

Furniture & cabinetmaking

DESIGN • INSPIRATION • PROJECTS • TECHNIQUES • TESTS • NEWS • EXCELLENCE

Router table joinery

Finger jointing to make
a classic box

Sharpening

Simplify your approach to
improve your technique

Psychology of safety

How to watch your step
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The Unplugged Woodshop

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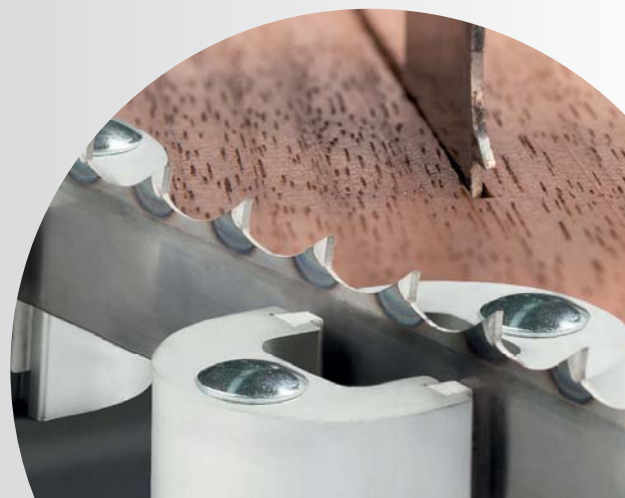
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Welcome to...

Sharpening wisdom



PHOTOGRAPH BY GARY DEREK JONES

Check out Brian Greene's sharpening article on page 34

I don't know about you but I've always been wary of people who are too comfortable blowing their own trumpet. Of course, we all need to have a certain confidence in our ability just to get by, but overstep the mark and the message quickly turns into a manifesto. By definition we might confuse opinion with fact or, worse still, ignorance with fact and before you know it, they become words of wisdom. Beware the man who says he's right and actually believes it. It's a fine line this communication lark.

Now I'm aware that we're going to be tip-toeing on eggshells in this issue as we begin a short series on that most controversial of subjects: sharpening. For all that's been written about it, it still remains the most common problem for people picking up the woodworking bug. There's no quicker way to attract a crowd at a woodworking show than to break out the sharpening kit, except maybe for a dovetail demonstration or the prospect of a free pen.

For the more experienced among us, this is an opportunity to return to basics and perhaps reassess our approach. If you feel your technique is well tuned and there's no room for improvement, then you need to spread the word and share your experience with anyone who'll listen. In fact, why not

think of it as your duty? The tricks of the trade should not be shrouded in mystery and what finer legacy could befit a competent sharpener?

Hand saws

Having caught up with Tom Fidgen, the Canadian woodworker, author and staunch advocate of the hand tool just recently, we've asked him to share his thoughts on the subject of hand saws. It's a tricky one this because although many of us will have a soft spot for traditional work, we tend to give certain aspects the cold shoulder if it looks like hard work. I'm talking ripping and cross-cutting stock by hand, in case you haven't guessed. Having recently rescued a saw with the looks that only a mother could love, I've stopped trotting out to the machine shop to use the chapsaw for almost everything now. I did at first begin to wonder if I was just trying to make a point, but as the change in habit became normal practice, my technique improved and along with it so has my efficiency and willingness to learn more about these often overlooked tools. As you would expect from a travelling man, Tom's selection is minimal and an excellent place to start your collection. Expect to see more on this subject over the next few issues.

Complete wind up

I think it's a form of natural osmosis that we end up working more often with people who make working with them easy. It's not just the act of a smooth transaction that paves the way, it's the idea that the other party is investing as much in the relationship as you are. This train of thought came about after a particularly frustrating experience with some brass screws. In fact, they weren't brass but some kind of squidgy bright coloured material instead. We've all been there: if you are even remotely involved with the supply chain responsible for offering these inferior products, then shame on you. They are most certainly not fit for purpose. Tofu and shiny yellow paint is not a good alloy for fastenings. Go back to the drawing board, spare a thought for the poor end user and please, please come back with something better. Believe it or not, that's what we want. And so with that out of the way, let's get down to business.

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Furniture & cabinetmaking

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Woodworking is an inherently dangerous
pursuit. Readers should not attempt the
procedures described herein without
seeking training and information on the
safe use of tools and machines, and all readers should
observe current safety legislation.

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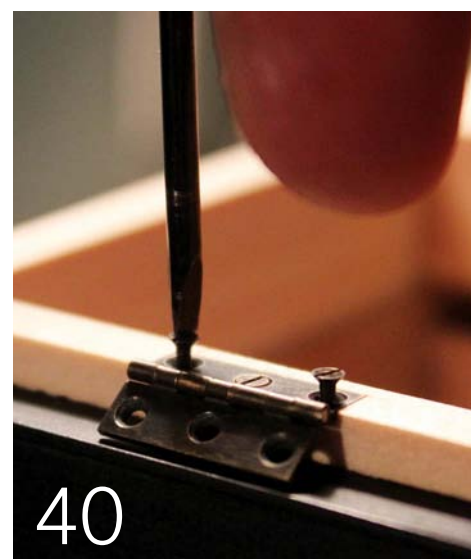
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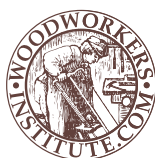
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Don't forget there are plenty more articles and discussions to be found on the Woodworkers Institute website –
www.woodworkersinstitute.com



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Contribute to these pages by telling us about matters of interest to furniture makers. Call Tegan Foley on 01273 402 839 or email teganf@thegmcgroup.com. Please accompany information with relevant, hi-res images wherever it is possible

News & Events

Young design duo wins Time to Design Award 2014

On 27 August, the winners of this year's Time to Design award were announced: a young design duo called Chudy & Grase, alias Jasmina Grase from Riga and Nils Chudy from Berlin. They both recently graduated from Design Academy Eindhoven, but they have been planning a professional collaboration for a long time. Now their collaboration is finally a reality and together they have won the Time to Design Award with 'Viewpoint'.

Chudy & Grase entered Time to Design with a product that reflected this vision of making a difference in someone's everyday life. "During our research for 'Viewpoint' we found out that people with depression perceive the world more realistically than healthy people. That means most of us actually don't see life how it really is – and why should we? It is far more fun to challenge the boundaries between what we CAN and CANNOT see. Inspired by this phenomenon we researched different aspects that allow us to play tricks on our perception. It seemed logical to have a mirror as an end result," the duo explains. This led to a mirror mounted on a light panel.



This year's award was won by young design duo Chudy & Grase

While you slide the mirror above the patterned light panel, you can decide if you want to see yourself or prefer that your reflection dissolves into the white light.

The Time to design prize was first awarded in 2008 and is an international talent award aimed at designers at the beginning of their careers. The aim of the prize is to create a unique platform for a young designer talent, which can contribute to his/her further professional career.

The prize includes a three month residency at the Danish Art Workshops, 50,000 DKK, donated by the Danish Association of Wood and Furniture Industries, a 14-day exhibition period in the Normann Copenhagen Flagship Store, an exhibition at the Stockholm Furniture Fair 2015 as well as career coaching by Danish Design Organisation, Design Denmark. For further information, see www.timetodesign.dk.

TEAM 7 – treeO: your flexible companion from the forest

Made in the image of nature by TEAM 7 the new 'tree' side table features three narrow tree trunks growing upwards and joining together to form a single unit and, with their branches, support a seemingly floating crown made of natural wood or white marble. The circular opening in the middle showcases the attractive end grain patterns of the elegant wooden joints and can also be used as a convenient carrying handle for the side table. The upper edge of the central joining point is level with the circular shelf and thus becomes a convenient extension of the shelf.

Available in walnut (*Juglan spp.*) or oak (*Quercus spp.*), the piece can be left freestanding or cleverly arranged as part of a group.

TEAM 7 was established over



50 years ago in the heart of northern Austria. Today it is the European leader in the production of pure, natural wood furniture. To find out more, see www.team7.at.

'treeO' side table designed by Jacob Strobel, Sebastian Desch and Stefan Radinger

David Charlesworth to offer new weekend courses



David is a legend on the UK woodworking scene

Sharpening must be one of the most problematic skills for the amateur to master, but David's two-day weekend course will teach you a simple method for perfecting your sharpening. The aim is to produce edges as sharp as David's on day one. David uses three Japanese waterstones, a modern version of the Eclipse honing guide and of course the

ruler trick for plane blades. His method is surprisingly quick. Plane blades take about four minutes and chisels should take less. Hollow stones always round the backs of chisels and plane blades, which makes the best sharpening impossible. It is therefore a good idea to have at least one new chisel and plane blade to hand. It is sometimes possible to reclaim a bellied blade, but the time taken can be considerable.

The preparation, honing, grinding and squaring of chisels is covered on day one. On the second day, students prepare slightly cambered plane blades. The use of these curved blades will be discussed and demonstrated and they are invaluable for the precision squaring of edges. Sharp tools need less effort and make our woodworking tasks infinitely more enjoyable. For more information on course dates and prices, see David's website: www.davidcharlesworth.co.uk.

Lie-Nielsen demos this autumn

Deneb Puchalski from Lie-Nielsen, will be visiting Ireland, England and Scotland this November. The tour will include two events in locations that have not hosted Lie-Nielsen demonstrations before: Newcastle and Glasgow. He will also be demonstrating at Brodies in Perth, Axminster Tools & Machinery in Nuneaton and for all three days at the Harrogate Show.

Deneb is the recognised authority on how to get the very best from these superb tools. He can help with advice on sharpening, plane tuning and many more techniques. His passion and enthusiasm for the tools he works with are clear to all who have seen his demonstrations.

Anyone keen to see Deneb in action and gain an insight into why Lie-Nielsen has such an excellent reputation will be able to do so at any of the following venues:

- **Wednesday 12 November** – St Mary's College – with the Carpentry Store, Galway – evening event – free entry
- **Thursday 13 November** – The Carpentry Store, Naas – evening event – free entry
- **Saturday 15 November** – Axminster Tools & Machinery, Nuneaton – afternoon event – free entry
- **Monday 17 November** – Newcastle – venue to be confirmed – all day event – free entry
- **Tuesday 18 November** – Glasgow – venue TBC – afternoon event – free entry
- **Wednesday 19 November** – Brodies, Perth – all day event – free entry
- **Friday 21 & Sunday 23 November** – North of England Woodworking & Power Tool Show, Harrogate – all three days

Find out more here: www.brimarc.com.



Deneb in action during his visit to the UK in 2013

TIMBER TRADE NEWS Fireblight disease



Fireblight on a pear tree caused by *Erwinia amylovora*

Bacterial diseases are less common on plants than animals, but some serious examples do occur. One is fireblight, which is caused by the bacterium *Erwinia amylovora*. It is restricted to the sub-family *Maloideae* in the family *Rosaceae*. It originates from north America and was first recorded in the UK in the 1950s. It is now widespread, but still subject to some quarantine restrictions: see www.fera.defra.gov.uk for more information on this. In the UK, it is most serious on whitebeam (*Sorbus aria*) and hawthorn (*Crataegus monogyna*), but several other related trees and a number of shrubs may also be attacked. Depending on susceptibility, parts or all of the plant may be killed. The bacteria spread down stems in the inner bark from the initial infection, often in a flower, where they are deposited by pollinating insects, at the leading edge of the infection the inner bark is stained reddish brown. They overwinter in bark cankers and in the spring they multiply and ooze out of cracks and lenticels and contaminate insects which disperse them. Infection of the phloem and cambium leads to rapid death of the stem. Little can be done to control it, but early detection and removal can limit the damage.

Chris Prior



Gala apple branch with 'scorched' leaves after a severe fire blight infection

Creation for Sir Terence Conran



The award-winning furniture designer Sebastian Cox will showcase a piece of work specially-commissioned by Sir Terence Conran at the London Design Festival.

He was invited by Sir Terence, one of the country's best known designers, retailers, restaurateurs and writers, to create a bespoke item of furniture that will be exhibited as part of The Wish List installation at the Victoria and Albert Museum in London.

The Wish List, which ran from 13–21 September, 2014, is a collaboration between Sir Terence Conran, Benchmark, the London Design Festival and the American Hardwood Export Council.

It was instigated by Sir Terence when he asked some of the most illustrious names in architecture and design: "What have you always wanted in your home, but never been able to find?" Under the mentorship of these industry greats, 10 emerging designers were asked to create the elusive items.

Sebastian produced 'Getting away from it all' – a distinctive enclosed desk, book-ended by two storage towers – for Sir Terence himself.

Sebastian was invited to take part in the exhibition after producing a range for



Sebastian's specially designed enclosed desk

Benchmark, the leading furniture company co-owned by Sir Terence Conran and Sean Sutcliffe, which has now been shortlisted for a prestigious Elle Decoration British Design Award, in the Best British Sustainable Design category. The range is created from coppiced wood – a sustainable material that Sebastian has been passionate about since his time at university. For more information, see Sebastian's website: www.sebastiancox.co.uk.

The Northern Contemporary Furniture Makers at London Design Week

Paul Case has recently successfully completed the wine cellar in the Isle of Man, which surpassed expectations all round, and, as you can see, certainly has the wow factor. Recently, his work was featured at 100% Design, part of the London Design Week and this year saw him showcasing some of his acclaimed 'Spyder' collection, along with a beautiful 'Cleopatra' bench and some new glass and timber drinks tables, which are named after the Italian for glass 'Vetro'.

Christine Meyer-Eaglestone had great success

at the Celebration of Craftsmanship & Design, where she sold a cheval mirror and a tall wall-hung cabinet and established numerous contacts. She exhibited at Tent London where she showcased the 'Grid IV' low sideboard and a variety of wall-mirrors.

NCFM is a group of professional designer-makers, all based in the North of England, who aim to celebrate and promote the excellence of high-quality furniture and support each other in artistic and professional development. See www.northernfurniture.org.uk for more information.



Paul Case's wine cellar



Paul Case's 'Vetro' table

The essential guide for the furniture supply chain



The guide also looks at the other elements of product selection, including the importance of responsible manufacturing

Making great furniture – the goal is to get the product design right, ensure legal and ethical manufacture and produce a product that makes customers keep coming back. All is going well until a customer finds a sharp object in the upholstery of their sofa, a wood eating insect in the frame, or you find your company in the news for all the wrong reasons.

Whether you are a designer, manufacturer, buyer, importer or retailer, a new guide to the responsible way to design, make and sell furniture, written by an expert in furniture retail and manufacturing, aims to help avoid disaster.

The Best Practice Guide to Product Selection for the Furniture Supply Chain covers the need for procedures and documentation – due diligence – how to build quality into a design, sourcing materials, basic factory assessments, tracing materials, your legal responsibility, a guide to testing and finally, how to monitor and measure the success of the final product.

The guide is available to purchase from BM TRADA's Bookshop, which offers a wide range of technical publications for professionals. It is also available to purchase from Amazon.

Events

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Pier table, Italy, c. 1770. Just one of the many exhibits at Great Gallery Tables

Great Gallery Tables

The recent refurbishment of the Wallace Collection's Great Gallery allowed the museum's Conservation Department to conserve four large, impressive tables, which have been on permanent display for 140 years. The work was aided by Bucks New University, City & Guilds of London Art School and West Dean College. This exhibition examines the discoveries made during the treatment of the tables, which are now permanently back on display.

When: 19 September, 2014–27 September, 2015

Where: The Wallace Collection, Hertford House, Manchester Square, London W1U 3BN

Web: www.wallacecollection.org

The Autumn Furniture Show

This major event for furniture retailers is expected to attract top furniture manufacturers and suppliers from both the UK and also from around the world.

When: 7–9 October, 2014

Where: The International Centre Telford, St Quentin Gate, Telford, Shropshire TF3 4JH

Web: www.theautumnfurnitureshow.co.uk

Dwell on Design NY

Curated by the editors of *Dwell* magazine, Dwell on Design NY will see 5,000 members of the design elite gathering in New York for innovative installations and onstage discussions about modern design.

When: 9–11 October, 2014

Where: 82 Mercer Conference Center, 503-511 Broadway PH, New York, NY 10012, USA

Web: www.dwellondesign.com

Craft in Focus Christmas Craft Fair

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. 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 event is a must visit for anyone seeking something unusual and original and produced by an individual business that has a real passion for the work they create. Admission is £9; RHS Members and accompanied under 16s free.

When: 25–30 November, 2014

Where: RHS Garden Wisley, near Woking GU23 6QB

Web: www.craftinfocus.com



PHOTOGRAPHS COURTESY OF CRAFT IN FOCUS



Just some of the exhibitors you can expect to see at Craft in Focus

BUCKS NEW UNIVERSITY

Past Master of Furniture Makers Company is awarded Honorary Fellowship by Bucks New University

Charles Vernon, a highly committed University supporter and recently retired Group CEO of international company Gloster Furniture, has been bestowed with an Honorary Fellowship in recognition of his personal, committed contribution to the University's Furniture Department. Charles was among a distinguished gathering of individuals being honoured at Bucks New University's graduation ceremonies held at the Wycombe Swan Theatre from 8–12 September.

Charles' career in furniture began in 1977 when he joined one of High Wycombe's most famous furniture companies, Parker Knoll, in its computer department. He moved from computing through to production and then sales before joining the main board of Parker Knoll PLC in 1985. He was also appointed Managing Director of Nathan Furniture and Chairman of Lock of London.

In 1993 he moved on to run Gloster Furniture, which he took from being a small UK manufacturer of teak benches into a leading global brand of high-quality outdoor furniture. Gloster manufactures in



Asia and markets its products in over 50 countries with its own companies on three continents. He joined the Worshipful Company of Furniture Makers in 1988, has served on the Court since 1996 and was Master from 2012–13. Charles serves on various boards and currently heads up the Furniture Makers Training and Education initiatives. He is also a Freeman of the City of London. For more information, see www.bucks.ac.uk.

Charles Vernon has been bestowed with an Honorary Fellowship by Buckinghamshire New University

Scottish referendum meets furniture in cabinet of ideas

The 'Referendum Cabinet' has been created by the Chippendale International School of Furniture to mark one of the most important events in Scotland's recent history.

It was described as "an iconic piece of furniture of both national and international importance," by Professor Richard Demarco at its unveiling at an Edinburgh art gallery. The intricately inlaid cabinet tells an interwoven story of Scotland's heritage and history and of its place in the Union. The non-political cabinet is the work of Anselm Fraser, the School's principal and his team of teaching specialists and students.

The cabinet features Eilean Donan Castle and the Forth Rail Bridge on its outer doors and a composite image of the London skyline, all employing traditional marquetry enhanced by CAD and CNC technologies.

