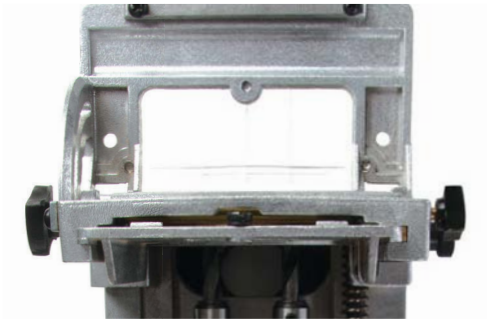


Precision Rack & Pinion System

for accurate adjustment and precise alignment of your joint

Angle Adjustment

for mitre dowel joints at any angle up to 90°



Calibrated Viewer

for excellent vision of the work site and accurate set-up & execution

Front Bail Handle

for superior control and grip of the tool

Duo Dowel Jointer

TDJ600 600W / 5A

Offering precise control of height, depth and angles, the TDJ600 Duo Dowel Jointer drills two holes at 32mm / 1⅕" centres in a single action.

Quick, accurate adjustment of material thickness is easy with the rack and pinion mechanism, whilst the clear, calibrated viewer enables precise set-up and execution.

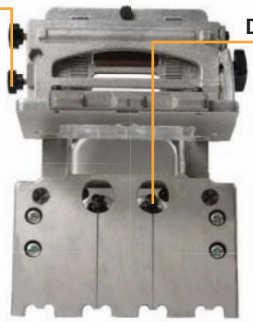
Ideal for forming strong, reliable, edge-to-edge and mitre corner joints, the Duo Dowel Jointer creates accurately spaced joints along the length of the workpiece.

Retractable, anti-slip pins help prevent movement during the drilling process to ensure fast, reliable jointing.

Worn brushes can be changed easily with the quick-access brush facility and the dust port allows connection to an extraction system for a clean, safe working environment.

Clear, Calibrated Viewer
for precise set-up & drilling

Angle Adjustment 0° - 90°
for solid & reliable mitre dowel joints at any angle



Double Drilling
for fast, accurate jointing

Included Accessories

2 x 10mm / 3/8" dia drill bits

Precision Rack & Pinion System

allows accurate adjustment for material thickness

Front Bail Handle

increases control & grip

On / Off Switch

positioned for easy access

Jig Teeth

for exact drilling of repetitive holes at pre-set sizes

Easy Access Brushes

allows changing of worn brushes

Dust Port

allows connection to extraction system for a cleaner & safer working environment

Variable Setting for Drill Depth

meets precise requirements of each joint

Technical Specification

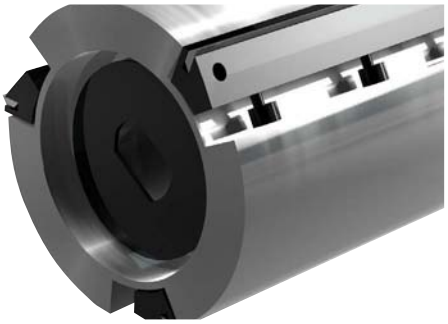
Power	600W / 5A
No Load Speed	17,500rpm
Drilling Height	9 - 43mm / $^{23}/_{64}$ - $1^{11}/_{16}$"
Drilling Depth	0 - 38mm / 0 - 1½"
Drill Bit Spacing	32mm / 1⅛"
Weight	3.3kg / 5.9lbs

"With one smooth, simple action the Triton Duo Dowel Jointer cuts two perfect dowel holes straight, or at an angle, into the edge or surface of a material."

Woodworking Plans & Projects Magazine

Innovative Planing

Patented triple-blade planing technology is a unique feature of the Triton range. The additional cuts achieved with each revolution greatly improve the finish and reduce long-term wear on the tool. Other innovations, such as positioning the motor above the blade, greatly improve the air flow allowing high volumes of shavings to be ejected cleanly. Calibrated depth control and ridged guide fences ensure total accuracy and precise finishing.



Patented Triple-Blade System

for a precise smooth finish and longer blade life

Powerful Motors

for fast material removal in any timber

Innovative High-Mounted Motor

for improved air flow designed and enhanced chip ejection

Adjustable Cutting Depth

for precise results

Compact Palm Planer

TCM PL 420W / 3.5A

The TCMPL Compact Palm Planer is powerful, easy-to-handle and includes all the features of a conventional sized planer and more.

Utilising twin 60mm solid TCT blades, the TCMPL offers the perfect combination of power and balance with excellent grip for safe, one-handed operation.

The 420W / 3.5A motor and 60mm planing width make this planer ideal for fast material removal on small to medium-sized workpieces.

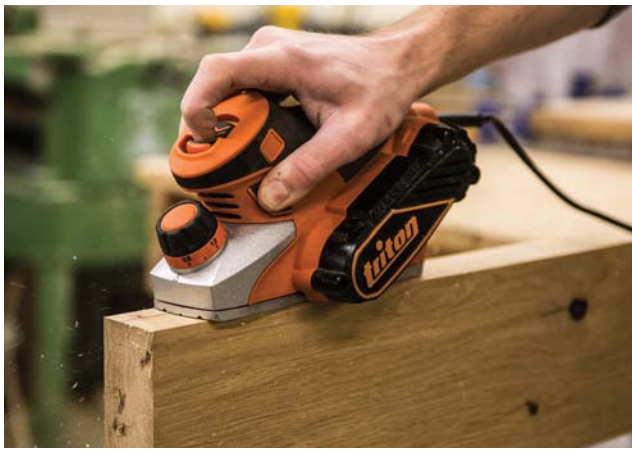
Up to 1.5mm of material can be removed in one pass, and the adjustable planing depth with 3 bevelling grooves ensures flatness and improves cutting accuracy.

A power lock-off switch prevents accidental operation, and the foldaway blade protection foot prevents damage to the blades when the planer is resting on a surface.

Power Lock-Off
prevents accidental operation

3 Bevelling Grooves
increases range of edge bevelling depths

Adjustable Dust Extraction
allows chips to be directed away from the workpiece



Included Accessories

2 x 60mm / 2-3/8" TCT Reversible Blades, Extraction Adaptor, Hex Key, Blade Removal Hex Spanner

Slim Handle Design
is easy to hold & control using one hand

Rubber Over-Moulded Grip
increases control & safety

Parking Stand
protects the blades & workpiece from damage on run down

Stepped Depth Control
allows accurate cutting depth from 0-1.5mm / 0 - 1/16"

Technical Specification

Power	420W / 3.5A
No Load Speed	13,000rpm
Planing Depth	1.5mm / 1/16"
Planing Width	60mm / 2 3/8"
Blade Type	2 x Reversible 60mm HSS / 2 x Reversible 2 3/8" HSS
Weight	2.4kg / 5.3lbs

Optional Accessories

TCMPLB60	60mm / 2 3/8" Planer Blades x 2

"Precise, lightweight and easy to handle, the Triton Palm Planer is the perfect partner for smaller woodworking projects."

Système D Magazine

Unlimited Rebate Planer

TRPUL 750W / 6.5A

The TRPUL's patented triple-blade drum delivers an impressive 45,000 cuts per minute for fast material removal and a superior finish to every project.

Traditionally the rebate depth for any planer is restricted by body design, however the TRPUL is designed with the blade drum positioned to the outermost edge, allowing unrestricted depth rebates right to the edge of the workpiece.

In addition, the removable blade drum system allows fitment of the sanding drum (both included) to convert the planer into a highly efficient sander.