The wood veneers used include a wide variety of

stained hardwoods for the skies and water and while the cabinet required intricate craftsmanship, it also used cutting-edge computer technologies. For example, some of the finest details on the cabinet were given additional precision using CNC line technology, which was carried out by Heritage Inlay Design of Brighton. "The inspiration behind the cabinet is that we wanted to design and make a piece of furniture to commemorate one of the most important days in Scotland's history," said Anselm Fraser.

Images on the central drawer include historic buildings such as the Houses of Parliament and Tower Bridge – interspersed with newer additions to London's cityscape, including the Shard. The Scottish images celebrate Scotland's engineering heritage and iconic history and scenery. London, on the Thames, looks out to continental Europe; Eilean Donan Castle, on Scotland's west coast, looks to the New World. Helping to join the two



countries is the Forth Rail Bridge. "By combining computer-aided design technologies with traditional craftsmanship, we have created a piece of furniture that also tells a more modern story; a story of both heritage and innovation – and that, whatever the referendum result, we should celebrate the past as well as the future," said Anselm Fraser. See www.chippendaleschool.com.

Anselm Fraser, principal of the school, and Richard Demarco with the 'Referendum Cabinet'

If you're a member of a collective and would like to raise your profile then submit a story to teganf@thegmcgroup.com

Design Guild Mark 2014

The Furniture Makers' Company is pleased to announce the Design Guild Mark 2014 award recipients.

The Design Guild Mark, now in its seventh year, rewards excellence in the design of furniture in volume production. By the award of this Guild Mark for designs, which meet The Furniture Makers' Company criteria, the designers receive due recognition and the industry is made more aware of the importance of investment in design.

The Design Guild Mark rewards the work of the finest furniture designers working in volume production and the best of British furniture designers working abroad.

Design Guild Mark returned to 100% Design this September as an exclusive feature stand, exhibiting a selection of 2014 award recipients chosen and curated by the show organisers.

Graham Jones, Chairman of the Design Guild Mark commented: "This year has been particularly exciting. We have seen a record number of entries that suggests the Design Guild Mark is really gaining awareness and value. Most significantly, we had many first time applicants and, particularly, young applicants, who really expressed a passion for their craft and for why they wanted to apply for a DGM."

At the time of going to press, the winner had not been announced, but we will bring you full details in issue 226. For more information, see www.furnituremkr.co.uk.



Dylan Freeth's 'Romana Large Sideboard' – DGM 108



Design Guild Mark 2014 award recipients are as follows:

Simon Pengelly – 'Concave Bookcase' for Joined+Jointed	DGM 96
Simon Pengelly – 'Norse Chair' for Modus Furniture	DGM 97
Steuart Padwick – 'Fonteyn Dressing Table' for MADE.com	DGM 98
Sarah Kay – 'Pembroke Range' manufactured by Sitting Firm	DGM 99
Sam Hecht & Kim Colin – 'Wireframe Sofa Group' for Herman Miller	DGM 100
Katie Walker – 'Windsor Rocker' manufactured by Sitting Firm	DGM 101
Mark Gabbertas – 'Sandur Chair' Gabbertas Studio for Oasiq	DGM 102
Je-uk Kim – 'Lovebird Sofa' for MADE.com	DGM 103
Katerina Zacherides – 'Brompton Collection' for Morgan	DGM 104
Morgan Studio – 'Pimlico Collection' for Morgan	DGM 105
Oliver Hrubciak – 'Finn Lounge Chair' for John Lewis	DGM 106
Broome Jenkins – 'Deploy Table Range' for Boss Design Group	DGM 107
Dylan Freeth – 'Romana Large Sideboard' for Ercol Furniture	DGM 108
Jones & Partners – 'Focused Work Table' for Thinking Works	DGM 109
Ben Fowler – 'Hat Tree' for Marque Furniture Ltd	DGM 110
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Leonhard Pfeifer – 'Slope Desk' for Müller Möbelwerkstätten	DGM 114
Marie Dessuant – 'Desk Three' for Another Country	DGM 115
Alex Hellum – 'Jot Desk' for Joined+Jointed	DGM 116
Namon Gaston – 'Oxbow Chair' for Benchmark	DGM 117
David Adjaye – 'Washington Collection' for Knoll International	DGM 118
Michael Sodeau – 'Library Seating' for Modus Furniture	DGM 119
Frederick Scott (d 2001) – 'Supporto Chair' from Zoefftig	DGM 120
Wales & Wales – 'Span Dining Table' for Joined+Jointed	DGM 121
Wales & Wales – 'Radar Tables' for John Lewis	DGM 122



Steuart Padwick's 'Fonteyn Dressing Table' – DGM 98

David Adjaye's 'Washington Collection' – DGM 118



PHOTOGRAPHS COURTESY OF CHERILL SHEER & ASSOCIATES

Editor's round-up...

Having trouble sourcing the right tool for the job? Derek Jones sets about identifying the essential tools and equipment on offer this month

All sterling prices include VAT, correct at time of going to press



PHOTOGRAPH BY GARY DEEKE, JONES

It's not rocket science: make functional, beautiful objects and they will be desirable. Not much of a marketing presentation I admit, but in essence, that's exactly what's happening in the tool world these days. If you've been following our series on the great tool-makers, I guess you could even say it's nothing new. What we see on the shelves today represents some of the finest hand tools ever to have made it to market. Maybe then it's about time we lost the 'oh, they don't make them like that any more' attitude. After all, in some cases, a modern equivalent is an improvement. Don't get me wrong, there are still some horrors out there, but in the main, we're pretty well served. Hell, if you can afford to wait a few months, then you can buy an excellent set of new rounds and hollows every bit as good, if not better, than the originals and that's just the tip of the iceberg. Right now it's not just the making of stuff that's growing in popularity, it's the

appreciation of crafted goods as opposed to manufactured ones. I think that after decades spent foraging in the commercial wilderness, we are finally making the connection between value for money and value for life. Good quality tools don't just last a lifetime, they last several lifetimes and we should think of ourselves as custodians rather than outright owners. I have several of my grandfather's tools that will still be quite serviceable long after I'm gone. I enjoy the connection with him when they appear on my bench but, most of all, I like the idea that the investment he made in them is still paying off. The reality is that I can make these tools work for me in a commercial sense if I complement them with tools from the modern age to reconcile the output versus input equation. After all, there's no point clinging to the wreckage of a bygone age just for sentiment now, is there? Just to confuse you, my favourite tool this month was a small 10.8V plunge saw from Bosch. The GKS

10.8 V-Li cordless is quite the hand tool, well almost. Don't be put off by low numbers, it'll plunge and bevel freehand or from a guiderail through 18mm sheet material – no problem. In fact, about the only thing this little hand-held device won't do is to take a selfie, but then you've got that covered, right?

Quangsheng 5½ & Luban 102 apron plane

Workshop Heaven is pleased to announce the arrival of two new planes from Quangsheng. The new Luban 102 apron plane is beautifully cast in bronze with a hand polished cap. Equipped with the eminently smooth Quangsheng type three adjuster and a 3mm thick, perfectly heat treated carbon steel blade, the 102 is light enough to be carried in your apron pocket, and useful enough to warrant being there. A dependable friend that will be with you every step of the way.

The long awaited Quangsheng 5½ bedrock pattern jack plane is a superb all-rounder. The new plane incorporates all of the current features of the Quangsheng range: dog bone Y-levers, engineered lateral adjusters, precision ground unbreakable CR40 castings, etc. The 5½ is a popular choice as a first bench plane and is ideal for accurately dimensioning and finishing furniture components in a modern semi-mechanised workshop. Both are available now.





Dust Right accessories

Rockler Woodworking and Hardware has expanded its Dust Right line of dust collection solutions with two sizes of affordable anti-static hose, a heavy-duty shop vacuum hose kit, featuring a 3.6m crush-resistant hose and a heavy-duty workshop vacuum accessory kit with attachments for tackling a full range of cleanup challenges.

The new anti-static hose offers anyone who uses a workshop vacuum or dust collection system protection from shocks caused by the buildup of static electricity. It's made from plastic specially formulated with carbon black, a substance originally used to reinforce car tyres that also safely discharges static electricity. That means you won't have to worry about getting stung by shocks or sparking a fire while cleaning up your workshop or work area.

The vacuum hose kit is built to last in demanding work environments and is made of a tough, flexible polymer that resists kinking and crushing and allows for easy manoeuvring. The kit includes two attachments: a claw attachment for broad surfaces and a crevice tool for getting into tight spots. The accessory kit includes a curved handle, two 510mm extension wands and a 355mm floor sweep for comfortable and easy cleanups of walking areas.



Record Power autumn/winter 2014/15 catalogue

Having been expanded to 68 pages, the latest Record Power catalogue features the full range of products as well as two brand-new features. The guide to the Record Power bandsaw range gives an easy to digest summary of the full range, accompanied by a new series of online videos, which show each machine's features and capabilities. There is also a feature on getting started in woodturning, which offers some new superb value package deals aimed to help new woodturners get started, whatever their budgets and aspirations.

There are also great value deals on offer across the full range, the full show list for the coming months and a brand-new competition, where you could be in with the chance of winning a fantastic G3 chuck and range of jaws package worth over £226.



Bosch GOF 1250 CE & LCE Professional routers

The GOF 1250 CE Professional and GOF 1250 LCE Professional models feature easy fine-adjustment and enable especially precise tool control – the most important requirements for precise routing – thanks to their new geometry. Moreover, these tools are versatile to use thanks to their powerful 1,250W motor and a plunge depth of 60mm.

The GOF 1250 CE Professional displays the plunge depth using a scale, while the GOF 1250 LCE Professional has a digital depth display making it even easier to set and reproduce the desired values.

There is a host of

other features, too numerous to mention right now so we'll be looking at these machines in more detail shortly.

Jet DC-850 extractor

The new Jet DC-850 extractor is neat, compact and unobtrusive and is perfect for use with a lathe or any bench-top machine and can be stored away under the bench when not in use.

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 that 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. 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.

If you are thinking about a new machine for your workshop, then take a look at the Jet offers available this autumn.

► Tormek T-4

This second generation compact sharpening machine from Tormek, Sweden takes precision and stability to a whole new level. A redesign of the casing has resulted in Tormek being able to improve the rigidity of the unit by 300%. The new cast zinc top section has an integrated handle, which makes the machine easy to move around.

BriMarc's Autumn Specials leaflet is also now available. It is packed with offers on all of the most popular woodworking brands from around the world including Veritas, Flexcut and Titebond. There are also unmissable offers from Ice Bear, Sjöbergs and Jet – some with limited stock.

Machine Mart stoves range

It's not too late to start thinking about how you're going to keep warm in the workshop this winter so it might be worth a look at the full range of stoves from Machine Mart. There are 19 in total ranging from basic no frills barrels to rather more decorative versions of classic designs. There are some dual fuel versions so if offcuts are in short supply then you can always top up with coal. See the full range by visiting the website.



£250.80

Taliplast spring compass with pencil holder

This quality brand of compasses, dividers and callipers, manufactured in France by Taliplast, is sold by Classic Hand Tools. According to them, feedback from customers for this range has been excellent. This particular spring compass with pencil holder is made from black burnished steel with brass fittings, flat-faced legs and brass adjusting nut. It takes an 8mm pencil. The compass is available in 100mm, 150mm, 200mm, 250mm and 300mm.



From
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Waxed canvas tool rolls

New from Texas Heritage Woodworks is a range of waxed canvas tool rolls. Like their aprons, each tool roll is hand-made from the best materials available and built to last. Double stitched seams and hand riveted copper studs are used to strengthen the pockets and these rolls will protect your most precious possessions from dust and knocks. The waxed canvas offers extra protection from moisture ingress and therefore extends the life of the roll and the tools inside. The 16 individual pockets on this carving tool roll are shielded with an overlapping cover to prevent the tools from falling out and minimise unwanted contact with sharp edges. A well thought out product for the craftsman made by a craftsman. Contact Jason Thigpen for more details on the complete range of tool rolls and just in case you were wondering, unfortunately the tools aren't included!



From
£195

Makita DTM51ZJX multi-tool

New from Makita is this tool-less blade version of their existing popular multi-tool, so instead of using an Allen key to release the tool holder, simply lift a lever immediately behind the tool operating head. This releases the lock pressure on the tool holder and the blade can be quickly changed. When the lever is pressed down and fits flush with the machine body the tool is locked into a safe operating position. The DTM51ZJX7 runs on the existing 18V Lithium-ion 3Ah and 4Ah

batteries and will take the new 5Ah battery, which will generate a maximum 390W output. This machine is supplied in body-only form for Makita owners who already have a stock of 18V batteries. The tool features an oscillation angle of 1.6° to the left and the same to the right, giving a total of 3.2° and with a variable speed control dial will run between 6,000 and 20,000 oscillations per minute.

The Soft Start function ensures that the motor gradually increases speed even if the control is fully pressed and further safety is provided by the Anti-restart function. Weighing just 2.2kg with an ergonomically slim barrel design grip, the DTM51ZJX7 is a well balanced tool, which encourages accurate operation in confined spaces. Supplied in a MakPac case complete with saw blade and abrasive pad and papers.

Proxxon Angle Polisher

Proxxon miniature tools come with a reputation for quality and this small angle polisher is no exception. It has a quiet, powerful DC motor with continuously variable speed control – full-wave electronics – for low and constant speeds, even during high contact pressure. Motor power is transferred to the planetary gearing which is contained in a robust die-cast aluminium housing. The main body of the machine is made from glass-fibre reinforced POLYAMIDE with a softer section on the underside making it more comfortable to hold.

The polisher is supplied with a rubber backing disc with hook-and-loop fastening, polishing sponge – medium hard – a lambswool polishing disc, polishing felt for metals and non-ferrous metals – medium hard – 12 sanding discs – K 2,000 and NIGRIN – polishing emulsion and a microfibre cloth. The polisher and accessories are stored in a stylish polypropylene case with a handle and two snap closures ready for immediate use. Please note that this price is only valid until 31 December, 2014.

MINI TEST: Axminster honing guide

The choice of honing guides gets ever greater with increasingly complex designs touted as the ultimate. Wanting a cheap guide to throw into my travelling toolbox, I looked to the Axminster honing guide, which is a slightly enlarged recreation of the Eclipse No.36 I have owned and used for many years. The guide can take plane irons up to 75mm and chisels down to 3mm using the two clamping positions.



For the money this is a nicely made guide and it works exactly as it should. The required projections for setting angles are cast into one end but on my example were barely readable – no instructions for use are supplied. There are a number of ways to have repeatable honing angles: by eye – not very accurate but good in emergencies; using a measure of projection – good but still variable; using an engineer's protractor or an electronic measure of some type, with either option being the best. This guide works well, gripping without excessive force being used. The fairly narrow guide wheel means care is needed for accuracy but also means honing slight curves for some plane irons is easy. Shown is a Lie-Nielsen registered mortise chisel honed to a superb edge using 'scary sharp' 3M film on plate glass. *F&C*



Contacts

Axminster honing guide

Contact: Axminster Tools & Machinery
Tel: 03332 406 406
Web: www.axminster.co.uk

Bosch GOF 1250 CE & LCE Professional routers

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Makita DTM51ZJX7 multi-tool

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Web: www.makita.co.uk

Proxxon Angle Polisher

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Web: www.brimarc.com

Quangsheng 5½ & Luban 102 apron plane

Contact: Workshop Heaven
Tel: 01295 678 941
Web: www.workshopheaven.com

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Contact: Record Power
Tel: 01246 571 020
Web: www.recordpower.co.uk

Taliplast spring compass with pencil holder

Contact: Classic Hand Tools
Tel: 01473 784 983
Web: www.classichandtools.com

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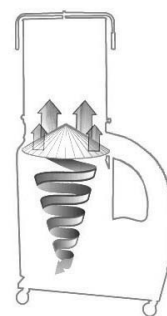


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A backsaw and a bench hook – essential tools for any modern woodshop

PHOTOGRAPHS BY TOM FIDGEN



HAND SAWS

in the modern woodshop

Tom Fidgen discusses the hand saw and shows how it most certainly still has a place in the modern workshop

I'm writing this article from the East Coast of Canada. I spend my summers out here, in the rural landscape of Nova Scotia, enjoying some rest and relaxation, far away from the hustle and bustle of city life, which, for me, is back in Toronto, Ontario. Each and every year, I pack up a handful of tools – the essentials you might say – and make the 2,500km trek to this island of Cape Breton, which is situated on the Atlantic Sea Coast.

I only bring the tools I may need for any unexpected furniture projects, or the seemingly never-ending renovations here on our old country home. That said, I thought writing this article would be a great opportunity to share with you what I'd consider to be the essential hand saws that everyone should have in their kit. It's what I carry in mine everywhere I go.

A little perspective

If we were to travel back in time, just over a century ago, when the original builders erected the house I'm sitting in now, and we were to look inside the tool chests and saw tills of the local carpenters and cabinetmakers, we'd see something similar to the hand tools I carry with me today. You would find hand saws for rough work and a few backsaws for joinery. In one respect, not much has changed, but in another, everything has.

Through the years, the Industrial Revolution changed the way we worked wood. Hand tools were at their pinnacle when furniture and cabinetmakers started making the change to power tools. Over time, the finest hand tool manufacturers all but disappeared and the once common place, Western-style saw makers, went with them.

Hand tool renaissance

Fast forward 100 years and we're witnessing a renaissance of hand tools. From East to West, at a level and a pace that was all but forgotten. We have many choices when it comes to Western-style saws. Throughout Europe and North America, there are manufacturers making quality tools that would make our ancestors blush! You can easily get caught up in the trends and style marketing of the modern makers, but the truth is, the kit that works for you today, worked just as well for the makers of yesteryear.

The same task of breaking down rough lumber into manageable furniture parts and sawing fine joinery is as relevant today as it was then. You don't need an arsenal of saws to make furniture! Break down the steps and let the work dictate the saw.

Getting started

To get started, you'll benefit from one or two hand or panel saws. They're easy to get the hang of – with a little practice and healthy lifestyle – for breaking down rough stock into smaller parts. You won't need anything special for this; just a straight panel saw in the 535-660mm range that is properly set and sharpened.

These are 'roughing tools' and designed for rough work. I have two with me here in my kit: a 5ppi ripsaw and an 8ppi cross-cut. They handle heavy hardwoods and don't require a lot of finesse. My ripsaw is a vintage 660mm Disston D-8 that belonged to my Grand Uncle 80 years ago. I find for all my general ripping needs – five points per inch is ideal.

My cross-cut is another vintage D-8 that I picked up online a few years back. They're both straight, sharp and properly set and they'll do the job required. If you find you're working with thin materials on a regular basis, you may decide to pack a finer tooth for your rough dimensioning. Something closer to 10 rip and 12ppi cross-cut.



Breaking large stock down into manageable furniture parts. If you plan on using handsaws, you owe it to yourself to make a dedicated saw bench

Assembling the nest

You don't need to break the bank when searching for boutique quality Western style saws. For rough dimensioning furniture parts, there really is no need. If you're on a tight budget, the big-box style, hardened tooth, multi-purpose saws will work. I personally don't like the totes and aesthetics, but for breaking down rough stock, they work.

If you're lucky enough to have a saw maker in your area – heck, even if you're in the same country – then I suggest you support your local economy and shop local. Spend your money where it counts!

In the making process, after you have your furniture parts rough sawn and dimensioned, you'll need a couple of backsaws for joinery – this is where quality counts. If you're building small- to mid-sized furniture and cabinets, then a couple of backsaws in the 305-355mm range are ideal. Again, allow the work to dictate the saw.

If you're making large scale, timber-style joinery cuts, then something in the 355-460mm range would be better suited to the task.

Here in my summer kit, I keep things fairly



My 305mm small tenon saw filed at 14ppi rip is also great for cutting dovetails

simple, carrying a 305mm backsaw filed cross-cut at 12ppi and a 305mm ripsaw filed at 14ppi. You may want to include a

dedicated dovetail saw on your list, but I find my 305mm rip is great for all of my dovetail and small tenon work while I'm on the road.

Today's manufacturers

We're extremely fortunate to have quality saw manufacturers available once again. Lie-Nielsen Toolworks in Warren, Maine, have been making high quality backsaws for decades – with brass backs and hard maple (*Acer saccharum*) handles, you really can't go wrong. They offer choices in teeth per inch, progressive tooth pattern, thin plates as well as canted blades.

Another prominent saw maker in the USA is Bad Axe Tool Works in La Crosse, Wisconsin. Mark Harrell has revolutionised

modern saw making with a plethora of options to choose from. The two 305mm backsaws I carry in my kit were hand-made by Mark. I chose stainless backs and fasteners, which complement the comfortable and shapely walnut (*Juglans spp.*) handles – totes – perfectly.

Here in Canada, Veritas, the manufacturing arm of Lee Valley Tools, also manufactures a full line of backsaws. They're reasonably priced, thoughtfully produced and offer all of the innovation

Veritas has become synonymous with in the modern scope of hand saw manufacturers. On the UK side of things, made in Sheffield, Pax saws are Thomas Flinn's flagship range. The tenon saws and dovetail saws have handmade elm (*Ulmus procera*) handles finished with Danish oil; the teeth are sharpened by hand and a test cut is performed with each saw. All Thomas Flinn Pax saws have polished folded brass backs that provide the perfect degree of tension in the blade. Unlike a slotted and glued

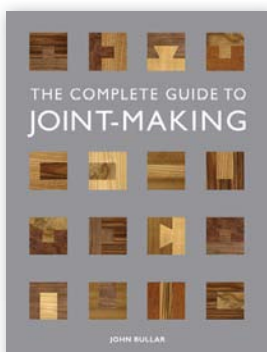
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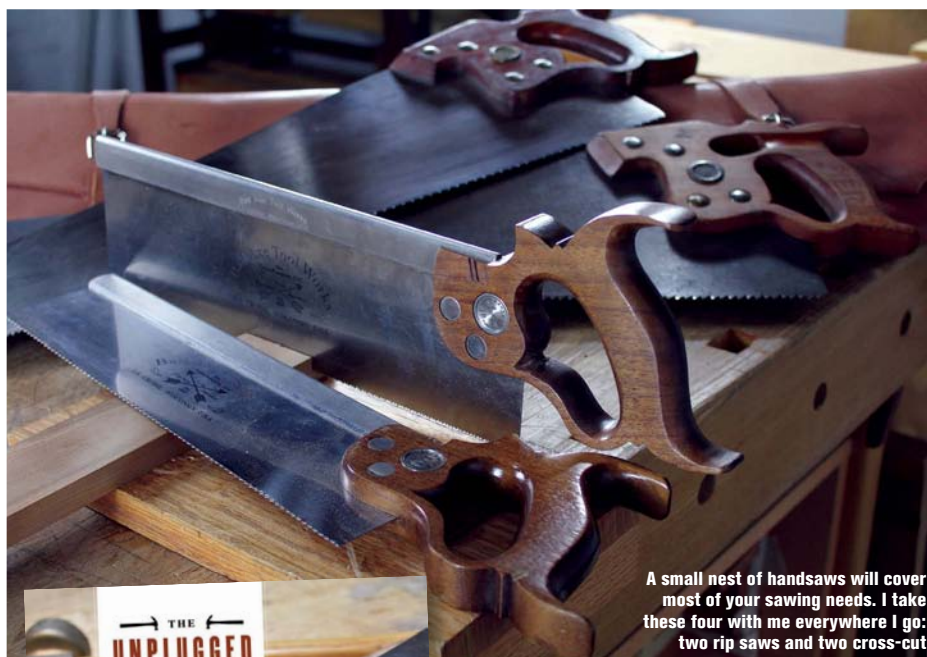
saw back, folded brass back saws allow the blade to be resealed by tapping the back against a solid surface, which helps to correct minor distortions in the saw plate.

Your woodshop needn't be cluttered with handsaws and your tool chest should comfortably carry your nest. Your essential list may only be a panel and a rip tooth backsaw, or, it could grow to five or six saws for even finer work and joinery options.

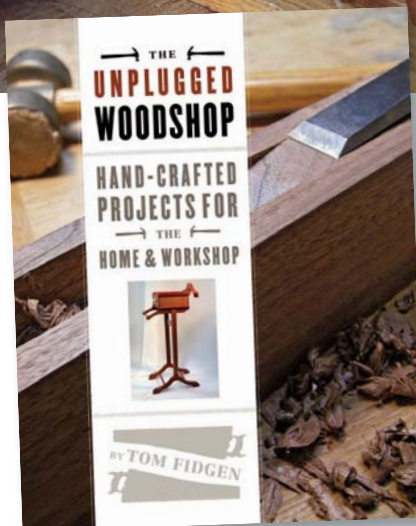
For the benefit of you, the reader, and to show you what I carry in my own personal travel kit, I highlighted the four mentioned. Eight if you count my fretsaw, bowsaw, kerfing plane and frame saw – but that's another article! The point is, you can do a

lot with the tools you have and you don't necessarily need very many. As you gain experience, you'll no doubt seek other options and configurations. Back in my woodshop in the city, where I teach hand tool techniques and do commission work on a regular basis, I have dozens of handsaws.

This isn't THE list, but it is A list. It works for me here in my summer woodshop and I suspect, it'll work for you in yours. I invite you to comment or question on any parts or ideas in this article. Feel free to visit my website, or check out my new membership site: www.anunpluggedlife.com. *F&C*



A small nest of handsaws will cover most of your sawing needs. I take these four with me everywhere I go: two rip saws and two cross-cut



Tom's sawyer's bench

In the next issue, we will be featuring an exclusive extract from Tom's latest book *The Unplugged Woodshop*. Echoing his love for hand tools, in this project, Tom shows us how to make a sawyer's bench through to completion. The design is based on a traditional saw bench, which was shown in Bernard E. Jones's classic book *The Practical Woodworker* with a few alterations. Tom's version of this traditional design has a benchtop made of two parallel boards, creating a ripping notch for added support

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Bad Axe Tool Works –
www.badaxetoolworks.com

Lie-Nielsen Toolworks –
www.brimarc.com

Thomas Flinn & Co –
www.flinn-garlick-saws.co.uk

Tom Fidgen –
www.theunpluggedwoodshop.com

Veritas Tools –
www.brimarc.com

when ripping narrow stock. The joinery is pretty straightforward, making this a great weekend project and a perfect place to begin your unplugged journey. Don't miss it in issue 226! To pick up your own copy of the book, see details below.

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Krenov-style wall cabinet

Charles Mak turns some idle cherry boards into an elegant heirloom cabinet

A few long cherry (*Prunus spp.*) boards – 9.5 board feet all together – found their way into my workshop months ago and were put aside, lurking in one corner. The quantity was a problem – too small for the furniture projects I had in mind – until I remembered James Krenov's style of tall wall-mounted cabinets. One of the small wall cabinets – spalted maple (*Acer saccharum*), dovetails, circa 1978, 720 × 240 × 110mm – from *The Impractical Cabinetmaker* caught my eye, attracted by its simplicity and elegance. I decided to build a cabinet based on Krenov's design.

Joinery

Apart from using a different timber to build this cabinet, I also chose butt joints over dovetails for the carcass, because I realised that the joinery would be covered and invisible in the finished cabinet.

Stock preparation

After surface thicknessing and edge-jointing the boards, I cut all the parts to size, except for the boards to be joined to make the door, which were cut 1mm oversized in width. The boards were also carefully chosen for the best grain match, both for look and for grain direction.

Carcass construction

I began by cutting the rebates on the front and back edges of the sides, using my favourite skew rebate plane. You can use a shoulder plane with a batten to cut the rebates, but it may take a lot longer. Then, I marked and drilled the holes on the sides for the shelf supports. After cutting the mortise slots with the Domino joiner for the butt joints, I lightly hand sanded all surfaces with 220 grit paper and assembled the carcass with glue and clamps. For a softer look, I rounded off the front edges of the sides with a small plane. Before leaving the carcass aside, I checked and fixed any over-tight shelves.

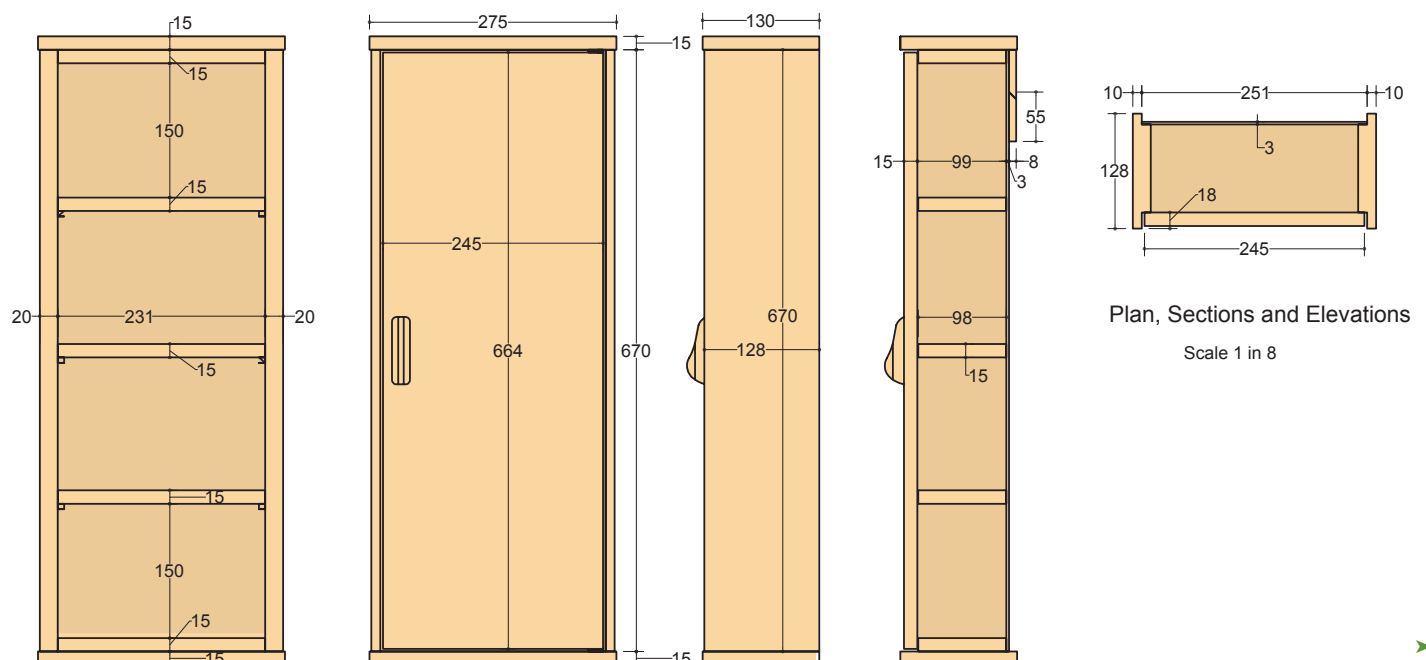
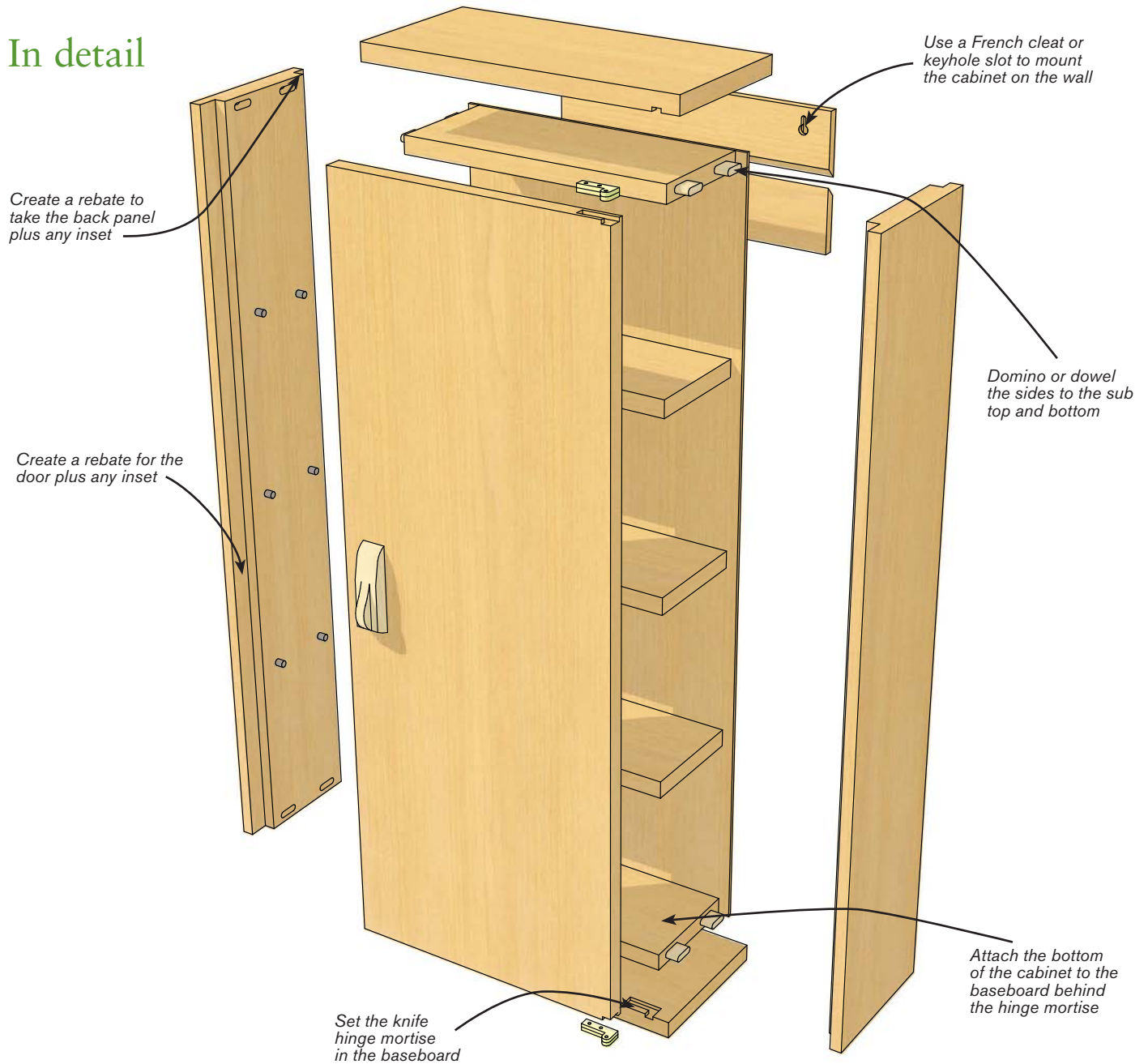


I cut out the rebates on the front edges before changing the blade setting for the rear rebates



PHOTOGRAPHS BY CHARLES MAK

In detail





For butt joints, use the same fence height setting to cut the mortise slots on the face grain as well as the end grain



I used an apron plane to round the front edges of the sides



Put a small chamfer on the end grain to prevent blow-out and clamp the shelf above the bench surface with a scrap underneath

The door

The boards for the door were joined together with their grain running in the same direction. I hand planed the door flat and smooth, turning to a cabinet scraper to deal with a couple of difficult spots and then finish-sanded the surfaces with 220 grit paper.

If you join boards with their grain running in the same direction, you will encounter minimal tear-out issues



Hinges

Krenov's choice of double-offset knife hinges is much admired; knife hinges are both inconspicuous and elegant, offering a smooth and wide door opening. Take the time you need to install the hinges precisely, because

the outcome reflects your workmanship. I find that if the hinges are properly installed with a tight fit, the door stays closed without the need for a door catch. Accurate layout is important for knife hinge installations and for

precision. Use a marking knife and marking gauge to layout. Another point to remember is that the leaf with the pivot hole is installed on the door while the pin hinge leaf is installed in the cabinet.

Installing the door hinge leaves



Butt the leaf flush with the door's edge and mark the outline of the hinge



I chopped most of the waste from the mortise and switched to a paring chisel when paring to the lines



With the depth of cut set to the leaf's thickness, the router plane is ideal for cleaning up the mortise's bottom

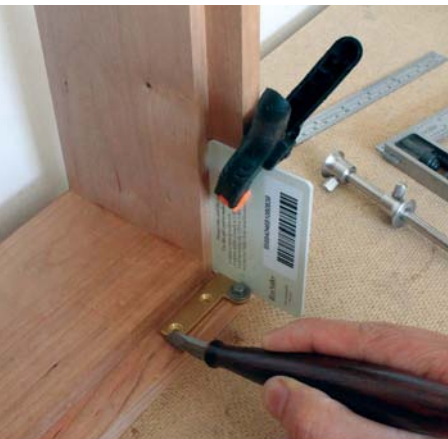


After checking the fit, I predrilled and installed the leaf on the door with screws

Some install the pin hinge leaves in the cabinet first, but I prefer to start with the door hinges – the leaves with holes – because I find the hinge layout for the door simpler and more straightforward. First, I positioned the leaf centred and flush with the door's top edge and scribed an outline of the leaf with a marking knife. I then deepened the outline further with a marking gauge.