With the high mount position of the motor improving airflow, chip extraction is maximised via the selectable left or right rear dust extraction, ensuring sawdust is directed away from the operator and workpiece at all times.

0-3mm / 0-⅛" Adjustable Depth of Cut

allows removal in one pass

Drum Guard

protects against exposed blades when rebating

3 Bevelling Grooves

increases range of edge bevelling depths

Included Accessories

Sanding Drum with Sanding Sleeve, Planing Drum (HSS 3 Blade), Wrench and Hex Spanner, Dust Bag and Adaptor, Guide Fence

Power-On Neon
increases operator safety

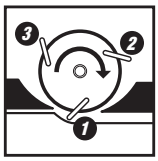
Left or Right Rear Dust Extraction
allows the dust/chips to be directed either side of the workpiece

Variable Speed Control
adjusts the drum speed to suit the material

Bail Handle
for improved ergonomics & increased control

Spindle Lock Button
for easy drum changes

Patented 3-Blade Drum
provides a higher rate of material removal (45,000 cuts per minute)



Parking Stand
protects the blades & workpiece from damage on run down

Technical Specification

Power	750W / 6.5A
No Load Speed	5000 - 15,000rpm
Cuts Per Minute	45,000
Planing Depth	0 - 3mm / ⅛"
Planing Width	82mm / 3¼"
Blade Type	3 x Reversible HSS
Weight	3.9kg / 8.6lbs

"A good machine for both fine as well as substantial stock removal."

Woodworking Plans & Projects Magazine

Optional Accessories

TRPPB	3 x HSS Planer Blades
TRPSS	Sanding Sleeve 80 Grit

Triple Blade Power Planer

TPL180 180mm / 7"

The TPL180 Triple Blade Power Planer features a huge 180mm / 7" width for heavy duty planing of the toughest wood surfaces.

Packing twice the power of conventional planers, the 1500W / 12.5A motor delivers precise material removal and a superior finish.

The revolutionary 3-blade drum delivers a massive 45,000 cuts-per-minute, improving balance, reducing vibration and blade wear, increasing the speed of cut, and producing a smoother finish.

A low centre of gravity design means this large, powerful machine is easy to control, whether on wide or narrow planing surface areas, and the dust extraction port easily connects to a dust extraction system for a cleaner, safer, working environment.

Included Accessories

Wrench, Dust Bag, Dust Connector, Guide Fence,
3 x Reversible 65Mn blades

Adjustable Bail Handle
for additional control & safety

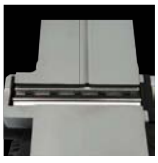
Low Centre of Gravity Design
for stability & control

Magnesium Construction
for superior strength & durability

Non-Slip Rubber Over-Moulded Grip
offers increased support, safety & control

180mm / 7" planing Width
For maximum productivity

65Mn Blades
are reversible for extended life



Fully Cast Base
ensures flatness & increases accuracy of cut

Technical Specification

Power	1500W / 12.5A
No Load Speed	15,000rpm
Cuts Per Minute	45,000
Planing Depth	0 - 2mm / 3/32"
Planing Width	180mm / 7"
Blade Type	3 x Reversible 180mm / 7" 65Mn
Weight	8.5kg / 18.7lbs

Optional Accessories

TPL180BP	Triton 180mm / 7" 65Mn 3 Blade Pack

"This is an impressive machine with considerable capabilities. It has a powerful motor, and its three-cutter block leaves an excellent finish. It is well-constructed and satisfying to use."

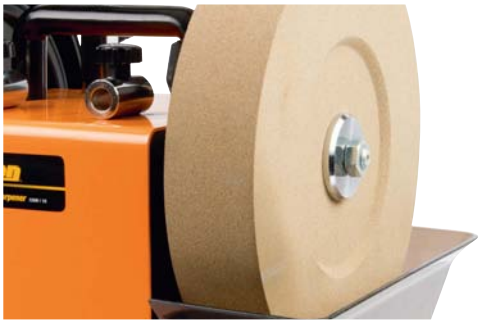
The Woodworker Magazine

Bench Top

In the workshop or on site, Triton Bench Top tools extend your woodworking capabilities. Projects get off to a better start with super-smooth stock and a higher standard of finish is achieved when stock is cut precisely with a razor-sharp edge. Solidly constructed, with a wealth of accessories to extend functionality, you can expect years of reliable service from Triton's Bench Top tools range.

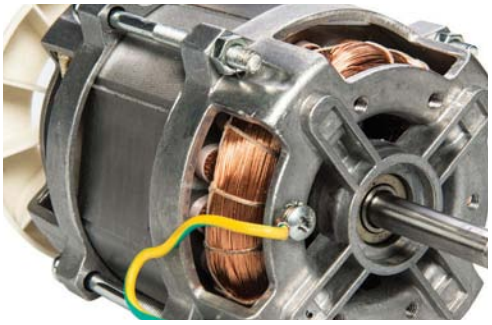
Solid Construction

for enduring performance



Precise Sharpening

of a wide range of workshop tools



Smooth Induction Motor

for quiet, effective operation

Locating Holes

for secure bench mounting

Wetstone Sharpener

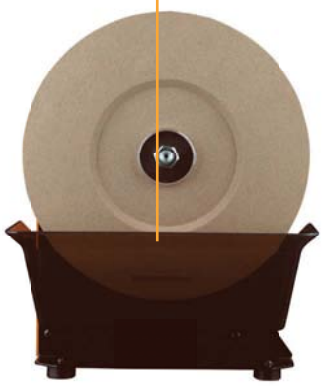
TWS S10 120W / 1A

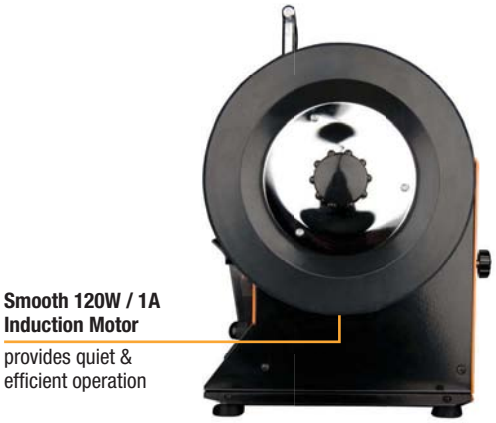
Fitted with a pre-dressed, high-grade grindstone and leather honing wheel, the Triton Wetstone Sharpener produces a polished, razor-sharp edge on cutting and shaping tools.

Used in conjunction with the supplied honing compound, the leather honing wheel delivers a finely polished finish, ideal for hand tools, knives, plane irons, chisels and other wood-carving tools.

Edges won't overheat or lose their sharpness due to the water-cooled, slow speed of the Wetstone Sharpener. Using the support arm, angle guide and jig, it is easy to shape and sharpen a blade precisely to the angle required.

Pre-dressed and ready for use, the high-grade grindstone can be easily and quickly re-dressed with the provided stone grader. The 120W induction motor provides long-lasting, smooth performance and rubber feet keep the machine steady and minimise vibration for a perfect finish.