Next, I cramped the door with two support boards in the vice. The support boards prevented the splitting of the thin mortise walls when chopping the waste and provided a wider base for the use of the router plane. I repeated the same procedure for the bottom edge, using the same marking gauge setting. Finally, I predrilled and installed the leaves flush to the door.

Installing the cabinet hinge leaves



Position the pin leaf with the shims in place and scribe across the opposite end as well as the offset arm



Measure the set-back distance and adjust the face of the marking gauge away from the wheel by the same amount



You can then mark the mortise on the bottom with the reset marking gauge



I transferred the scribed lines to the top piece using a marking knife and combination square

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- Positioning the leaf on the carcass is different, not flush with the cabinet edge because we want to leave a gap between the carcass and the door. The door gap should be the same as the thickness of the spacer – washer – on the pin leaf. Here is how the pin hinge leaves are installed, starting with the bottom piece.

First, I clamped – no glue! – the bottom to the carcass in its final position. The spacers

– washers – of the hinges I used are as thick as two gift cards. Using the cards as shims, I placed the pin hinge leaf on the bottom away from the cabinet side and scribed across the end of the hinge as well as the offset arm. The door and sides are set back from the front edges of the top and bottom and I first measured the set-back distance. Then, I moved the gauge faces away from

the wheel by the same amount and scribed the mortise lines on the bottom piece. Instead of repeating the above procedure for the top piece, I found it quicker to simply align the bottom and top together and transfer the scribed lines from the bottom to the top piece, using a marking knife and combination square. Once the mortises were cut out, I predrilled and screwed in the leaves.

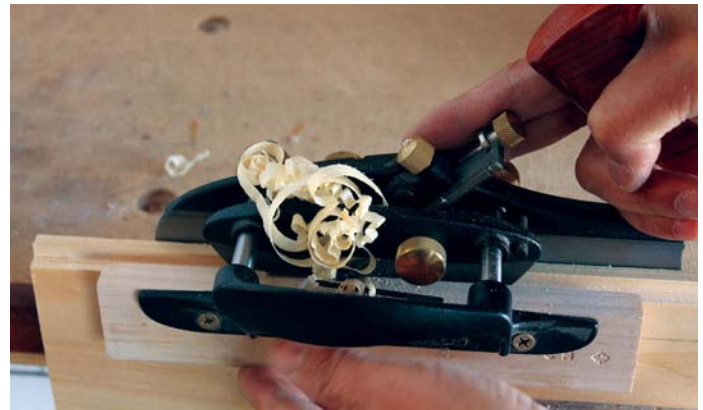
Fitting the door

I temporarily clamped the top and bottom to the carcass with the slightly oversized door in place. I noted how much to shave off from the edge for an even reveal and trimmed the door to its final width with a hand plane before gluing up the cabinet.



You need to assemble the cabinet with the oversized door in place and mark out the waste to be removed

The door pull



Plough a deep tongue on the edge of a board as a grip handle



Round off both the tongue and the base with a shoulder plane or sandpaper



Cut out the desired profile for the pull with a fretsaw or coping saw

Many woodworkers use knobs or pulls made of ebony (*Diospyros spp.*) for this type of cabinet. I chose a light-coloured wood, poplar (*Liriodendron tulipifera*), to bring contrast to the door. After settling on the pull design, I first used my Veritas plough plane to cut a tongue on the edge of the stock. I rounded the edges on the tongue and the base with a shoulder plane and then traced the curve profile on the blank. The profile was cut and refined with a fine rasp and sandpaper. For my other ideas on making handles or pulls by hand, see 'finishing touch' in *F&C* 198, pages 49-52.

The rear panel and cleats

In the last construction step, I predrilled and attached the rear panel to the inner top and bottom with screws, followed by the back cleat. If you have a keyhole bit, you can cut hanging slots instead.



I predrilled and screwed the French cleat to the back

Finishing



Mix the boiled linseed oil with mineral spirit in equal parts. Dispose of any oil soaked rags carefully as heat can build up and cause them to ignite

For all my cherry projects, I have a 'tried and true' finishing method: no stain, no wax, just oil. I first let the cabinet – without the pull installed – and shelves cook under the sun for several hours; I also swung open the door and flipped the shelves over from time to time to get an even tanning – inside and out.

Boiled linseed oil – BLO – is my oil of choice for this type of project. But BLO can take a long time to cure, so I thinned the oil with mineral spirit and applied three coats to the cabinet, with a slight sanding between coats. Why no wax? Wax gives a nice shine after buffing, but becomes dull as it absorbs moisture in the air. I prefer to apply oil, allow it to properly cure and then buff it, the shine seems to last longer.

Krenov might not like my choice of timber, but I am confident that he would approve of my use of his design to build my first wall cabinet. *F&C*





Five Fifths Furniture

We meet Austin Heitzman, who tells us about the inspirations behind his work

Self-taught furniture maker Austin Heitzman is based in Portland, Oregon where he runs his business, Five Fifths Furniture. He loves to explore the infinite possibilities of colour and texture that are available in wood, and also enjoys representing different historical and cultural forms in his work.

Starting furniture making

Austin did not start out as a furniture maker, in fact he trained as a painter. After leaving school he got a job in a factory making store displays where he worked with red oak (*Quercus rubra*), poplar (*Populus spp.*) and maple (*Acer spp.*). This sparked an interest in wood. "This was the first time I could identify a wood I was working with. I was enticed by the variety available in just these three common species," he explains. "I set out to work with every tree, to learn how it grows and its properties as lumber. All these years later I am still working towards that goal – furniture is almost an excuse to experiment with lumber.

The variety is endless – I am hooked!"

As a woodworker, Austin is entirely self-taught. "I read a lot and made a lot of furniture. I was very diligent about it and over the course of a few years I had made nearly a houseful of furniture. Those pieces, with their successes, failures and subsequent lessons, now furnish my house. It helps keep the lessons fresh."

In 2011, after a few years of making and selling furniture in his spare time, Austin and his partner quit their jobs, got married and drove across the country with their dog to start their craft careers in Portland, Oregon. This was a big life change but they were determined to make it successful. "I know it is a cliché, but we were driven to make it work and so far, rain or shine, we have managed to sustain ourselves with our crafts. Knock on wood," he says.

Making it as a professional

As Austin says, surviving as a full-time furniture maker is never easy. "My wife



'Plum Highboy', a small cabinet with a big image. Winner of the 2012 Niche Award for Cabinetry, it is modelled off colonial highboys with a spectacular one-of-a-kind slab forming the centrepiece of the work, 785 x 355 x 230mm



'Yew Highboy', a jewellery armoire in the spirit of a William and Mary Highboy, drawers in yew, which contrasts nicely with the boxwood legs and ash burl veneer sides, 585 x 405 x 305mm



'TJ Rocking Chair', a true one-of-a-kind with no modern or historical equivalent, finished with a durable tung oil based finish, then waxed to create a smooth surface as luxurious to the touch as it is to the eye. This particular example was chosen as a 2013 Niche Award Finalist, 1,015 x 660 x 710mm

BELOW: 'Display Coffee and End Table', custom octagonal coffee table built to hold a flat round rock imbedded with countless multitudes of fossils, 635 x 609 x 609mm

and I have had to wear many hats to cut our expenses and ease our bottom line. When looking for studio space we had a hard time finding something that was both large enough and within our budget. To alleviate this my wife and I, along with our business partner, leased an 11,000 sq.ft warehouse that we built out to house our studios and studios for 40 other artists. This provides for all of our studio needs and a little extra." Austin also teaches and maintains a small wholesale line in addition to his commissioned work. "I sell at galleries and art fairs across the United States; many woodworkers are opposed to submitting to gallery commission rates, but I am happy to let them do the work selling so I can focus on the making," he says.

Favourite pieces

"My favourite pieces of furniture are the ones that come into this world with the least struggle," he explains. "While I delight in the victory over a stubborn piece that just refuses to work together as a singular object, I will never grow tired of a piece simply and effortlessly flowing out of the lumber. Most of the time this is due to just the right piece of lumber that expresses such a clear vision I can't help but be taken along for the ride. My 'Plum Highboy' came together in this fashion,

and I have had several others since then. They are such a pleasure to build it is hard not to have lingering fond feelings for them."

Awards

Austin won the Niche Award in Cabinetry in 2012 for 'Plum Highboy'. This award celebrates fine craft in America and Canada. "The Niche Award is maybe not so well known in Britain, but it is a reasonably big deal in the North American craft scene. I had tried for years to locate plum (*Prunus spp.*) lumber and finally found an impressive flinch in the attic of a barn. One particular board was just stunning, I made a door out of it with no plan of what to attach it to, the rest just followed. Soon that plum door evolved into a miniature highboy."

Unfortunately, a few days before the award ceremony, Austin threw his back out completely and so sat in the far back of the auditorium, hardly able to walk and not expecting to win. "When my name was called for the award it took a painful eternity to walk down the aisle to the podium. I couldn't conceive of making it on the stage so I accepted my trophy from the floor. I was, however, ecstatic." It was well worth the pain though: "The award gave me a lot of valuable publicity early in my career. It was one of those lucky breaks that comes when you least expect it."

Design ethos

The choice of timber is usually the starting point for Austin's designs: "I surround myself with interesting pieces of lumber and I let these drive my design. I always have a few favourites that I have pulled from the stacks and leave lying around the shop waiting for



► inspiration to strike." He is an avid collector of wooden boards, some of which he mills himself and some that he purchases from small mills all around the Northwest. Austin prefers to work with local woods: "I focus on unusual native species: dogwood (*Cornus florida*), cascara (*Rhamnus purshiana*), chinkapin (*Castanopsis chrysophylla*), to name a few, I have even made a shelf out of butterfly bush (*Buddleia spp.*). Each new species carries with it a new colour and texture to add to my palette; there is a real excitement to finding something new, like opening up a geode for the first time."

As well as the species of timber, Austin likes to experiment in other ways with the wood he uses: "Early in my career I was stubborn about using only solid wood, but now I have no qualms about veneer and use it frequently for contrast and embellishment. I find it really opens up my work's potential in both colour and design," he says.

He also prefers to buy lumber with the live edge still on: "There can be many design possibilities embedded in this organic line and I often buy boards, not for their figure, but for their exquisite cracks, rot or bark line. When designing I look to the bark line of the tree, natural breaks, rots or voids for inspiration on where the piece needs to go. I use this line as a focal point in my work, letting traditional design and natural 'defects' exist together in perfect harmony. It is a kind of dance between the tree and me, and to be successful we both have to take turns leading!"

As well as taking cues from the timber itself, Austin is also influenced by different cultures. "My work is a marriage of Eastern and Western design and philosophy," he explains. "I grew up in Indonesia, spent a year in Rome and taught myself furniture making in Philadelphia, a centre of colonial American furniture production. I explore this cultural diversity through my work."



**'Bent Slab Table', Nakashima meets
Pembroke: a stunning live edge slab brings
a familiar antique into the modern age.
Natural voids in the slab top allow views
of the table's finely finished inner workings**



**'Colonial Miniature Box', the expressive edge of a plum board, with its rot and cracks, mimics
the bombe shape seen in American Colonial lowboys of the late 1700s, 200 x 430 x 200mm**



'B&W Bent Slab Table' – the holly root table top of this piece folds over the sides in a manner influenced by a drop leaf table

Austin does not often draw his designs, unless it is for a commissioned piece. He does not enjoy drawing so he makes a mental plan instead. "I usually see a piece in my mind's eye before I begin and I prefer to work from this image in my head and just let things evolve as I go."

Influences

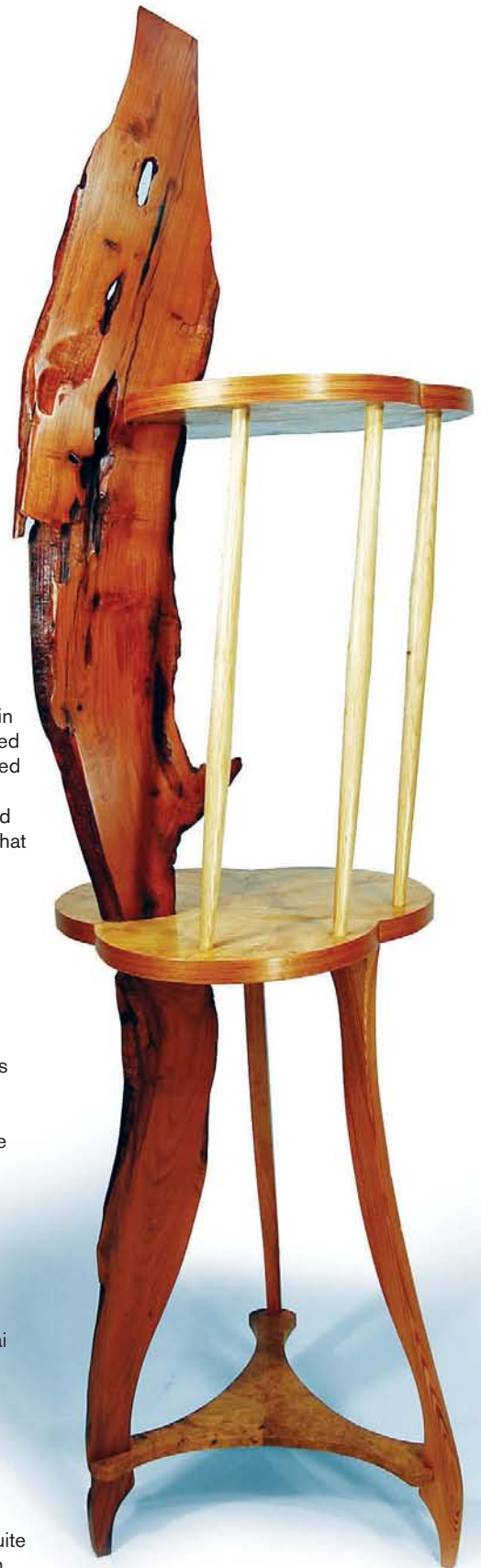
George Nakashima was an early influence for Austin as a 'stepping off point' for further historical inspiration. "[Nakashima's] work makes it OK to do what I do, but I don't really look to him anymore for specific design choices. There is endless inspiration in furniture history and I pull from a lot of periods. I am not just looking at form, all furniture is a creative solution to the logistics of living, and embedded in furniture history are as many functional revelations as there are aesthetic. I will go through furniture periods like lovers, currently I am interested in the use of colour and the refined form of Sheraton and Federal pieces. The use of lighter coloured and contrasting woods along with the clean classical forms makes for work that is classy and surprisingly modern, two things I aim for in my work. In the future these influences will no doubt be toned down as others move in to take their place, but I always retain the vocabulary so a single piece can

have countless influences embedded within it. While living in Rome I was very influenced by how Renaissance architects incorporated Roman ruins into their new churches and buildings – I want my work to have this kind of look where my design is a reaction to what is already in the lumber."

Austin is also influenced by Eastern art forms, such as bonsai trees and suiseki stones. He says that he looks at these "for lessons on creating movement and a sublime impact using small natural mementos. Suiseki is an amazing art form in which unaltered natural rocks are displayed on custom-made wooden stands to illicit an image of grandiose nature: mountains, islands, waterfalls and the like. This has greatly influenced how I utilise live edges in my work."

Future projects

Austin is currently working on a series of commissioned bonsai stands for bonsai professional Ryan Neil. "They will display Ryan's stunning trees at the upcoming Artisans Cup, an American National Bonsai exhibition set for 2015," he explains. "It is an interesting challenge to create furniture to support its own influences. Bonsai has always been a hobby of mine. Learning the horticulture of bonsai trees has helped me better understand my material, which, I believe, has vastly improved my furniture. My skill at growing miniature trees is not quite so impressive, so thanks to the stands I am able to participate in the professional bonsai community at least in some capacity. Also, having access to a niche market such as this helps diversify and protect my business against lean times."



'Two Tier Clover Side Table'; this spin on Austin's classic design pierces two clover side table tops with an expressive piece of plum that goes on to form one of the legs, 1,145 x 355 x 355mm



'Specimen Chest', incorporates a natural opening to highlight whatever treasures lie within. The glass top and sides allow for plenty of light



'Drop Leaf Table', Duncan Phyfe-inspired with a top made from four large apple slabs, 760 x 1,145 x 1,145mm

Maker's maker – Duncan Phyfe



PHOTOGRAPH COURTESY OF HOME DESIGN BLOG

Pair of Duncan Phyfe arm chairs

One artist I have been looking at a lot lately is the American Federal period furniture-maker Duncan Phyfe. He emigrated to America from Scotland as a teenager and soon after set up shop in New York in the 1790s. He achieved acclaim at a young age and was labelled 'America's greatest furniture maker' in his own time. Unfortunately his work fell out of favour late in his career and he died a frustrated artist. It is a tragic story, but an interesting one.

Like most American furniture makers of that time, Phyfe is not responsible for developing any new styles of furniture, but instead reworked popular British and European styles for American tastes. Phyfe's early work drew heavily from the Sheraton style, and it is this that most interests me. I am fond of the bases he makes for his tables, particularly those with four turned central supports that transition into splayed legs emerging from a central platform. These bases offer both form and function as they cascade gracefully to the floor and also allow full access to the table without the encumbrance of legs on each corner.