Optional Accessories

TWSLKJ	Long Knife Jig
TWSTR	Tool Rest
TWSSG	Stone Grader
TWSDTT	Diamond Truing Tool
TWSGAJ	Grinding Angle Set-Up Jig
TWSTGJ	Turning Gouge Jig
TWSSJ	Scissors Jig

TWSPCJ	Plane Camber Jig
TWSSAE	Support Arm Extension
TWSWSC	Machine Cover
TWSCTJ	Carving Tool Jig
TWSSEJ	Straight Edge Jig
TWSLHW	Profiled Leather Honing Wheel
TWSDW	Pre-Dressed Coated Grindstone

Included Accessories

Square Edge Jig, Stone Grader, Honing Compound, Grinding Angle Set-up Jig, Spanner

Vertical Mounts for Support Arm

for perfect positioning of the blade for sharpening

Large Handle

for easy carrying

Horizontal Mounts for Support Arm

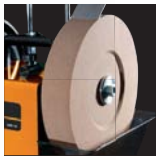
maintain the correct angle for honing the blade

Leather Honing Wheel

for a razor-sharp, polished edge

High-Grade Grindstone

sharpens steel edges efficiently & reliably



Rubber Feet

keep the machine steady & minimise vibration

Technical Specification

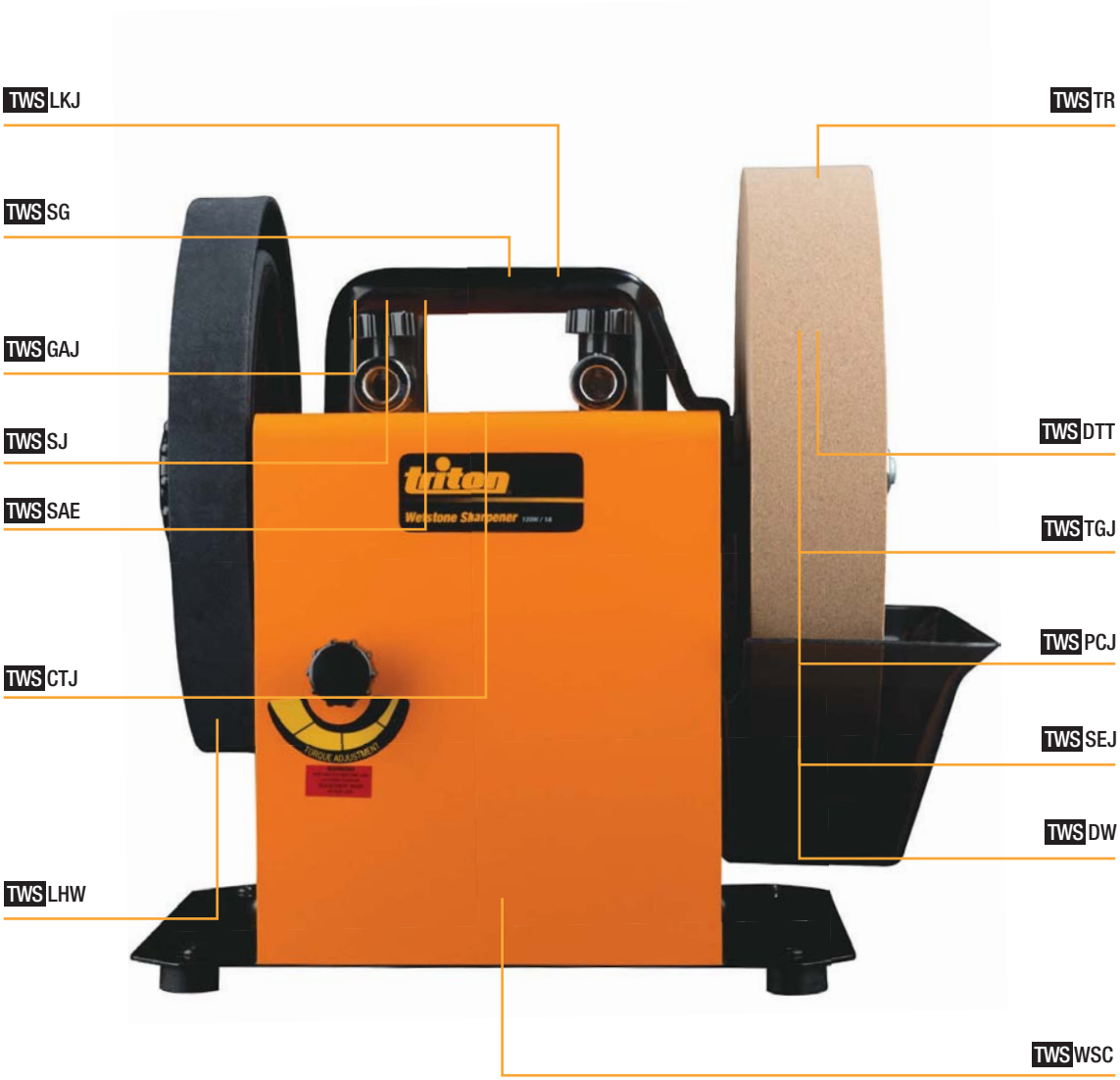
Power	120W / 1A
No Load Speed	2800rpm
Wheel Speed	125rpm
Bore Diameter	Ø 12mm / Ø 15/32"
Sharpening Stone Size	Ø 250 x 50mm 220 Grit / 10" x 2" 220 Grit
Honing Wheel	Ø 230 x 30mm / 9 x 13/16"
Weight	13kg / 29lbs

Optional Accessories

TWS S10

Expand the functionality of the Wetstone Sharpener with a choice of products for honing, sharpening and polishing virtually every kind of cutting tool.

Precisely designed and engineered specifically for use with the Wetstone Sharpener, the range also includes accessories to keep the sharpener in peak condition for a quality performance on every project.



TWS LKJ

Long Knife Jig

For long or thin flexible filleting knives. The broad clamping head holds blades securely.

TWS SG

Stone Grader

For dressing the grinding stone.

TWS GAJ

Grinding Angle Set-Up Jig

For setting up the correct angle for sharpening. Enables repeated accurate grinding of specific bevel angles.

TWS SJ

Scissors Jig

Restores sharp edges to blunt scissors and garden shears. Twin clamps for securing blades.

TWS SAE

Support Arm Extension

Attaches to support arm. Provides simultaneous tool support above the grindstone and honing wheels.

TWS CTJ

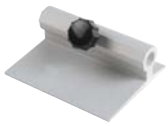
Carving Tool Jig

For accurate sharpening of carving tools and other short tools. Clamps narrow and butt chisels firmly. Internal 'V' shape automatically centres the tool.

TWS LHW

Profiled Leather Honing Wheel

For honing and polishing the inside of turning and woodcarving gouges. Honing/polishing V-parting tools. Made from solid tanned leather.



TWS TR

Tool Rest

For sharpening an assortment of tools, especially tools requiring larger bevel angles. Provides stable platform.

TWS DTT

Diamond Truing Tool

Quick restoration of the grinding surface. The back bar controls rate of material removal.

TWS TGJ

Turning Gouge Jig

For controlled, accurate sharpening of woodturning tools.

TWS PCJ

Plane Camber Jig

Puts an even, slight radius onto a hand plane iron, especially good for scrub and jack plane irons. Camber for improved shearing action.

TWS SEJ

Straight Edge Jig

Maintains correct sharpening angle. Easy, accurate tool fitting.

TWS DW

Pre-Dressed Coated Grindstone

High-grade grindstone that sharpens steel edges efficiently and reliably.

TWS WSC

Machine Cover

Keeps dust and dirt off the Wetstone Sharpener when not in use.

Oscillating Spindle Sander

TSPS 450 450W / 3.5A

Triton's Oscillating Spindle Sander offers outstanding performance and a precise finish to every woodworking project.