I have also been incorporating many of the neoclassical forms he used, such as lyres and urns, which have especially influenced my turning. His shield back chairs also offer a wealth of potential and I look forward to doing something with this motif in the future. *F&C*



Duncan Phyfe centre table, in rosewood veneer, gilding, plaster, brass, pine and mahogany

PHOTOGRAPH COURTESY OF THE MUSEUM OF THE CITY OF NEW YORK BLOG

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NEW

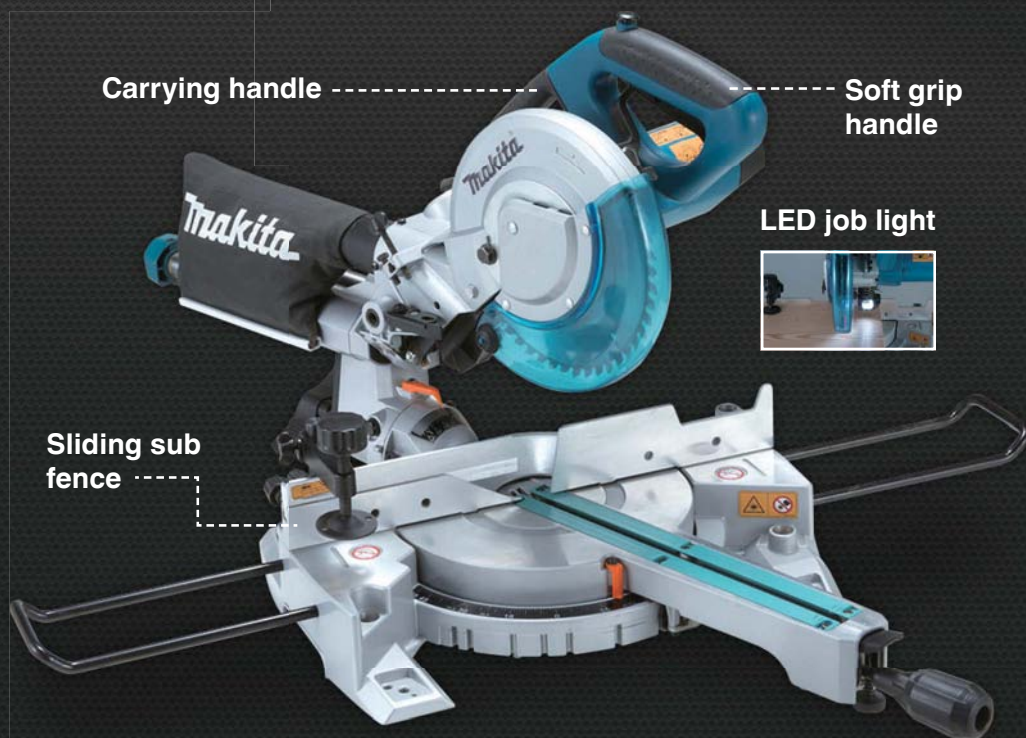
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Cutting angle	Depth
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Angle settings	0-45°



NEW

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Bore diameter: 30mm

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0°	65x305mm	50x305mm	60x305mm
45° (left/right)	65x215mm	50x215mm	
60° (right)	65x150mm		



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How to be a better sharpener

Brian Greene shows how changing your attitude to sharpening and simplifying your approach will allow you to become a better sharpener



PHOTOGRAPHS BY BRIAN GREENE, UNLESS OTHERWISE STATED

PHOTOGRAPH BY GANDYBOK, JAMES

Having problems with your sharpening? Not always getting the edges you think you should? Are your results hit and miss? Confused about the various tools and systems available? Then read on! Over the next three articles, my aim is to demystify sharpening for you.

This article is a review of the basics you must master and consistently execute every time you sharpen a tool. In future issues, we'll deal with some technical stuff to help you select a good sharpening system.

Perhaps the best starting point is to ask "why, amid all the information available, do people fail to become consistently good sharpeners?" Why are so many seemingly put off by something that is easier to learn than many other woodworking techniques?

My early sharpening experience was notable for a lot of frustration and confusion. Based on student feedback, the experience of many beginners is similar. Many have not used a truly sharp blade, experienced what it can do or watched an expert at work. Moreover, it seems beginners are good at getting in their own way, throwing up mental

blocks that further confound matters. As a result, I changed the way I teach. I overcame my own frustrations by refocusing on fundamentals, things I now refer to as 'sharpening essentials'. I was striving to make my sharpening better, faster and more consistent. These 'essentials' are now the core of my approach.

A good tip is to have someone you know who is a really good sharpener show you a truly sharp blade and what it can do with wood. This small exercise will establish the goal posts for you – it's enlightening.

Attitude trumps equipment

This is the critical starting point. Sharpening is the gateway skill to fine woodworking; it's the single best thing you can do for your woodworking in terms of skill development. Sharp enables the skilful and precise use of hand tools, but you have to want it. You have to bear down and put in the time – the tools won't sharpen themselves.

Despite the resurgence of interest in hand tools recently and the proliferation of new products, nothing new has really happened.

Serious woodworkers, whether professional or amateur, have always used available technology to maximum advantage. Think for a moment about the fantastic furniture made through the centuries before electricity and power tools – these folks could sharpen!

The so called 90/10 approach, or the fancy new moniker, 'hybrid woodworking', is not new either. Smart woodworkers have been using machines for years to do the grunt work previously done by apprentices. Adding finesse and personalisation to the job was the most skilled work done with



Quite a collection. The King 1,000, 4,000 and 8,000 that I used for many years on the left; a couple of oilstones in the middle that I've never used; my current favourites on the right, Bester/Imanishi ceramic waterstones in 700, 2,000 and 8,000 grits. The numbering will be explained in a future issue!

the best tools. Having committed yourself to the journey and with sufficient time at the bench, magic will happen and a new world will open up.

Sharpening is not difficult

Sharpening has been made to appear complicated and therefore difficult. The cause, for the most part, is because it hasn't been taught or written about correctly. Very often, basic principles have been glossed over and people looking for guidance without the benefit of an experienced master/teacher are left wanting. Sharpening should be fast, effective and repeatable; it can even be enjoyable but that might be a stretch! If it achieves all those things, then it will be efficient. If your approach to sharpening is not all of these things, then it will be a frustrating chore you'll want to avoid.

If you avoid sharpening, then you won't be any good at it.

The right order

We will become better sharpeners, and better woodworkers, when we sharpen our tools when we know we can make them better, not when they are dull and useless. Stop when the tool no longer does what you need it to do, touch it up and go back to work. Don't risk a dull blade slipping or causing tear-out.

The corollary to the sharpen-often-approach is that you should sharpen to the degree required by your work. Just because one person sharpens to a supremely high level and can take a shaving .0005in thick doesn't mean you need to do that all of the time. Make your tools sharp for the work you do and don't set yourself

up for disappointment – and extra work – by looking for perfection from every tool.

Keep it simple

In my opinion, the equipment is more or less irrelevant. In a world driven by retail consumption, this is of course heresy. Ignore those people who would make sharpening complicated. There are numerous equipment options and methodologies; pick one that suits your preferences and circumstances. All the well-known methods work. Do a little research, seek advice and recommendations; wade in and give it a go. Stay committed to the one method long enough to achieve a comfort level and consistent success. Don't worry, you'll likely try something new as your experience and woodworking needs change.



My sharpening station in the shop at work spreads across half a workbench. Laid out for efficiency because I do a lot of sharpening. Stone pond to the right and the Corian work surface in the middle also serves as a flat reference surface for lapping, miscellaneous tools to the left. Behind on a separate bench are a couple of grinders and storage. Out of the photo on the rest of the bench I would take apart planes and stack up blades. A lamp is situated to the right



There are four good faces on your sharpening stones so look after them all and don't be afraid to use them



Narrow tools that could quickly wear a hollow on the wide face of a stone can be honed on the edge

Honing guides

While there are many good honing guides on the market, I never use one and I consistently achieve high level results very quickly. I respect honing guides but they must be put in perspective. None of them are perfect. Honing guides are slower, more fiddly and fail to cover the required range of sharpening situations, e.g. short or narrow blades. Our forebears never had honing guides and they managed just fine: it's more important that a tool be sharp than look pretty, that you sharpen it when it stops performing and that you can get a fresh edge quickly.

Having said that, I do believe that beginners should consider using a honing guide because it's more important for them to achieve success during their first efforts and not be put off. I do also encourage more advanced sharpeners to

lay aside the training wheels at some point. Freehand honing is quicker and, I believe, makes for more adaptable sharpeners. Let's not forget that many of the tools we use simply cannot

be sharpened with a honing guide because of their shape or size. Sharpening will simply stop being an issue allowing you to get on with the important business of making tools dull! ➤

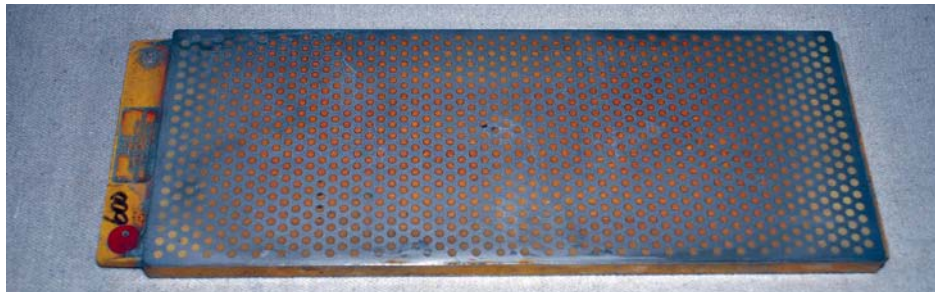


A meeting of honing guides. On the left is my venerable early Veritas model that I haven't used in years. Centre back is the Veritas MkII with its projection setting jig. These are both top clamping guides. Front centre is an eclipse-style side clamp guide that excels at narrow blades. At the front right is a pair of guides by Richard Kell

◀ Use a grinder

I struggled for years without a motorised grinder, actually, without any sort of grinder. One of the frustrations I experienced in the early days was the amount of time I spent shaping primary bevels and repairing damaged edges. Now I own three grinders, each set up for different work. It took quite a bit of practice to acquire 'the touch', but now a nicked edge takes 30-60 seconds to repair. Touch up a hollow ground primary bevel in around 1-2 minutes. I've also made scrub plane blades for old No.4s in less time than it takes to describe and even made a nice matched pair of 6mm skew chisels for dovetailing. Jobs like these have become relatively pleasurable without consuming enormous amounts of precious workshop time.

Any kind of grinder will do but those designed or modified specifically for sharpening will serve you best. Don't want to cope with the sparks, heat and dust of a regular grinder? Water cooled units like the Tormek are popular in pro shops – there are hand cranked units in the antique world. A coarse diamond stone is a good alternative for those with minimal requirements or who need portability.



A 255 x 75mm coarse diamond stone is useful for lapping stones and for grinding. While available ranging from 120x to 8,000x, the coarsest is most suitable for this purpose



Variable speed 150mm grinder with cool wheels and a Veritas toolrest



Develop good habits

If you are using waterstones, lap them accurately and often – every 5-10 minutes of use. Not lapping is the single biggest cause of frustration for those who are otherwise trying hard. Lapping when

you should means your stones will never be seriously out of true. Our sharpening will be faster, more precise and more consistent.

There are lots of methods for lapping – I think those special grooved stones are

overrated. If you already have a coarse diamond stone, then you're set. Sandpaper on float glass is popular and effective but personally, I use an abrasive mesh used for sanding drywall, also on glass or granite.

Lap tool backs properly

I'm not a fan of the so-called 'ruler trick' as I'm not convinced it saves any time. If plane blades are so badly out of flat, perhaps it's best to get a new blade. New blades from good makers are usually already lapped flat to a high spec and can be polished up quickly. In my opinion, the ruler trick is only beneficial for old blades that are thin and difficult to get absolutely flat but can be made serviceable. Chisels, of course, must always be lapped flat – see benchmarking accuracy article in *F&C* 221.

You must get a consistent burr at each stage of the honing process and remove it before moving to the next step. That burr, or wire edge, is your indication that the two sides of the soon to be sharp edge have met. A thin bit of metal folds over, felt as a bit of wire. Often it can be seen as well as felt; this is the sign that the tool is as sharp as possible with that particular grade of abrasive. Make sure it's consistent: more strokes will create a bigger burr but will not actually make the tool sharper. Chase – polish – the burr with a couple of strokes on the back of the blade on the fine stone.



Add something for water and this is all you really need. In the front is a glass plate with drywall sanding mesh for lapping. A diamond plate is a versatile and more compact substitute. In the back is a small square and bevel angle gauge. My Bester stones with a small chunk of Nagura on top. Wax for lubricating and waterproofing. My maple strop with a bar of honing compound – chromium and aluminium oxide – and a spray bottle

Using waterstones

If you are using waterstones, then hone in a pattern that equalises wear on the stone as much as possible. Figure-of-eights and racetracks work. Moving the blade on and off the long edge when chasing burrs works. There is no need to aim for

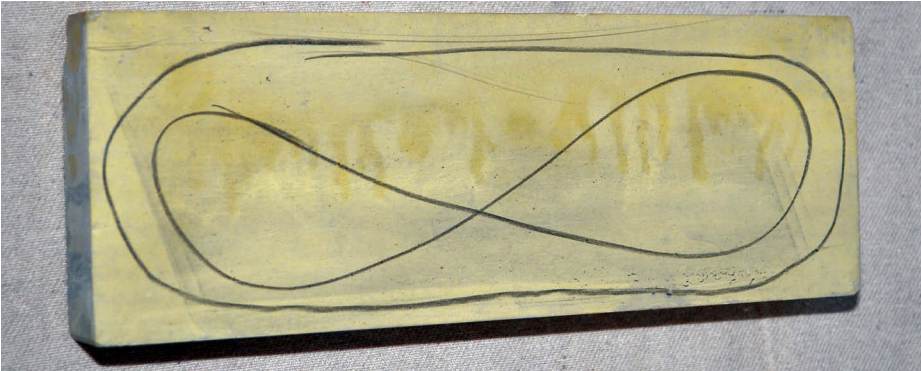
perfection, however, because you will be lapping the stone frequently anyway.

Honing wide tools

Hone wide tools before narrow ones; this will allow you to minimise wear. If possible, use the edges of the stones for narrow tools.

Sharpen often

Sharpening more often actually means you will sharpen less! Think about it. If you stop when the tool is not performing the way you want, the dulled edge can usually be picked up on the fine stone in a matter of a couple of strokes. Don't bounce around between



My honing pattern covers the stone evenly. I intersperse 'racetracks' with figure-of-eights

various sharpening media and methods without mastering any of them – this can take years. Stick with one thing long enough to make it work for you. Be patient, practice and persevere.

Bevel angles

Don't get hung up about the exact numeric value of the bevel angle. Some people are obsessed about this and it's been a serious disservice to woodworking in general and beginner sharpeners in particular. For most tools, a primary bevel of between 25-30° is appropriate; add a secondary bevel of 3-5°.

The primary bevel requires no work off the grinder or coarse stone, so go straight to the secondary bevel. There are no in between or so-called tertiary angles. This is really simple.

Efficient sharpening system

Create an efficient sharpening system and, ideally, a dedicated place to work. You will be more encouraged to sharpen when you know you should if your gear is already set up or can be made so very quickly. In other words, becoming a better sharpener is mostly about attitude

and technique, considerably less about the equipment.

Conclusions

Remember – a sharpening medium or methodology is just that – a medium. Whether it's sandpaper on glass, waterstones or diamond paste on MDF, the blade doesn't really care. What you should care about is the fact that all of the available sharpening media have their pros and cons. Some are more effective under given circumstances than others; some are more efficient than others. At the end of the day, the wood is going to see a sharp blade and it isn't going to care how it got that way.

If you aren't getting the results you expect but you are using a 'recommended' method, it doesn't mean you should try something else. You don't necessarily need to buy those new stones or that new gadget. Quite possibly you need to back up a step or two before you can go forward. Refocus on the fundamentals and try harder. At the very least, ask a friend who is a good sharpener to evaluate what you are doing. *F&C*



Use a coarse diamond plate to flatten your waterstones after every sharpening session

Next month...

In the next issue, I'll be talking about choosing a sharpening system, particularly waterstones, and I'll explain what all those numbers mean

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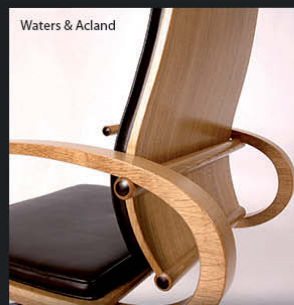
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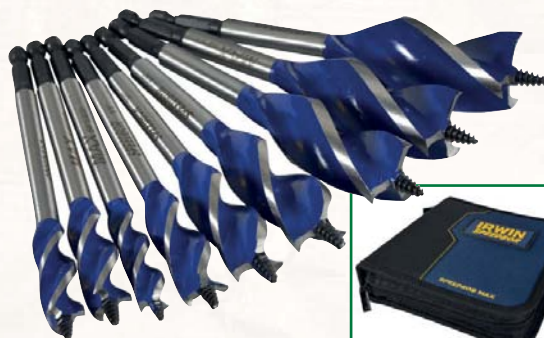


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Continuing with making the Anarchist's Tool Chest in miniature, this month, Marco Terenzi makes the hardware for the chest

Metal work – making hinges

Like most miniatures, I like to print the piece on paper in full-scale to get a better understanding of how small the components will be. The hinges started out this way, with a paper hinge exactly the size they needed to be when finished. With this paper hinge I can better visualise how it will be held in different machine operations as well as how it will look on the chest. I conducted the research and took note of every dimension I could find off the real ones. It really helps to have a full-size to measure off, but is not necessary. From these dimensions, I scaled everything down by dividing by four. This gave me the diameter of the barrel tube, as well as final length and plate thickness. A few minor dimensions had to adjust to make the hinge operate properly on the chest. The major adjustment was the size of the screws used to mount the hinge. I decided to use 00-90 flat head screws because I felt they were the closest I would get to scale size and still retain the function of supporting the lid. The downside of using these screws was the size of the countersink required to make them flush in the hinge plates.

Hinge materials

I cut four pieces of flat brass strip stock as well as four pieces of heavy wall brass tube. Each of the four sets would make one hinge, once it is cut in half. I only needed three hinges so the fourth was just in case something bad

happened during an operation, which would ensure that I had a backup at the same stage of machining as the rest. In which case, I would not have to go back and repeat setups.

The first machine operation was milling

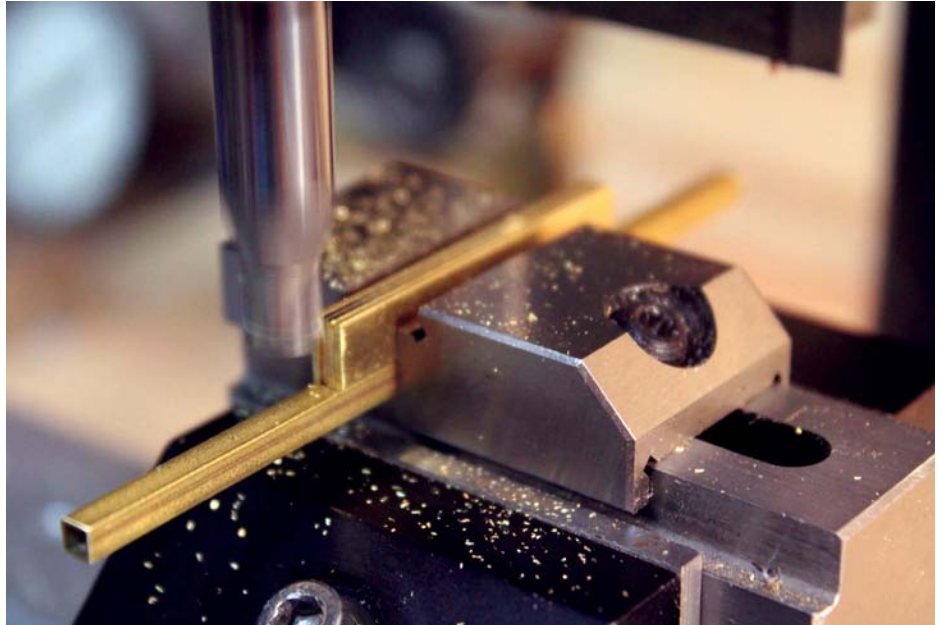


PHOTOGRAPHS BY MARCO TEREZI

The leaves are made from standard shear-cut flat brass strip

down the plates to the proper width. Since the strip stock is shear cut, some material had to be removed from both sides of the plates to remove the rounded over edge from the shear. All four pieces were held in the mill vice in a stack and the edge was milled down, making sure they were all even. Once I milled past the round over from the shear cut, I took the pieces out of the vice and prepared the other side. Layout fluid was put on one piece and a line for final width was scribed with a calliper. The stack was reassembled with my marked piece facing out so I could see when I was close. Using the same 10mm carbide end mill, I milled the plates down to the scribe line. When visually close, I measure with a calliper to determine how much more to go. Once the pieces are to their final width, they can be taken out and de-burred with fine sandpaper or a file.