Stability and enhanced material support for larger stock is provided by the cast iron table. The oscillating action moves the drum up and down during rotation, reducing the static friction that causes burning, and eliminating band marks.It also extends the life of the sanding sleeve by spreading the wear across a broader surface.

Supplied with 6 sanding sleeves with matching rubber drums and table inserts, the Triton Oscillating Spindle Sander is well equipped to provide a professional finish to internal as well as external profiles.This also allows the matching of the optimum size of sleeve for the precise needs of each woodworking project.

Included Accessories

6 x Sanding Sleeves, 6 x Table Inserts,
5 x Rubber Sanding Drums

Large Cast Iron Table
for stability & enhanced material support

Rotating & Oscillating Action
for precise finishing of intricate work

On-Board Storage
keeps all accessories
neatly to hand

Power Switch with Dust Cover
for ease of use & long,
trouble-free performance

Locating Holes
for secure bench mounting

Table Inserts
prevent gaps between
table & sanding surface

Technical Specification

Power	450W / 3.5A
No Load Speed	2000rpm
Oscillation	58opm
Table Size	370 x 295mm / 14½" x 11½"
Sanding Sleeve	6pce - 13, 19, 26, 38, 51 & 76mm / 6pce - ½, ¾, 1, 1½, 2 & 3"
Table Inserts	6pce - 13, 19, 26, 38, 51 & 76mm / 6pce - ½, ¾, 1, 1½, 2 & 3"
Rubber Sanding Drums	5pce - 19, 26, 38, 51 & 76mm / 5pce - ¾, 1, 1½, 2 & 3"
Dust Port	38mm / 1½"
Spindle Dimensions	12.7 x 1.5mm / 0.5 x 1/16"
Weight	14.6kg / 32.1lbs

Optional Accessories

TSS60G	6pce Sanding Sleeves 60 Grit
TSS80G	6pce Sanding Sleeves 80 Grit
TSS100G	6pce Sanding Sleeves 100 Grit
TSS150G	6pce Sanding Sleeves 150 Grit
TSS240G	6pce Sanding Sleeves 240 Grit
TSS13MM	13mm Sandling Sleeves 60/80/100/150/240 Grit
TSS19MM	19mm Sandling Sleeves 60/80/100/150/240 Grit
TSS26MM	26mm Sandling Sleeves 60/80/100/150/240 Grit
TSS38MM	38mm Sandling Sleeves 60/80/100/150/240 Grit
TSS51MM	51mm Sandling Sleeves 60/80/100/150/240 Grit
TSS76MM	76mm Sandling Sleeves 60/80/100/150/240 Grit

Planer / Thicknesser

TPT 125 317mm / 12½"

Offering the full 317mm cutting width, the TPT125 Planer / Thicknesser delivers 17,500 cuts per minute for a high quality, consistently smooth finish to the workpiece.

Large infeed and outfeed tables provide added material support for long workpieces and a capacity for timber from 3.2mm up to 150mm depth.

A circuit breaker ensures enhanced electrical safety and the dust chute, which can be mounted on either end of the thicknesser, provides a cleaner, safer, working environment.

Precise setting of the cutting depth is easy with the graduated depth crank handle and clear, easy-to-read thickness scale. The 4-post column design provides rigidity and allows the cutter head to be raised and lowered smoothly and accurately for precise results.

Dust Extraction Chute

extracts left or right for a cleaner & safer working environment

Large Infeed & Outfeed Tables

provide support for longer workpieces

4-Post Column Design
for rigidity & accuracy in setting depth of cut

Easy-to-Read Thickness Scale
for precise setting of cutting depth

Crank Handle
for easy movement of the roller case

Circuit Breaker
for electrical safety

Easy, Accurate Setting of Cutting Depth
in 1.58mm / 1/16" increments

Locating Holes
for secure bench mounting

Cutter Height from 3.2 - 150mm / 1/8" - 6"
for maximum versatility

Quick Access Brushes
allows changing of worn brushes

Technical Specification

Power	1100W / 1½hp
Cuts Per Min	17,500
Planing Depth	3.2 - 150mm / ⅛" - 6"
Planing Width	380mm / 15"
Table Size	317 x 320mm / 12½" x 12 39/64"
Weight	29kg / 63.9lbs

Optional Accessories

TPTPB	Planer/Thicknesser Blades 2pk
TPTST	Stand

"The Triton name sells itself , and it's down to an energetic mix of innovation, opportunism and above all, good products that do what they say on the box."

Anthony Bailey, Woodworking Plans & Projects Magazine


triton
Precision Power Tools

Work Support

Whenever you need an extra pair of hands - from supporting timber for cutting logs, clamping a door for trimming, storage of timber stock, or protecting your tools and materials for transport - Triton Work Support products have the solution.

Tough Construction

for long life and superior performance

Powerful Clamping

with controlled clamping pressure

Fold-Down System

for convenient storage and transport

Adjustable Support

for a wide range of stock

SuperJaws Clamping System

SJA 200

Triton's iconic SuperJaws can be easily transported right to the job, whether indoors, outdoors or the workshop floor.

SuperJaws provides fast, hands-free clamping of material up to 956mm, and a massive clamping force of up to 1000kg.

Constructed from tough, powder-coated steel, SuperJaws will hold anything - from car parts and bicycles to timber and tubing.

Features include a lock / release switch for fast release of the workpiece, and reversible jaws for extra-wide clamping capacity.


Woodworking


Log Cutting


Engineering


Finishing

Robust, All-Steel Construction with Power-Coated Finish
for long-lasting operation

Lock / Release Switch
allows fast, trouble-free release of the jaws

Foot-Operated Clamping
frees hands for full control of the job

956mm / 37 41/64"

SOLID STEEL

1000KG CLAMPING FORCE

100kg 220lbs

Optional Accessories

SJA460	Log Jaws
SJA470	Engineers Jaws
SJA420	Tool Tray

SJA460
Log Jaws
Powerful clamping of logs and poles for chainsawing.

SJA420
Tool Tray
Work support and convenient holding of tools.

SJA470
Engineers Jaws
Tough cast iron jaws for heavy duty metal work.

Reversible Sliding Jaws
allow for extra-wide 956mm / 37 41/64" clamping width capacity

Urethane Jaw Facings
provide a protective, slip-resistant grip

Powerful 1 Tonne Clamping Force
allows application of as much or as little clamping pressure required

Tripod Base
for all-terrain stability

Folds Down
for storage & transport

Stand Alone Design
allows 360º access to the workpiece

Technical Specification

Clamping Range	0 - 956mm / 0 - 37 41/64"
Clamping Force	Up to 1000kg / 2200lbs
Clamping Method	Foot Operated
Standard Jaws	Urethane
Max Load	100kg / 220lbs
Folded Size	275 x 775 x 295mm / 11 x 30½ x 11½"
Standing Size	980 x 1000 x 860mm / 38 x 39 x 34
Weight	16kg / 35lbs

"A great bit of kit if you work at the rougher end of woodworking outdoors or on site, but which is flexible enough to have uses in the workshop, too."

Woodworking Plans & Projects Magazine

SuperJaws XXL Clamping System

SJA 300

SuperJaws XXL is a tough, portable workstation with a powerful 1 tonne clamping force and controlled clamping pressure.

Constructed from powder-coated steel, SuperJaws XXL boasts a 1000mm clamping width and will securely clamp almost anything from timber and bikes to doors and fence panels.

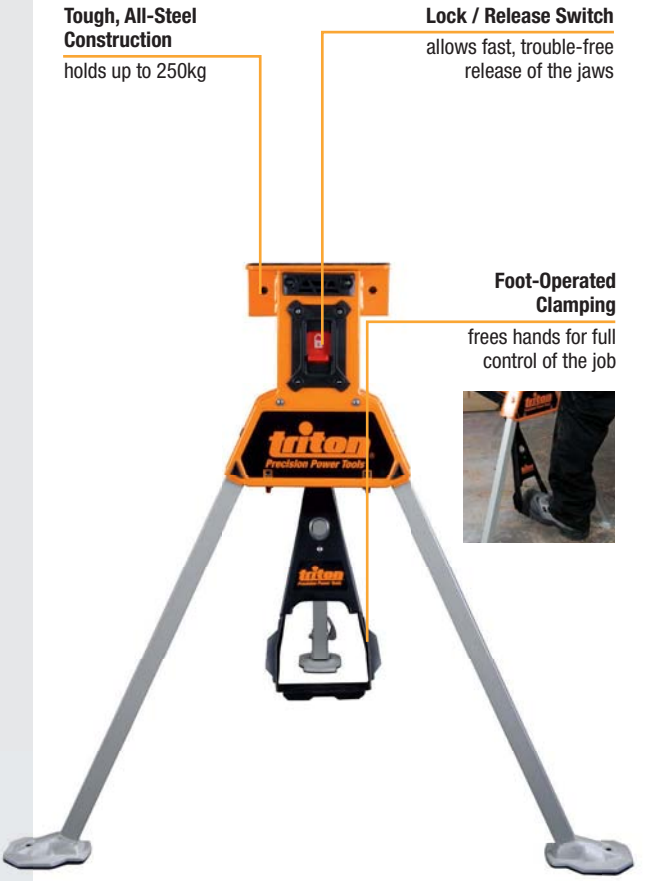
Features include a lock/release switch for fast release of the workpiece, reversible jaws for extra-wide capacity and foot-operated clamping for hands-free operation. The greater load capacity of 250kg allows clamping of larger workpieces.


Huge Capacity


Powerful Grip


Portable


Sanding & Finishing



Optional Accessories

SJAEB	Extension Bars
SJABC	End Stops
SJASS	Standard Side Support
SJARD	Roller Support
SJA420	Tool Tray


SJAEB
Extension Bars
Accessory pack with two 600mm extension bars for mounting supports.


SJASS
Side Support
Height adjustable side support with low friction surface.


SJABC
End Stops
Accessory pack with two bar clamps to secure extension bars.


SJARD
Roller Support
Height adjustable roller support with swing around bar stop.

SUPERJAWS XXL

Reversible Sliding Jaws
allow extra-wide **1000mm / 39"** clamping width capacity

Urethane Jaw Facings
provide protective, slip-resistant grip

Rear Handle
for carrying with ease

Stand-Alone Design
creates a hands-free portable workbench

Improved Frame & Leg Design
allows setting up & folding down in seconds

Tripod Base
for stability & safe operation on uneven surfaces

Large Rear Foot
enables use on softer ground & prevents marking

Quickly Folds Down
for storage & portability

Locating Holes
secure the feet for increased stability

Quick Release Legs
for safe & quick assembly

Technical Specification

Clamping Range	0 - 1000mm / 0 - 39"
Clamping Force	Up to 1000kg / 2200lbs
Clamping Method	Foot Operated
Max Load	250kg / 550lbs
Folded Size	797 x 302 x 325mm / 31 x 12 x 13"
Standing Size	1010 x 1060 x 875mm / 40 x 42 x 34"
Weight	19kg / 41lbs

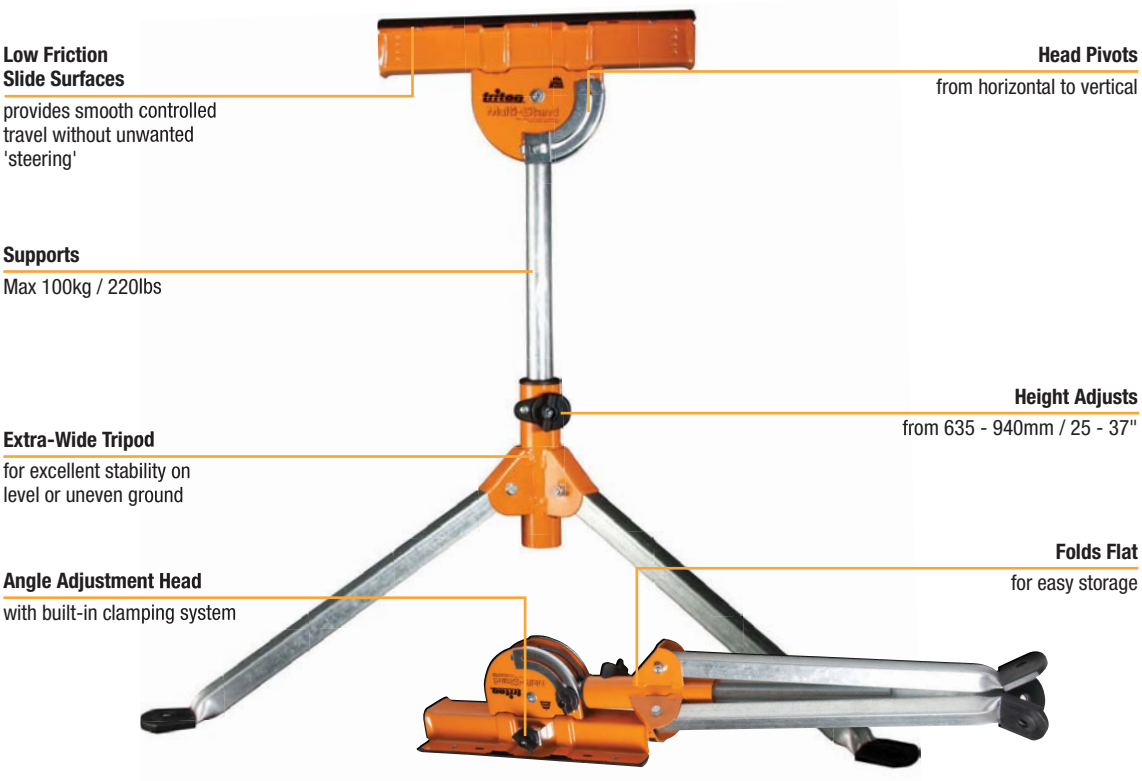
"One of the most eagerly-awaited "upgrades" of a workstation that reflects its original brilliance."

Nick Gibbs, British Woodworking Magazine

Multi-Stand

MSA 200

Multi-purpose, adjustable support stand with extra-wide tripod base for excellent stability on level or uneven ground. Folds down in seconds for convenient transportation and storage. Swivelling and tilting head with built-in clamp and low-friction slide surfaces.



Technical Specification

Max Load	100kg / 220lbs
Height Range	635 - 940mm / 25" - 37"
Angle Adjustment Range	Vertical Through Horizontal
Weight	6.2kg / 13.6lbs

WoodRack

WRA 001

The Triton WoodRack is easy to install, providing generous storage for wood, piping, guttering and long metal pieces on six levels, each with a capacity of 50kg.