When milling brass, a jet of compressed air on the cutter really helps keep the chips away and prevents the chips from being recut. The air also works to cool the cutter.



The rounded edges of the brass strip were removed on the milling machine

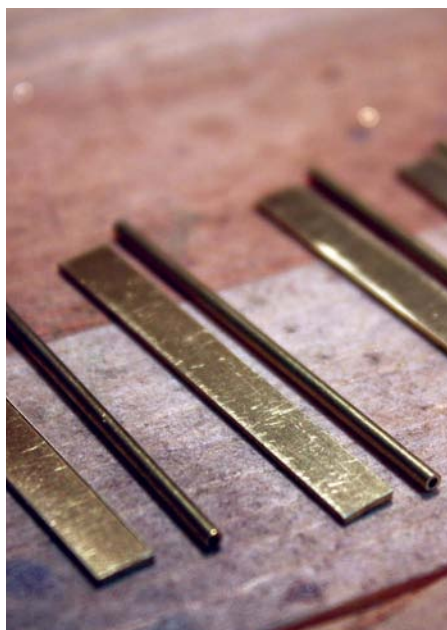
Preparing the plates

The next hinge step is preparing the plates to accept the barrel. It is possible to just solder the plates to the barrels, but it would be a square to round connection leaving very little contact surface for the solder. Also, the tubes may not be aligned parallel with the plates. The solution I came up with was to mill a round channel in the edges of the plates using a .05in round burr cutter. With this cutter, I could mill the round channel at the proper offset required to allow the hinge to close. This offset came out, so the barrel would sit tangent with the plate. If it was not completely offset, the hinges would not be able to close all the way once completed. One plate at a time they were clamped in the mill with the long edge facing up. A piece of thin stock was used as a parallel to allow the small piece to stick proud of the vice so it could be milled. With the round burr cutter spinning at 3,000rpm, I eyeballed the offset amount, ran a few passes checking for depth, holding up the barrel to it, at the same time as checking the offset. Once I was happy with the offset and how the barrel sat on the channel, I took the plate out, without moving the depth of cut or offset amount. This would ensure every plate was the same. Each plate was then run with the exact same settings. Even though the burr was set at the same depth, it takes a few passes for it to reach final depth because of the minor amount of flex in the cutter. Again, compressed air helps keep the burr free of chips.

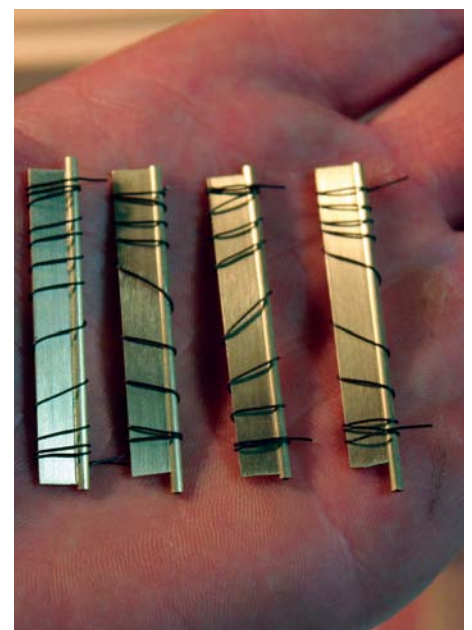
To attach the barrels to the plates a silver soldering process was used. The first step to this process involved binding the tubes to the plates with a 28-gauge fine binding wire to secure them for soldering.



A curved profile was machined along one edge of each leaf to mate with the knuckle



Each leaf consists of two components



After cleaning, the leaf components are bound with wire

► Silver soldering process

A jeweller's style acetylene/atmospheric air mix torch was used for soldering using a No.2 size tip. I used 'handy Flux' but any jeweller's soldering flux will work. There are many ways to prepare a silver solder job.

The first thing I like to do is to clean the metal very well. I scrub the pieces with a Scotch-Brite pad, soap and water. After they are dry, a quick application of alcohol or acetone ensures a sterile surface.

Once the pieces are clean, they can be bound together with the fine wire.

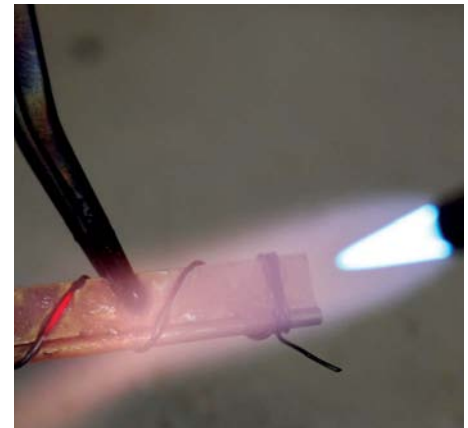
The silver solder usually comes in sheet form. It is available in extra easy, easy, medium and hard. This refers to its melting point. If multiple soldering operations are required for one fabrication job, you use progressively easier solder for each subsequent operation. This ensures the previously soldered area does not melt when you do the next. For the hinges, medium was used because only one soldering operation was needed. To work with the solder it cannot be in sheet form; it has to be cut into smaller usable pieces. This is done using scissors to cut tiny little squares. The solder pieces are placed on a charcoal block and heated with a torch until they 'ball up'. These

tiny pieces of solder are then picked up with a flux-coated pick or brush and placed on the seam to be joined. It helps to brush the flux only on the seam.; this will help prevent solder from being wicked where it does not belong. Extra solder is often difficult to remove cleanly.

On these hinges, I used three little balls of solder each being slightly larger than a grain of sand. Because the fit of the barrel on the plate was so tight, there was hardly any room for more than that. It takes practice to determine how far a little solder ball will travel once it flows.

Before melting the solder, the work has to be suspended somehow. I used a pair of tweezers to hold the work at an angle, which allowed to solder balls to sit in the channel. Once the flux starts melting, it is beneficial to have it at this angle, so the solder balls will not slide around.

I used a No.2 tip on a jeweller's acetylene torch – an atmosphere mix torch, with no oxygen bottle. I like to heat the work up evenly from a safe distance. The cone of the flame should not touch the work as it will burn the flux. Once it starts to get to temperature, the flux will begin to bubble and then go clear



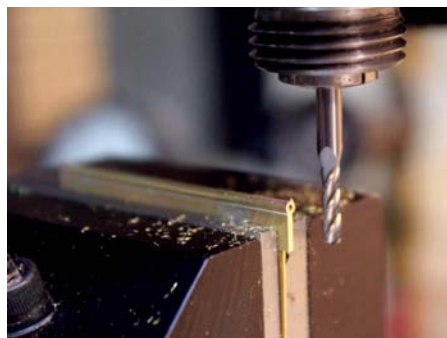
The knuckle and leaf are silver soldered together

and flow like glass. Before you bring it to the melting point of the solder, glance to make sure the solder beads are still in place. If they slide around, use a metal pick to push them back in place. Once the solder is brought to melting temperature, it should fall to liquid and flow into the seam. If the piece is not heated evenly, it may just flow and partially leave a lump of solder and weak connection. If too much solder is used, it will form a puddle at the lowest point of the piece. If everything goes as planned, a fine line of silver should be visible around the seam.

Finishing off

Once the piece is sufficiently cooled, it is dropped into a warmed jeweller's pickle solution to remove the flux and clean the metal ready for the next step. Once all four pieces were soldered, they were each cut in half to make each side of the hinge. Remember, soldering the brass also anneals it, which causes it to be much softer than it was before. Sawing it has to be done with the work firmly held down on a bench pin, or the blade could snag and bend it, which you do not want.

The pieces were then clamped in the

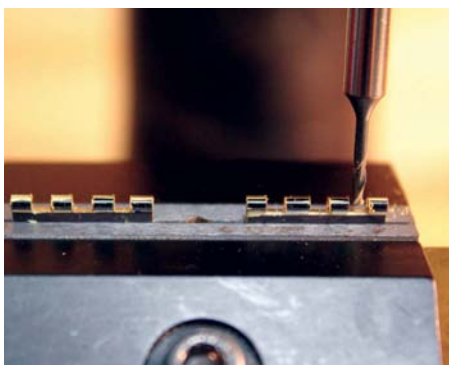


An end mill cutter was used to trim the leaves to their finished dimension

mill vice with one edge hanging off the vice; doing this allows it to be squared with an end mill cutter. The cut has to be made conventional, as opposed to using a climb cut. In a climb cut the metal is moving in the same direction as the cutter. In the soft, annealed thin brass, this will cause it to grab and bend over the piece instead of cutting, which again, you do not want. If the cut is made with the material approaching the cutter in the opposite direction, then it will make for a clean accurate cut. All the pieces were squared up this way until they were each .625in in length.

The barrels

The pieces were covered in machinist's layout fluid prior to the barrel layout, which helps to make scribe lines visible. A permanent marker works well for this on small parts. The length of the hinge was divided into seven equal spaces, which will



The knuckle of the hinge is machined into seven equal spaces

make up the fingers of the hinge. This was done on only half of the pieces; the opposing side was marked off the first piece.

I held two pieces in the vice, which balanced the clamping pressure and left enough of the barrel above the vice to be

able to mill it. Thin parallel pieces of metal were used to prop up the hinges in the vice. Waste was cut out using a 1.5mm end mill. The cutter had to be lowered .003in at a time to make the cuts. If the cut is too heavy, then the soft brass could snag and bend. The cutter may also deflect and cause a cut to be sloppy.

The pieces with four barrels were completed first and used as a reference to mark the opposing three barrel sides.

The three barrels are cut out in a similar fashion. On the mating sides, I approached the scribe lines much more carefully. You can always take off more material, but don't count on putting it back on. Once close to the scribe lines, the four barrel side was put up to the three, which allows me to look at which areas needed a little more removed. Once the two hinge pieces meshed together, they were removed and de-burred using a needle file.



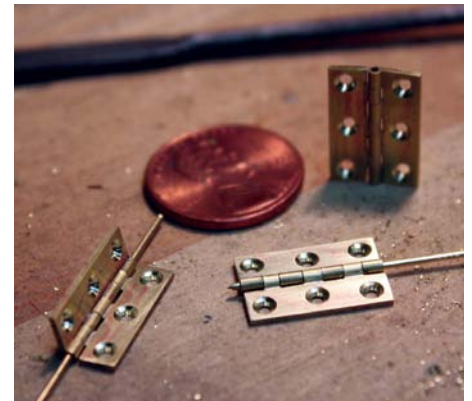
Some careful filing was required to finish the components

Holes for the screws

The holes for the screws were laid out using machinist layout dye and a calliper. Once the locations of the screw holes were determined, the hinges were secured to a piece of parallel wood using double-sided tape. The holes were drilled in three steps. First, using a centre drill. These stubby drill bits do not flex and ensure you get the hole started right where you want it. Second is the twist drill, followed by the countersink. I gauged the countersink depth by eye and dropped a screw in to make sure it would reside below the surface of the plate.



A centre drill is used to position the holes



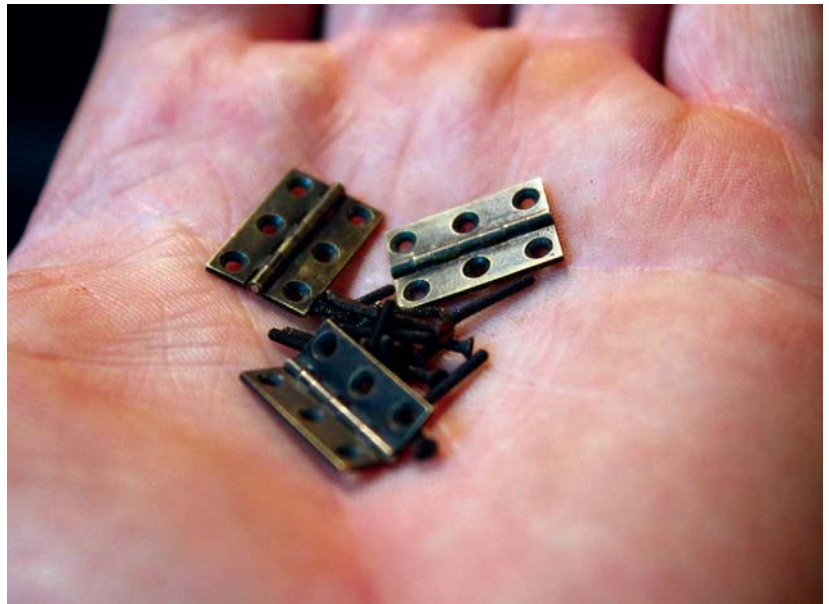
Drilled, countersunk and assembled

Cleaning the hinges

After the holes are complete, the hinges were cleaned up with 800 grit sandpaper to remove machining burrs. The layout fluid is removed with a denatured alcohol soaked rag. To be true to the hinges used on the full scale Anarchist's Tool Chest, the brass needed a dark antique patina.

In the past I have used sulfurated potash dissolved in water, which is applied with brush. It helps to speed up the process if the brass pieces are warmed on a warming plate.

Recently, I have been using an all metal patina called 'Black Magic', which is available from Sculpt Nouveau - www.sculptnouveau.com. This patina is much more user friendly and fast acting. It is applied with a spray bottle or poured into a small container. Once it is applied to the brass, it will instantly turn black. It is then rinsed off in warm water and the process is repeated twice. After the pieces are dry, the edges are highlighted using a grey Scotch-Brite pad. The screws were treated in the same way, except a bottle cap was used to contain the process. The final step was applying a thin coat of paste wax to protect the finish. It was then lightly buffed out.



After colouring, the hinges take on an authentic antique patina

Machines

I am doing all of this small-scale machining on Sherline machines. These hinges and ring pulls are made using their milling machine and lathe. These machines are capable of extremely high precision material removal in almost any material. The machines are table-top size and offer a limited work area, but used within their limitations, they do fantastic work. Sherline offers just about every accessory needed to perform most machine shop operations, such as gear cutting, screw threading and CNC.



Ring pulls

The ring pulls used on the full-scale chest were researched and printed out on paper. Using a few basic dimensions off the Internet, the rest of the missing dimensions can be calculated. Once the measurements are converted to $\frac{1}{4}$ scale, $\frac{3}{16}$ in round brass stock was the perfect size to start with.

Like most small machined parts, they start off on the end of a much larger piece of stock. The machines need something to grip onto to preform the operations and the ring pull bases were turned on each end of a $\frac{3}{16}$ in piece of stock. The stock was covered in layout fluid and three lines were marked using a calliper.

The first line set the boundary for the ballled-over end. The second line showed where the stepped down section should end and the third being showed where the part is to be cut off. The section between the second two lines was to stay the full diameter of the stock.

Instead of using a three- or four-jaw chuck, the stock was held in a collet to minimise run out and increase the gripping power. The first cut was made using a parting tool at the base of the pull. This



Making the ring pulls

shallow cut sets the boundary for the part. Once the rest of the turning is complete, this cut is revisited to remove the part.

Using a HSS right-hand cutting tool, the end was turned down to the first line and the final diameter of the ball. Then the radius of the ball was roughed out by eye turning the two axes at the same time. The ball was then refined with a needle file and fine sandpaper.

The middle area is stepped down. I started by putting the cutter down at the base of the ballled end, feeding both handwheels back and forth, which created the steps down to the next scribed line.

This process was repeated on both sides of four pieces of stock, leaving eight ring pull bases. Before they are cut off the full bar, the

holes that hold the rings in place had to be drilled. The pieces of stock were put in the channel of the mill vice to be drilled. The holes were started with a centre drill, which helps to avoid the bit from wandering on the balled end. Once the centre point is established, the mill axis does not need to move. The centre drill was followed by a twist drill the same diameter as the ring material and the process was repeated for all eight pulls.

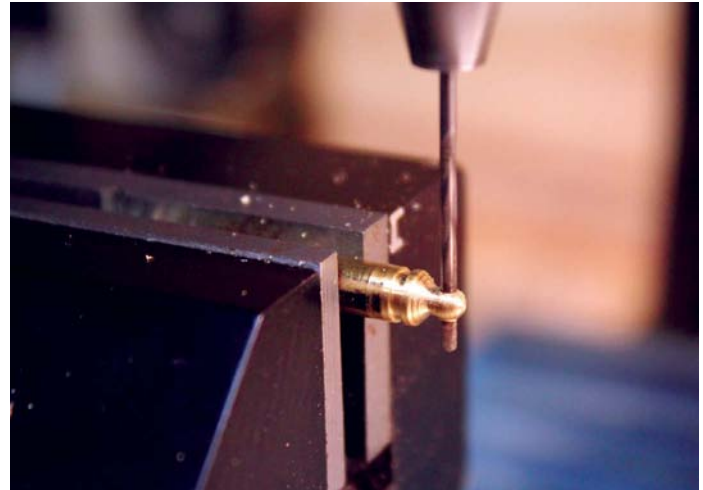
The ring pulls needed a method of mounting as they could not just be glued on. I settled on a 1-72 thread screw, which would require the backs of the bases to be drilled and tapped to accept the screw.

The pulls were put back in the collet on the lathe. Using the parting tool again, the part was cut off about 3mm past the previous part line; this would allow more material for the collet to hold onto during the drilling operation.

The pull was put in the collet with the back facing out. Using a centre drill followed by a twist drill, the hole was drilled until it breaks through to the ring hole. It is easily felt as resistance drops on the handwheel. A countersink was then used to open up the end a little, making the tapping operation a bit easier to start. The 1-72 tap was placed in a tap handle and a dead centre was put on the tailstock of the lathe.



The rings are formed and bent into place



Through holes were drilled to take the rings



The individual bodies separated from the brass rod



The hinges, once fitted



The finishes stages for Marco's miniature chest will be covered in issue 226

Next month...