Generous Storage Capacity
for timber, pipes & other long items

6 Levels
for storage of all materials

Made from 25mm / 1" Steel Tubing
& powder coated for increased durability & life

Holds 50kg / 110lbs
of material per level

Included Accessories

12 x Racks, 12 x End Caps, 12 x 6g x 1/4" Pan Head Screws, 2 x Uprights, 6 x Spacers

Technical Specification

Max Load	Holds 50kg / 110lbs of Material Per Level
Depth	300mm / 12"
Height	1040mm / 41"
Tube Size (Uprights)	25 x 1.6mm in Mild Steel / 1 in/sq x 1/16" in Mild Steel
Tube Size (Racks)	30 x 1.6mm in Mild Steel / 1 3/16 in/sq x 1/16" in Mild Steel
Weight	7.8kg / 17.4lbs

Systainer® Storage System T-LOC

TLOC

Triton's Systainer® T-LOC is a highly versatile system offering a tough, flexible and convenient method of organising, storing and transporting all your tools and workshop equipment.

Made from high-quality ABS for maximum durability and long service-life, Systainer® is available in five sizes to suit almost every requirement at home, on-site or in the workshop.

Each unit boasts a T-LOC latch system, which allows Systainer® to be locked, opened and connected using just one hand. Multiple units can be locked and stacked together to form one unit for optimum handling.

Open

Connect

Close

Carry Handle
folds away for portability

T-LOC Latch System
opens the lid & connects units together

Optional Accessories

Code	Description	For use with
TLOCLID1	Lid - EPP Insert 5mm	ALL
TLOCLID2	Lid - Foam Vaulted	ALL
TLOCSTRAP	Carrying Strap	ALL
TLOCINSERT	Universal Insert	TLOC108
TLOCPTA	Insert for Small Bits, 3 Compartments	TLOC108
TLOCBOX	Box Insert	TLOC108
TLOCTRAY	Tool Tray	TLOC210 TLOC315
TLOCDIV	Divider	TLOC315

TLOC 108

108 x 396 x 296mm

TLOC 157

157 x 396 x 296mm

TLOC 210

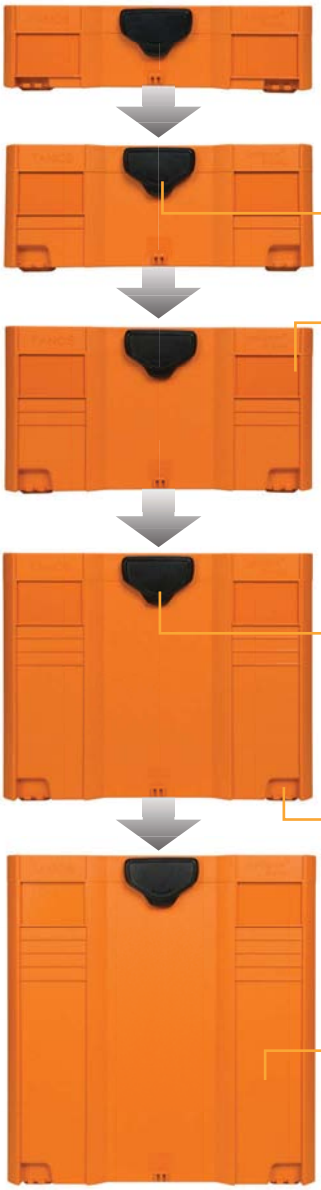
210 x 396 x 296mm

TLOC 315

315 x 396 x 296mm

TLOC 420

420 x 396 x 296mm



Open when Connected
without dismantling the units

Product Label Slots
for easy location of tools & accessories

Single-Hand Operation
locks, opens & connects units

Stack & Lock Units
for highly organised work storage

ABS Polymer Construction
for increased durability & long-life

Technical Specification

	Outer Dimensions	Inner Dimensions	Weight
TLOC108	108 x 396 x 296mm / 4¼" x 15$^{19}/_{32}$" x 11$^{21}/_{32}$"	75 x 383 x 273mm / 2$^{61}/_{64}$" x 15$^{5}/_{64}$" x 10¾"	1.3kg / 2.7lbs
TLOC157	157 x 396 x 296mm / 6$^{13}/_{64}$" x 15$^{19}/_{32}$" x 11$^{21}/_{32}$"	127 x 383 x 267mm / 5$^{1}/_{64}$" x 15$^{5}/_{64}$" x 10$^{33}/_{64}$"	1.5kg / 3.3lbs
TLOC210	210 x 396 x 296mm / 8$^{17}/_{64}$" x 15$^{19}/_{32}$" x 11$^{21}/_{32}$"	180 x 382 x 266mm / 7$^{3}/_{32}$" x 15$^{3}/_{64}$" x 10$^{15}/_{32}$"	1.8kg / 4lbs
TLOC315	315 x 396 x 296mm / 12$^{13}/_{32}$" x 15$^{19}/_{32}$" x 11$^{21}/_{32}$"	285 x 382 x 266mm / 11$^{7}/_{32}$" x 15$^{3}/_{64}$" x 10$^{15}/_{32}$"	2.1kg / 4.7lbs
TLOC420	420 x 396 x 296mm / 16$^{17}/_{32}$" x 15$^{19}/_{32}$" x 11$^{21}/_{32}$"	384 x 381 x 265mm / 15⅛" x 15" x 10$^{7}/_{16}$"	2.7kg / 6lbs


triton
Router Stand
triton

Workcentre Systems

The Triton Workcentre is the beating heart of your woodworking system. Coupled with Triton power tools and accessories, precision, versatility and the professional results you never thought possible are within your reach.

All Steel Construction

for long-lasting operation

Integrated Rules

for accurate fence alignment

Clear Safety Guards

with adjustable height for safe working

Folding Legs

for transportation and storage

Series 2000 Workcentre System

WCA 201

The Series 2000 Workcentre offers superior versatility and portability, and with the addition of Triton accessories, becomes a complete woodworking system.

Designed to work seamlessly with Triton's own range of power tools, the Workcentre is virtually 100% compatible with other power tool brands on the market.

Ideal for making quality furniture, craft items, or for carrying out household renovations, Triton's Series 2000 Workcentre System delivers professional results every time.


45° Bevel Saw


Mitre Cuts


Bevel Saw


Mitre Saw


Overhead Router


Router Table

Reversible & Adjustable Aluminium Fence
doubles as support for 45° bevel cuts

Rip Fence Locking Handles
allows for rapid locking & releasing of sliding rails

Crosscut Height Adjustment
suits all circular saw sizes

Power Switch
with quick stop panel for added safety

Folding Legs
for compact storage & easy transportation

Technical Specification

Suits	Circular Saws 185 - 235mm / 7¼" - 9¼"
Cuts	Rip, Mitre, 45° Bevel Rip, Crosscut, Bevel Crosscut & Compound Mitre
Capacities	Rip: 0 - 620mm / 0"- 24 13/32" Crosscut: 0 - 500mm / 19 11/16" Wide
Sizes	Standing: 900 x 1300 x 600mm / 35 x 51 x 23" Folded: 440 x 1000 x 350mm / 17 x 39 x 13" Table: 870 x 640mm / 34 x 25"
Weight	29kg / 63.9lbs

Compatible with

TA235CSL, TA184CSL, TSA001	Saws	Pg 14-19

40 Seconds

Switch from Table Saw to Crosscut Saw in 40 seconds!

Material Pressure Fingers
hold the workpiece firmly

Riving Knife
prevents material from jamming

Adjustable, Clear Guard
for a clear view of the cutting line

3-Sided Protractor
is fully adjustable & locks with side pressure finger

Integrated Rulers
allow for accurate adjustment of the fence

Robust All-Steel Construction
with powdercoat finish for long-lasting operation

1 Workcentre, 2 Systems, 9 Operations

Table Saw	Crosscut Saw
1. Rip planks, beams or sheet material easily, accurately and safely 2. Rip fence extends 620mm / 24 13/32" from the blade and enables handling of large sheets 3. Crosscut and mitre cut with outer-adjusting, using the unique three-sided protractor 4. Rip fence is reversible to provide a 45° face for accurate bevel and chamfers of any length 5. Cut rebates, grooves and tenons	1. Accurately crosscut long or heavy stock including beams, posts, studs, shelves and moulding by moving the saw, not the wood 2. Cut compound bevel mitres by angling the blade and the wood 3. Easy mitre, bevel and rebate joints 4. Crosscut up to 500mm / 19 11/16" wide, and virtually double the depth of cut by making cuts from opposite faces
Move the timber, not the tool	**Move the tool, not the timber**

Expanding Your Workcentre System

The Triton Workcentre is central to a wide range of accessories that will enhance its functionality, providing a professional finish to an endless list of projects in and around the home and workshop.

DCA 300

Dust Collector

Prevents sawdust filling up or clogging your vacuum cleaner. 20Ltr / 5 US gal capacity.

ASA 023

Faceplate Sanding Disc

Triton Sanding Discs on your saw provide fast, easy faceplate sanding and rounding over. Available to suit 235mm / 9¼" circular saws with 16mm / 0.6" or 25mm / 0.9" bores.

DCA 250

Dust Bag

Fits beneath the Workcentre allowing effective dust collection in tablesaw mode. Removable pouch allows easy disposal of dust.

AWA 200

Wheel Kit

Adds the convenience of easy storage and manoeuvrability by adding a pair of retractable wheels.

WCA 390

Height Winder Kit

Fits the Workcentre pressed steel chassis for quick and precise blade height adjustment.

- Control blade height by a winder through the table slot, or by a thumb-wheel in crosscut mode

AJA 150

Overhead Mounting Kit

Adding the optional Router Slide Plate, offers high accuracy for shelving, cabinets and built-ins.

- Accepts most Routers for use in the crosscut mode for overhead routing

RTA 300

Router Table

The optional RTA300 router table fits quickly in place and has a host of features for precision router work.

- Mounting plate features slots for rapid installation of all Triton routers
- Quality heavy duty fittings included to allow almost any ¼" or ½" router to be fitted

BRA 200

Bevel Ripping Guide

Enables accurate bevels and chamfers from 15° through 90°. Makes use of the Workcentre protractor for control of short bevels and perfect compound mitres.

- Enables you to bevel rip or chamfer long & wide workpieces on the Workcentre
- Guide slot enables use of the Workcentre protractor

EPA 001

Planer Attachment Kit

Combines an electric planer with the guidance of the Triton Workcentre for smooth, straight faces on all your work. Separate switch box with safety shut-off.

- Accepts most popular 82mm / 3.2" electric planers
- Fold-down position allows fast changes between planer & saw modes
- Easily detaches for storage
- Includes detachable dust collection bag & separate switch box

ETA 100 **ETA 300**

Extension Tables

Provides a substantial increase in rip and crosscutting capabilities. Unique multi-positional fence for mitre and taper cuts.

- Sliding table locks for conventional ripping or unlocked for use as a sliding panel
- The ETA300 Maxi handles full size 2400 x 1200mm / 94 x 47" sheets with a rip capacity of 1200mm / 47" from the blade & can crosscut sheets up to 1200mm /47" wide
- The ETA100 Mini is perfect when space is limited & can rip up to 1000mm / 39" from the blade & cross cut sheets up to 600mm / 23"
- Dismantles to convenient size for storage

Precision Router Table System

RTA 300

Quick installation of any Triton Router is easy with the Precision Router Table System. Featuring slots on the mounting plates and including quality, heavy duty fittings, almost any ¼" or ½" Router can be installed.

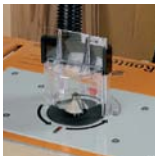
By adding other accessories, the system will perform jigsaw cutting, biscuit jointing and finger jointing.

Fitting the Triton Router Table (RTA300) to the Triton Workcentre or Router Stand adds a whole new dimension to woodworking, allowing shaping, planing, rebating, trenching, moulding and grooving.

Whatever the job, the Triton Router Table offers remarkable accuracy, exceptional versatility and enhanced safety for professional results.

Height Adjustable, Clear Safety Guard

for clear sight of the cut zone & efficient dust collection for safe free-hand work



Double-Sided Protractor

fitted with grip tape for added non-slip support with 90° range

Small & Large Cutter Inserts

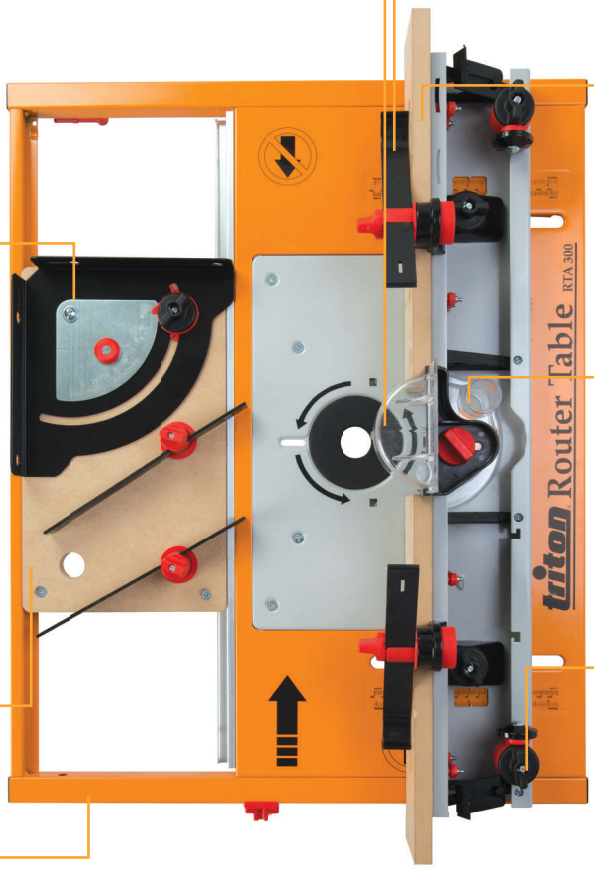
provide maximum support for the workpiece

Sliding Table Insert with Removable Protractor

for smooth, accurate cutting

Powder-Coated Table

ensures a sturdy flat surface with quick-fit system



Non-Return Pressure Fingers

for fully adjustable vertical & horizontal support

Steel Frame Fence with MDF Face

is easily replace when worn or damaged

Dust Extraction Tube

for connection to a dust extraction system

Micro Adjusters

for fine adjustment of the fence position for rebating & planing

Technical Specification

Table Size	540 x 690mm / 21 x 27"
Bevel Adjustment	90°
Dust Extraction	Yes
Weight	11kg / 24.4lbs

Compatible with

WCA201, WCA200, WCA001	Series 2000 Workcentre System	Pg 86-89
RSA300	Router Stand	Pg 94
TRA001, MOF001, JOF001	Routers	Pg 6-11

"The Triton Router Table and Stand have some unique features which you can take advantage of... adding some accessories will expand your routing repertoire even further."