As we close the lid on this incredible series, Marco describes the painstaking lengths he went to to finish the chest using traditional milk paints. Like every other step of this build so far, it's not straightforward.

At the time of going to press, we're making arrangements to display the chest at the North of England Woodworking and Power Tool Show, which will be held at the Great Yorkshire Showground, Harrogate from 21–23 November. Keep an eye on the F&C blog to find out more. We look forward to seeing you there. For more information on the show, see www.nelson.co.uk F&C

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Over the years *F&C* has acquired readers from all four points on the compass and since going digital in 2013, that trend has increased. You can find us anywhere in the world with a link to the web.

As the content of the magazine is a true reflection of our readership, we've decided to introduce a new style of article that will take us on a workshop tour of the globe.

Our reporter this month is a bespoke furniture maker and no stranger to *F&C* who after a recent trip to Germany, had his eyes opened to some new age-old skills and techniques, which have ultimately broadened and enhanced his cabinetmaking repertoire. Ladies and gentlemen, our global correspondent this month: John Lloyd.

PHOTOGRAPHS BY JOHN LLOYD

Alles klar

Nobody likes a smart Alec, but credit where it's due. John Lloyd reports back from his latest teaching trip where the Germans most certainly left their mark

Every year or so I pack a few tools in my bag, embrace the joys of EasyJet and head for Munich to teach some German folk something wood related. Well, it gets me out of the workshop, which can only be a good thing, and usually, being in a different country means that I learn something too. Recently this has been the subtle differences between a dumpling made from bread or potato, or the taste and alcohol content of a weissbier compared to a pilsner lager – you may be noticing that there's a theme developing here! I'm always surprised, and hugely relieved, that in a world of 'globalisation' we still only have to cross a relatively narrow strip of water to discover that different customs and methods of doing things are alive and well.

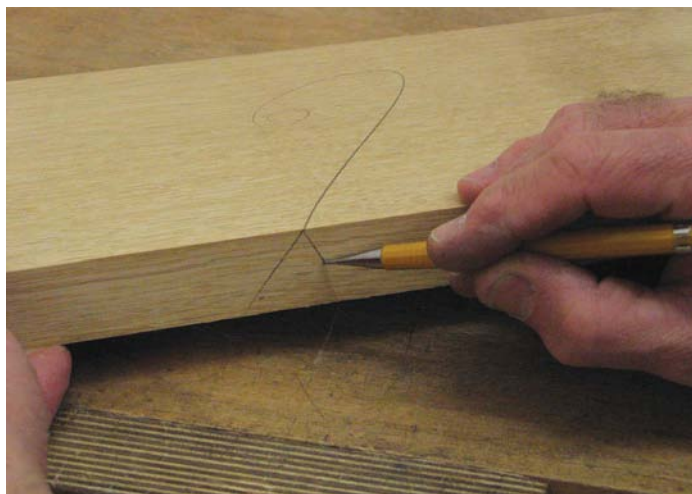
German cabinetmaking

On my most recent German visit I learnt something that had nothing to do with food but instead was a basic and very different way of doing something that's fundamental to the cabinetmaking process. We were making a hand-cut moulding, which was destined to be attached to a simple mortise and tenoned frame – not much room here for anything earth-shattering to be learnt you might think, but while showing my group of Bavarian woodworkers how to set out their joints, I added my usual face-side marks, confidently emphasising the importance of these odd, swirly marks to ensure that the frame would end up square, with all the faces in register. At this point, I noticed that the assembled company had gone eerily quiet, and Peter, the workshop manager, looked like he was

anticipating the arrival of a thunderbolt at any moment – the German marking system is like a law among woodworkers. I hadn't ever experienced this reaction to an essentially simple, and frankly vitally important, method of marking timber components. Perhaps they had misunderstood! Breaking the silence Peter asked: "Why don't you use triangles?"

What on earth was he talking about? Then the probing questions started: "How do you know how all the pieces fit together? Which is the top and which is the bottom? Which is left and right...?" I tried to explain that a system of letters or numbers would tell you which tenon went with which mortise and writing 'top', 'bottom', etc. would obviously sort out any orientation

issues. Surely there was nothing wrong with the system that I had been taught, but as I was describing the process, it was beginning to sound rather ridiculous! The really worrying thing here is that I'd been using this system for over 25 years without questioning it, and without thinking, 'actually this marking out system is really a bit rubbish!'



The traditional British face side and face edge marks



Numbering joints is a thing of the past with the triangle system

The 'Triangle System'

This is one of those blindingly simple ideas that makes you wonder whether your brain had just been sitting in neutral for the whole of your woodworking life. Actually, when it was explained to me, it didn't instantly hit me as a 'Eureka!' moment, it just seemed like 'quite a good idea'. It's when you first come to use it in anger that you realise quite what a simple and brilliant concept it is.

The general rules as used in Germany – and generally in Continental Europe, I think – are that the triangle – usually isosceles – sits on its base, perhaps for a door or frame, or points towards the back, e.g. a

drawer; also, unlike my usual face marks, they are marked on the unseen face, i.e. the rear face of a cabinet or the underside of a drawer. The idea of this is that the marks will not be removed during the making process, preserving the vital datum marks right to the end. When marking a frame, stiles are put together as a pair and the triangle drawn across both pieces so that each piece has half a triangle, the stiles are vertical when assembled so the triangle points upwards. The rails, similarly are put together, as a pair, or with a mid-rail between the top and bottom rails and, once again, a triangle

drawn across the components, pointing upwards. In this way, just a glance at any component will tell you whether it is top, middle, bottom, left or right – you instantly know which are the back and front faces and which tenon goes with which mortise without any more than the lines that form the various triangles. If there are several doors or frames for any project, then just add extra lines under the base line of the triangle for the stiles and along one of the sides of the triangle for the rails. One extra line for all the components of door No.1, two extra lines for door No.2, etc.



Mark the rails together with the mid-rail, if there is one. Again, this gives positive orientation and positioning for each component



The assembled frame



If there are several doors, drawers, etc. then number them by adding lines to the base or the side of the triangles – this is No.2

New methods

Similarly, tabletops and panels made up of several boards can be 'triangled' to ensure that they go together in the right order. I urge you to give this system of marking a try – I doubt that you'll be disappointed. I do, however, still use my

old system of swirly marks and arrow heads when I'm doing initial machining, although I might just be clinging to the idea that there is still at least some merit in the British system.

So, a few things to learn from this

experience: you should make a point of travelling abroad every so often; question traditional, entrenched methods of working and it's character-building to be able to smile when surrounded by smug looking Germans... *F&C*

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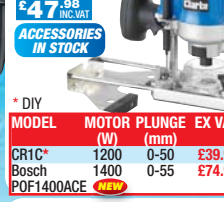
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Router table joinery

Derek Jones completes the finger jointing exercise to make a classic box for some workshop essentials

We left you last month with a nicely tuned, robust jig with which to machine the pins that make up a finger joint. Like a lot of machining processes that require a jig, it's this part of the project that takes the most amount of time to construct, especially if the jig had been designed for repeat use. All along I have been referring to the finger joint but it's also known as the comb joint in certain circles. For this article, I'm going to talk in terms of pins and spaces from now on. These need to be as close to exactly the same size as possible and if you have been careful with your jig making, it will be hard to come up with any other scenario. Take it as read that if I refer to a pin, the same rules will apply to the space it occupies and before we can start machining there are a few calculations to be made that will centre around the size of both parts of the joint.



PHOTOGRAPHS BY GIAN/DEREK JONES

Sizing



The classic box construction method

If the size of your box is critical, and if it's a drawer box it will be, you'll need to accept the proportions dictated by the cutter you have available. It may not be possible to achieve the span of the joint to finish with an entire pin or space. Visually a half pin looks more convincing. Less than that could result in a weak corner and more won't actually



Shoot all four sides of the box to length and width plus a little extra

work because the pin and space are equal sizes. Start by dimensioning the components over-length by twice the amount of extra height you have set the cutter in the table. For example, your cutter is 6mm diameter and you will have a pin/space size of 6mm wide x 6mm deep. Set your cutter to a height of 6.5mm in



Mark the components to identify the orientation for machining

the table. Now prepare each of your box components 1mm over-length.

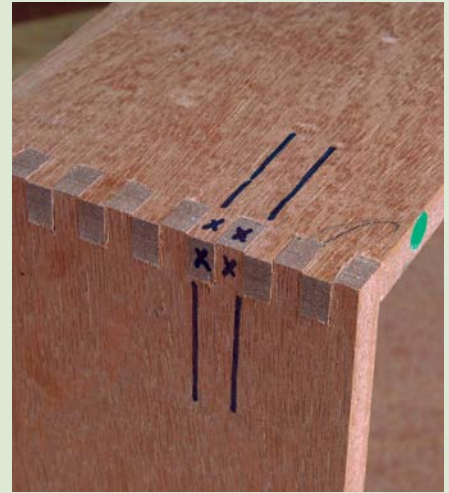
When calculating the width, it helps to work in multiples of the pin/space dimension. 10 pins at 6mm plus 10 matching spaces will equal 120mm. Add a little for good measure and you can aim for 122mm quite comfortably.

Tops and bottoms

The easiest way to attach a lid or bottom to your box is to machine a groove down the sides of the box and slide them in from one end after removing an entire row of pins from one end panel. This is OK for delicate boxes providing the stock dimensions allow it. A more robust construction, though, is to plant them on using a shallow rebate for location and split the box after it's been glued up. To do this, neatly oversize the components by a single pin/space value. This amount of material will be sacrificed in the separation process. However, if the top and bottom are the same thickness as the pin/space dimension, then this material will be added back on to return the box to its required height of 120mm.



Add a small rebate to the inside of the top and bottom parts



Mark the section of the box to be sacrificed when the box is split

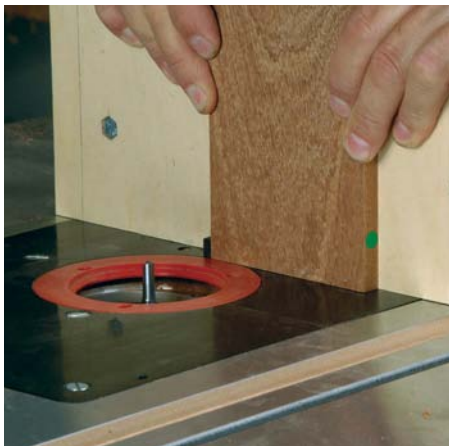
Make the pass

The first pass will be made with the edge of the board pressed up against the side of the peg. Check that the board is upright. Some timber cutter combinations can cause the board to be dragged down. A test piece will rule this out or not. If you do have a problem use the smallest table insert ring you have or clamp the board to the jig for the first and last few passes. Once you get into the

rhythm of working you can eyeball the end of the pass with a strategically placed stop at the far end of the table and a pencil line on the back of the board.

Orientating the board correctly in the jig is crucial. A line of pins at one end of the board should match with a line of pins at the other end of the same board. If you have selected your inside and outside

faces for a reason then mark the boards accordingly. This will mean that the side boards are run face out and the end boards face in. If appearances aren't important run them facing all the same way. When you bring a corner together the extra 2mm in width will be obvious. It will appear along the top of the two sides and along the bottom of the two ends.



Make the first pass with the board placed firmly against the peg with the mark showing



Keep an eye on the stop at the far end of the table and the line on the back of the board



When you did your width calculation the extra material will combine into a half peg or thereabouts at the top and bottom of opposing sets of corners

Two-step assembly

When it comes to assembling the box, go for a two-step glue-up. The pins will finish proud of the box sides by the amount of extra cutter height in the table and require levelling off. Keep the clamps behind the line of pins by a fraction so that they don't prevent the joint from closing. Even pressure from all sides will help maintain a square carcass as will matching clamps. When the glue has dried, level off the sides.



Clamp together gently with the clamps behind the pins



Trim the top and bottom edges of the box

Adding the top and bottom



Mark the tops and bottoms and trim to size



Use as many clamps as you can to create equal pressure around the box



The extra depth of the finger slots will result in some material to plane off to square the box

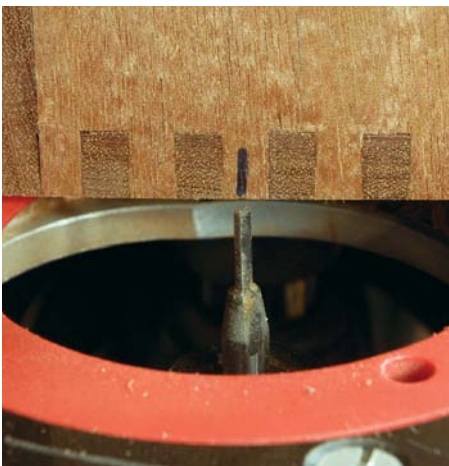
Before cutting the rebates on the inside faces of the top and bottom, mark these components to correspond with the dimensions of the box. If it's not perfectly square, you haven't completely failed. As long as they are the same shape as the box, the rebates will be in the right place. Slight adjustments can be made later when the box is complete. If you sense that there

is a little give in the box frame, then shoot your top and bottom square and the rebates will do the rest.

Even pressure is the key once again with equal spacing of the clamps. If you intend to finish the inside of the box, then now would be a good time to get a few coats of sanding sealer or whatever finish you decide. Be sparing with the sticky stuff

as you will not be able to clean away any excess. A light waxing of the inside faces will help to repel any glue runs. Use whatever means you have to level the outside of the box. A low angle plane will cope with the end grain of the pins. If the sides are slightly out of square with the top and bottom, now's the time to correct them.

Lid separation



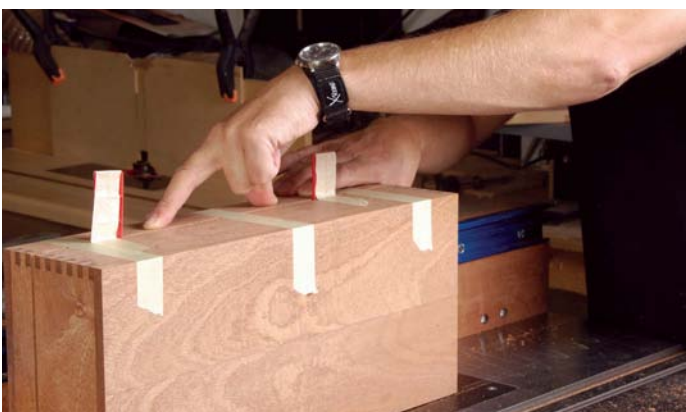
Position the cutter to split a pin roughly down the middle



Waxing the table and the fence will make the box easier to manoeuvre over the cutter



For a thin cutter make several passes



For the final pass, slide some packers in the slot and concentrate on the lid part against the fence



Use a sanding board to level the lid and base and don't stay in one place too long

There are plenty of ways to separate the lid from a complete box. Some like to use the bandsaw and some do it by hand, but as we're working with the table router I'll show you the way I like to do it.

Decide where the break line is going to be and select a suitable cutter. For a small cutter like the one I'm using – 3mm – it will take several passes. Prepare some packing material to the same thickness as the diameter of the cutter. Set the fence and run the box

across the cutter all the way round until you are completely through on three sides. On the last pass, tape the packing material in the open slot to support the base and lid as they come apart. At this point, focus your hand pressure on the component behind the cutter so that when they part company the free portion won't be forced into the cutter. It won't hurt to apply a little wax to the surfaces of the table for this procedure. You may need to repeat this step on the base

section to end up with an equal pin/space pattern. With some abrasive paper stuck to a reliably flat board, level off the mating edges of the lid and base. Concentrate on making the same number of rotations with your hands positioned at two opposite corners in turn. Rotate the components after every five or six passes and work in repeat combinations of straight lines, diagonal lines and even figure-of-eights if it helps. What you do to the lid, do to the base and you should get a perfect fit.

Fitting up

The leaves on the hinges for this box can't be contained within the thickness of the walls of the box so there's only two edges to the hinge mortise. Clamp the lid in place and mark the depth of the hinge mortise on the two visible faces. Position the hinges and mark mortises on both sides at the same time. Keep the

clamps on and gang cut the walls of the mortise with a dovetail saw. There's virtually no marking out and the hinges will be in the right location. Pare down close to the baseline on all four mortises with a bevel down chisel and finish in the other direction to level things off. *F&C*



Mark a depth setting on the lid and base for the hinges



Mark out the walls of the hinge mortise



Gang cut the mortises



Use a block of wood to prevent the chisel from slipping off the back of the mortise



Use a chisel with the bevel facing down to pare the waste down to just above the depth line



The psychology of incidents

Geoffrey Laycock explores the psychology of safety and why it is so important to watch your step while in the workshop

When Derek Jones mentioned the idea of several related articles looking at the psychology of accidents, I wondered how we might make this fit in with our usual content genre. Over the last couple of years, we have had quite a number of safety-related pieces and also some in-depth ones on health and maybe that is the place to start: understanding the difference between 'health' and 'safety'. To look at the psychology of accidents, or as many professionals prefer – incidents, we need to understand the difference.

Health and safety defined

Sadly, the phrase 'health and safety' is overused, misused and misunderstood. We really do need to treat the two words as just that, two independent words. Consider generally safety to refer to physical integrity: for us woodworkers not chopping fingers off with circular saws, not losing fingertips to a chisel edge or an eye to a flying grindstone fragment. Consider health to be about wellbeing, the adverse effects typically as the

result of an exposure to something and this can be over a short period when the effects are considered to be 'acute' or longer term when we talk about 'chronic' effects. These exposures could be dusts, chemicals, noise, vibration, stress, musculo-skeletal or repetitious injury.