Anthony Bailey, Essential Workshop Guide 2013 - Woodworkers Institute

Expanding Your Router Table System

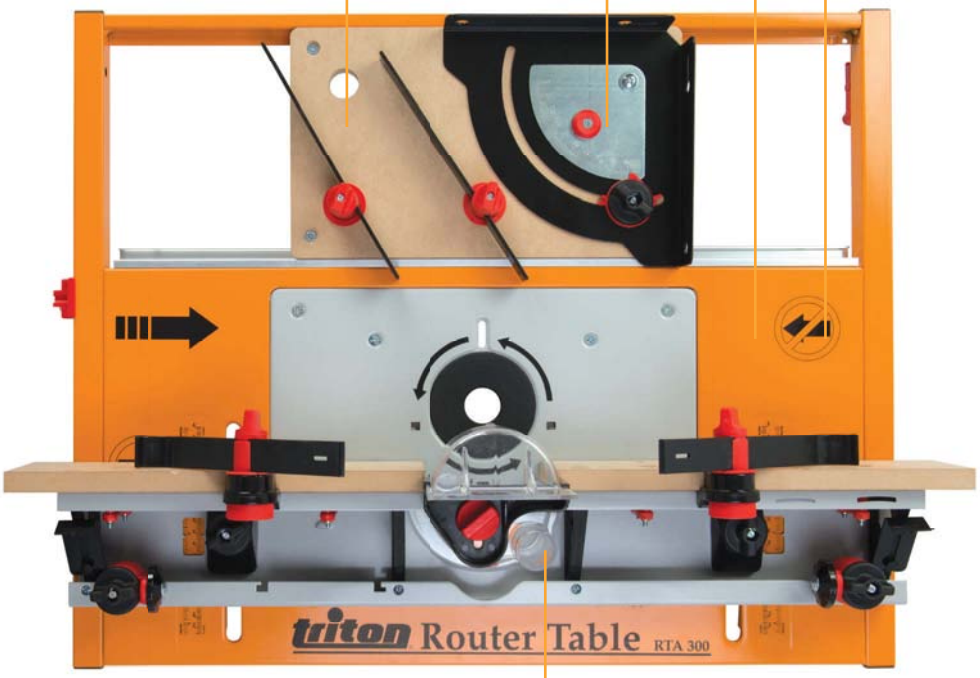
Engineered to perform with precision and simplicity in mind, these accessories are perfect companions to Triton power tools. And for added flexibility, each accessory is supplied with additional fittings for compatibility with almost any brand of power tool.

FJA 300

AJA 300

BJA 300

RSA 300



DCA 300

FJA 300
Finger Jointer

The Finger Jointer fits straight into the Triton Router Table for easy and accurate decorative box joints.

- Makes accurate ¼" & ½" joints in any board thickness from 3mm / ⅛" to 32mm / 1¼"
- Cuts several joints at the same time
- Compatible with RTA300 Triton Router Table

AJA 300
Jigsaw Kit

Fast fit and removal from the Router Table. Adjustable hold-down pressure for steady operation.

- Overhead blade stabiliser
- Quick-mount clamps ensure fast removal & refitting of the jigsaw
- Dust extraction port for easy connection to a dust collection system
- Compatible with jigsaws

BJA 300
Biscuit Joiner

Fit the Biscuit Joiner to your Router Table for fast, strong and invisible joints. Ideal for right-angle joints, mitres, bevels and edge joinery.

- Once installed, the biscuit joiner takes only seconds to remove & refit
- Includes TCT cutter & pack of biscuits. Suits ¼" & ½" routers
- Additional biscuits available in packs of 50 and 500

RSA 300
Router Stand

Separate stand for fitting the Router Table leaves the Workcentre set up with the saw for greater convenience.

- Fitted with safety On / Off switch
- Adjustable leg height for uneven ground
- Folds down for easy transportation & storage
- Onboard leg storage for portability

DCA 300
Dust Collector

Prevents sawdust filling up or clogging your vacuum cleaner. 20Ltr / 5 US gal capacity.

TRA 001 MOF 001 JOF 001
Routers

Designed and engineered to 'quick fit' to the Router Table, with added features to enhance its operation and accuracy.

TGA 150
Router Accessory Kit

Includes template guides and dust chute.

TGA 001
Template Guide Kit

Includes a variety of sizes for all routing needs.

Router Stand

RSA 300

Purpose-designed support stand for use with the Triton Router Table. Features include adjustable leg height for stability on uneven ground, and on / off switch with quick-stop panel for added safety. The stand also folds down for convenient transportation and storage.

Onboard Leg Storage
for easy portability

Adjustable Legs
for easy operation on uneven work surfaces

Compatible with Triton Router Table
allows the Workcentre to be set up with a saw for greater convenience

Power Switch
controls power to the power tool with quick-stop panel for added safety

Technical Specification

Table Size	650 x 690mm / 25 x 27"
Standing Size	880mm / 34"
Weight	11.4kg / 25lbs

Compatible with

RTA300	Precision Router Table System	Pg 90-93

"Anyone who buys a Triton becomes a Tritonite and wouldn't swap it for anything else."

Woodworking Plans & Projects Magazine

TCB 100

Sturdy saw table with easy-lock rip fence offering 0 - 450mm cutting capacity either side of the blade and protractor with up to 180° angle adjustment for accurate mitre joints and tapers. Allowing a cutting depth to 52mm and featuring a transparent blade guard with hold-down fingers, woodworking is safer and more enjoyable with the Triton saw table.

See-Through Guard

with anti-kickback fingers & dust extraction port

Protractor with Finger Guide

holds wood in position & provides up to 450mm / 18" crosscut travel, & 180° angle adjustment ensures perfect mitre cuts

Adjustable Legs

for independent levelling on uneven ground

Integral Push Stick

ensures safe ripping of large & narrow workpieces

Easy Lock Rip Fence

with 0 - 450mm / 0 - 18" capacity on either side of the blade

Foldaway Legs

for easy portability & compact storage

Technical Specification

Cuts	Rip, Crosscut, Mitre
Cut Depth	52mm / 2"
Cut Capacity	0 - 450mm / 0 - 18"
Standing Size	900 x 760 x 530mm / 35 x 29 x 20"
Folded Size	150 x 760 x 530mm / 5 x 29 x 20"
Weight	18kg / 35lbs

Compatible with

TTS1400, TA184CSL, TA235CSL	Saws	Pg 14-19
ETA100	Extension Table	Pg 89
BRA200	Bevel Riping Guide	Pg 89
DCA250, DCA300	Dust Collection	Pg 88

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Our online social community is brimming with inspiring ideas, shared experiences and stories from across the globe. For the latest information from the world of Triton Precision Tools, including in-depth product information, tutorials, and exclusive woodworking projects, or to sign up for our regular newsletter for opportunities to enter exclusive competitions and news on the latest events, simply register online at our website.

Woodworking Plans and Projects

A range of exclusive Triton woodworking products is available for you to build. Our woodworking guides cater for all skill levels and are an ideal way to get the most out of your tools. You can start by making a simple portable toolbox, then progress to more advanced projects such as useful storage units for the home or workshop as your skills develop. The guides are easy to read and can be accessed as downloadable PDF files from the website or via the Triton Mobile App.

Award Winning Quality

All Triton Precision Power Tools undergo exhaustive tests and inspections during manufacture to ensure the tools we deliver are of the highest quality. However for complete peace of mind, please register your new tool within 30 days of purchase and take advantage of our extended three year warranty.

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In our media centre you can explore exclusive content for registered users, including 360° videos of new products as well as full schematic diagrams of our tools to identify spare parts. If you have a question then you can communicate directly with Triton specialists and experienced users through our interactive forum.

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