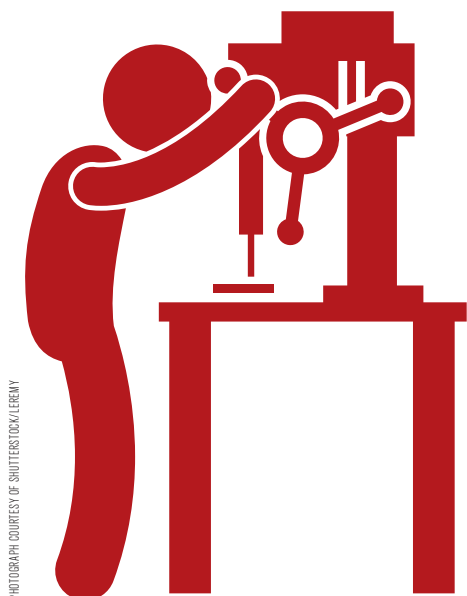
Now the big difference between the two

can be an individual perception of how big a threat something poses. The perception of threat, or usually we say risk, can play a huge part in how that individual then behaves and much research is ongoing into the area of 'risk-taking behaviour'. How one person 'sees' or perceives and considers a possible threat or risk is influenced by many things. Age can be a big factor but not in itself, simply that many other factors can bring influence over the years as we get older and experiences can be negative as well as positive. In a work situation the following may be significant factors in how we view things:

- Experiences – whether or not unsafe behaviour resulted in injury
- Training and education
- Age and physical condition
- Stress
- Peers – workmates/colleagues
- Personal interests
- Job satisfaction
- Home life
- Ambition
- Job security



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Defining hazards

With safety, many hazards can be obvious, either to see, or to be explained leaving little doubt about the potential. Having a hazard explained and the precautions to take can result in some people doing just that, to the best of their ability: more on that ability later. Some people will brush aside the problem and the most common remark I've had over the years is, "I've been doing it like that for 'X' years and never had an accident!" Unfortunately, having a negative experience also does not always change behaviour and I well remember having sharp words with a joinery company owner/employer about circular saw safety. He proudly told me he knew all about this and held up his left hand to demonstrate that he had learnt from experience of running a finger through a tablesaw blade. The big problem was the evidence clearly showed he had done it three different times!

With health, the hazard or threat may not be obvious – we are totally unable to detect Gamma radiation and some sources of that are used in construction work and of sufficient power to provide a lethal dose quite quickly and with the individual not immediately knowing. Vibration is one we are all familiar with and yet this is often ignored. The 'perception' of hand-arm vibration is often that it is a minor issue, but the reality is that regular exposure to levels above the acceptable values can result in severe damage to blood vessels and nerves and the well-documented 'vibration white finger'. This can be so serious it is a recognised disability but as it takes time to develop and it seems innocuous as it does so, it is perceived as little or no threat. The last time you used an orbital sander and your fingers tingled after about 20 minutes – you were in the realms of tissue damage and adding to the eventual chance of a chronic disabling condition.

Reporting health and safety

The other problem with our two words is how they are reported. In 2013, there were 39 deaths in construction work and much is made of how dangerous this industry is,

but in the same period around 100 times that number of deaths occurred from work-related disease and ill-health. It is estimated that around 500 die every year from exposure – over a period of time – to silica dust. How many times have you seen workers engulfed in dust clouds? Because it isn't instant, we easily decide it is not a threat; thinking one-off working won't matter even if we have a coughing episode after stopping!

We are intending to now look at how people behave and why. One leading psychologist has spent years looking at this; James Reason first published *Human Error* in 1990 (Reason, 1990) and proposed that all failures to do what we might consider to be the 'right thing' are errors and these we can classify into four types:

Slips

A performed physical action goes wrong. You reach for the 'OFF' button on a saw but hit the start button with little adverse consequence so we probably ignore this obvious design flaw. You switch on mains power to a router and it starts as the machine switch is already 'ON' and if you are holding the router you may have a serious hand injury. Often these can be caused by poor design, which affects your appropriate performance. The latter example is also more likely to be due to a lapse.



Lapse

A lapse of memory or attention – see above example. You are working on something and a distraction takes you away. When you recommence, you miss something out. For example, you are part way through changing a tablesaw blade when the phone rings. On return you finish replacing the table insert, refit the riving knife and guard and use the machine. You then find the blade is loose as you failed to fully tighten the arbor and check it. Distractions can play a significant part in lapse type errors but so can many other factors.

Mistake

Not understanding how something works or an error of diagnosing or planning a work activity. Mistakes are defined – Reason 1990 – as deficiencies or failures in the

judgemental and/or inferential processes involved in the selection of an object or in the specification of the means to achieve it, irrespective of whether or not the actions directed by this decision-scheme run according to plan. It helps to understand these can be further defined as Rule-Based mistakes or RB, and Knowledge-Based mistakes or KB. We'll come back to these.

Violation

A deliberate breach of rules and procedures. Possibly the most common example is exceeding a speed limit in a road vehicle. This can be closely linked to perceptions. 17-year-old drivers have little real experience but often believe they are superior drivers with better control and handling skills than everyone else and driving fast is not a problem; they usually also fail to perceive correctly the reasons for any speed limit. The highest death rate in vehicle accidents is 17-24 year old males!

Types of errors

Another researcher Rasmussen (1986) had previously related three basic error types to three performance levels.

Performance level	Error type
Skill-Based level	Slips and lapses
Rule-Based level	Rule-Based mistakes
Knowledge-Based level	Knowledge-Based mistakes

With woodworking, great emphasis is placed on skills and if we remain at that level we predominantly suffer slips and lapses as manifestations of error. The RB and KB levels come into play after the individual has become conscious of a problem.

Rule-Based mistakes

With Rule-Based mistakes, the key assumption is that when confronted with a problem we are strongly biased to find a ready-made solution at the RB – or Rule-Based level. Rules are easier to learn and if we are given a good set of instructions – with demonstration – of how to use a guide-rail saw we can follow those happily. Should a situation arise outside of those instructions we may then move to an action also outside the RB level. We are using the saw to cut a 15mm strip from the edge of a plywood sheet and if the 'rules'



PHOTOGRAPH COURTESY OF SHUTTERSTOCK/LEREMY



have not clearly included an instruction never to use the 'non-controlling' hand to support the timber strip being cut off we may do this. We could have been told not to and due to various other influences we have a lapse? It starts raining, we want to get finished, and we don't want the plywood to delaminate at the end of the cut so we reach around to support the strip with the free hand. Hand in the wrong place due to a further lapse and several finger ends roll across the floor! You may be surprised, or not, how often this has happened on construction sites, especially using saws freehand.

Knowledge-Based mistakes

Knowledge-Based level mistakes can happen in novel situations for which actions must be planned – often in real-time, using stored knowledge and a conscious analytical process: problem solving. Errors here can result from a lack of knowledge, or incorrect knowledge. Being trained to use a powered jointer by an 'old-hand', as happens all too often, does not mean all the correct knowledge and skills will be passed on, in fact it's often the opposite: wrong skills and knowledge. The

HSE recognise a major cause of machinery based incidents is lack of proper training. In one investigation I had to carry out as an Inspector an 18-year-old male lost significant part of his left hand on the jointer referred to above. It was patently obvious he had no real training other than how to change depth of cut and push timber through. It was also obvious his employer knew little about use of bridge guards, which would have prevented the disabling and disfiguring injury. Take again the tablesaw, the correct adjustment for the top or crown guard is as close to the top surface of the timber as possible. The reason for this – other than it helps with dust extraction efficiency – is that it acts as a warning 'stop' – the fingers of a timber feeding hand will contact the front edge of the guard before the blade – always! If the guard is not so adjusted it can fail completely in this function although it still covers the top of the saw blade, which is what most people see as its only function. This is not a proper physical safeguard, though – only a warning. If the machinist is not paying attention, then they may not immediately register the contact in time to act, especially if using a rapid feed rate, and it may still be possible to force the hand below it.

Principle of prevention

We use two principles in Europe: prevention and protection. The crown guard comes into the prevention category. If you use a grinder, the flying particles may cause an eye injury so the correct step is to wear eye protection: these do not stop particles flying at you but mitigate their effect – protection. A chainsaw user relies very much on correct training to minimise the likelihood of an incident causing contact with the chain – training is far more important than many assume here. But even the most skilled and experienced can have a chain contact incident so we also rely heavily on protective measures: special leggings, boots and maybe jacket.

These may not prevent all injury but stop the chain rapidly



thus minimising the damage. Sadly lack of training plus lack of protective clothing can easily be fatal or seriously damaging.

In the USA crown guards are usually seen missing from table/panelsaws, as are riving knives and, in both cases, probably because of a fundamental and widespread lack of understanding of what both do. The good news is that riving knives are increasingly being used in the USA as the understanding that they minimise risk of timber kickback is spreading. Also appearing in the USA recently is SawStop, a patented device that detects contact of a finger – or in their demonstration video a frankfurter – with the blade and rapidly stops the blade and retracts it away from the contact area. It is very impressive to watch and questionable whether this is a protective device or preventive but either way it is unlikely to gain favour with European laws in the immediate future as a replacement for the existing requirements. It relies on an electrical signal change as a finger contacts the blade and an electronic malfunction could result in failure to operate. The big danger with a device such as this is the user becoming increasingly complacent; relying on their knowledge that the machine will get them out of trouble should they allow their fingers to stray in the wrong place. If it fails they have no protection at all.

Conclusion

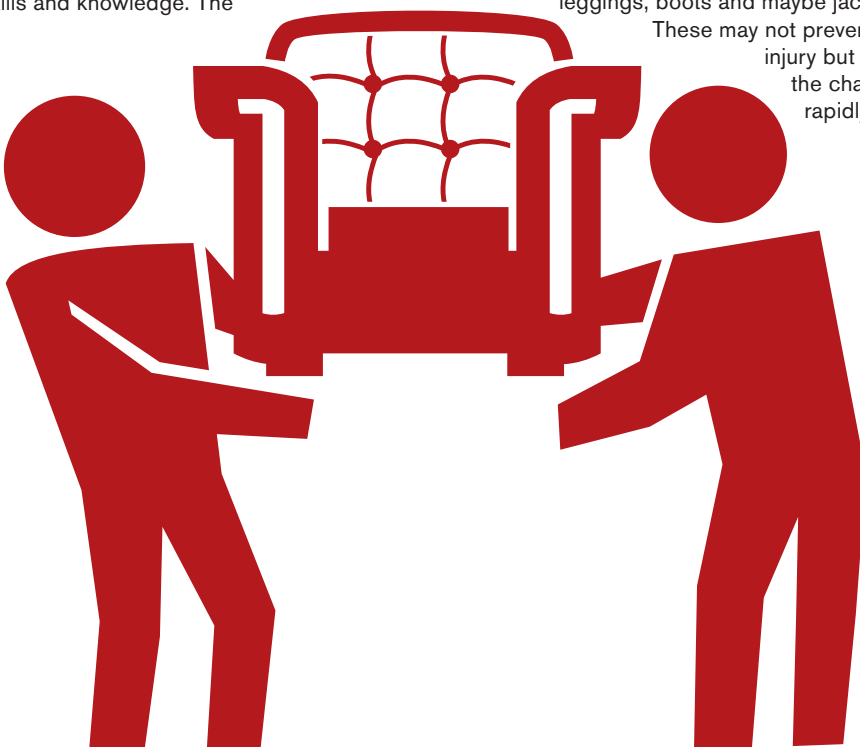
Why people have incidents, why some are prepared to take obvious risks whereas others positively avoid, and how to improve physical and health safety are still hot research topics. We have so much more understanding now than just 40 years ago but there is a long way to go still. Machine design can be a big factor, correct training a huge one and then individual perception and other factors all play their important part. *F&C*

Resources

James Reason, Human Error, Cambridge University Press, 1990

Jens Rasmussen, Information Processing and Human-Machine Interaction, Amsterdam: North Holland, 1986

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Technical specification:

PLANER:

Max planing capacity:	300 x 220mm
Length of tables:	1500mm
Cutter Block Dia :	70mm
Fence angle tilt:	90° 45°
No of knives:	3 300x20x3
Max Stock removal	4 mm
Feed rate:	7 m/min

CIRCULAR SAW:

Blade tilt:	0° - 45°
Blade diameter:	250mm
Scoring Blade	90 mm
Max blade height 90°:	80mm
Sliding carriage:	1250 x 315 mm

SPINDLE MOULDER:

Shaft Stroke	115 mm
Shaft Dia	30 mm
Speeds	2000/3100/4400/7000 rpm
Max dia of tool	160mm

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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



PHOTOGRAPHS BY GUY/ANTHONY BAILEY

IRWIN Tools launched their new IRWIN Marples range of circular and clean-cutting 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. Like a lot of general purpose workshops, our tablesaw gets used for ripping the full range of materials to dimension one minute and then reducing offcuts to log burning sized chunks the next. It's not always pretty but it's a typical scenario and one thing we can't always be doing with is changing the blade every five minutes. A good all rounder is what we need

and the 250mm diameter general purpose blade has proved to be just that.

The range

The blades are made in Udine, Italy to a very high-quality standard and designed to operate with a reduced noise level. Across the range, we've found them to be fast and clean-cutting with a spec to suit all machine types. The blades have a blue PTFE coating with aluminium flakes in it. According to IRWIN, this keeps the blades running cooler and so helps with the feed rate. Although we shouldn't really be concerned so much

with the speed in which the blades can chomp their way through timber, it's the responsive feeling when ripping solid stock with less force that's the bonus here. This is most noticeable on a smaller machine where the likelihood is that you'll be operating at the machine's capacity more often than on a larger one. It's good for you, easier on the machine.

The blades are available in a variety of sizes from 216mm and 24 tooth up to 305mm and a maximum of 100 tooth with plenty of choices in between. Kerfs are available in thicknesses between 2.5-3.2mm.



Our workshop tablesaw is fitted with the 250mm diameter general purpose blade



These blades give a really good cut finish

The packets are clearly marked for each specific usage, e.g. mitre, table, 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 and, to be honest, that should cover everything. If you're worried about the blue finish coming off and depositing itself on your nice clean edge, it doesn't.



Just some of the selection of blades available in this extensive range

F&C 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.

Price: from £73.64 inc VAT (RRP)
From: www.irwin.co.uk

More choices

If the Marples blue range isn'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. **F&C**

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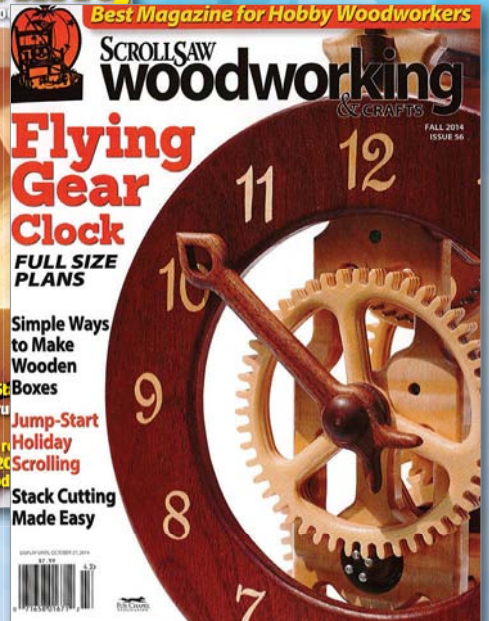
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Design Emphasis

Hendrik Varju reports back from the International Woodworking Fair, held in August this year, where the students are the stars of the show



PHOTOGRAPH COURTESY OF IWF

Every two years, the International Woodworking Fair is held in Atlanta, Georgia, USA. It is the largest woodworking trade show in North America and the second largest in the world. While I love to look at the tools, machinery and materials, frankly there hasn't been as much innovation in those areas in recent years as I've seen in years gone by. But one area in which innovation continues to thrive is in furniture design.

I spent my first full day at the International Woodworking Fair, which took place in August, studying the pieces entered into the Design Emphasis Student Furniture Design Competition. This is a contest made available to students in colleges and universities throughout the United States, who are enrolled in various woodworking and industrial design programmes. It is wonderful to see young people channelling their creativity and using both old world woodworking methods combined with modern designs, materials and methods such as CNC machining.



PHOTOGRAPH BY ROBB D. CORNELL

From left to right: Youmin Vincent Kim, Valerie Berlage and Mark Manczyk, all of whom received IWF awards

The awards ceremony

The awards ceremony was held the evening before the show opened and, unfortunately, my aeroplane landed a little too late for me to get there. However, I'm told that a number of the students who had entered the competition managed to make it there for the dinner and ceremony. Awards were given out, which consisted both of cash prizes and sculptures made of bubinga (*Guibourtia demeusei*).

There were five categories in total: 'Case goods', 'Seating', 'Accent furniture/tables', 'Commercial/office/hospitality' and 'Design creativity'. For each category there was a first place winner, followed by the designation of 'Merit' – second place – and 'Honourable Mention' – third place. And one of the five first place entries was also selected for the 'Best in Show' award.



PHOTOGRAPH BY BENJAMIN ROSENBERG

Meeting the students

On the first morning of the show, I was able to meet with many of the students who had travelled to the IWF from all across the country. I met with two of the first place winners and several more students, some of whom had won awards and some of whom had not. I also connected with others by email and phone, either before or after the show, to gather further information about their creations. I spent as long as an hour or more with some students, delving into their design inspirations, techniques and future goals. I have to say that face-to-face contact with these impressive young students was the highlight of my entire trip.

Case goods

Starting with the 'Case Goods' category, the first place winner was Benjamin Rosenberg. He designed and built the 'Wave Credenza'.

'Wave Credenza' by Benjamin Rosenberg

All first place winners received a beautiful sculpture trophy, as well as a \$1,000 cash prize. However, Benjamin was also awarded the 'Best in Show' award, which included a second trophy and an additional \$1,500 as well. Needless to say, Benjamin was ecstatic.

The 'Wave Credenza' is made of solid walnut (*Juglans spp.*) and maple (*Acer saccharum*) with welded steel legs. Made to hold records, it was finished with a linseed oil, polyurethane blend and walnut oil on the inside. Joinery was done by machine using the Festool Domino. The doors were made of 160 pieces of wood of varying thickness and length, modelled after the digital display of a stereo equaliser.

Benjamin completed a two-year furniture making programme at Haywood Community

College and now shares a studio with a friend, who also graduated from the programme a year before.

Seating

In the 'Seating' category, first place was given to Sarah Mohr from the University of Kentucky for her 'Folded Plane Chair'. She designed the chair with a folded plane concept that conforms to the human body, wanting a dramatic faceted seat to rest on a simply structured support. She used solid steel rod for the frame, aluminium plates bent at the correct angles and pinned with aluminium rod. The wood is solid mahogany (*Khaya ivorensis*) finished with natural Danish oil.



PHOTOGRAPH BY HENDRIK VOGLU

'Folded Plane Chair' by Sarah Mohr



PHOTOGRAPH BY MARK MANCZYK

'Intersection Table' by Mark Manczyk

I also met with a young woman named Emily Yanos, who is still studying industrial design at Purdue University in Indiana. While she did not win any awards, she generously spent a great deal of time discussing her design and how it came about, first starting with CAD drawings, then a styrofoam model and finally, two prototypes in wood. Her chair uses hickory (*Carya spp.*) and stained poplar (*Liriodendron tulipifera*), with biscuits and dowel joinery throughout. While not specifically trained in fine woodworking in her industrial design programme, it is clear that Emily has a great passion for creating things with her hands – her eyes completely lit up as she discussed her chair. Just to make things even more interesting, her professor limited the materials cost to just \$50 per design, so Emily explained how her classmates all went to a timberyard and had to nickel and dime their way to the final design. Based on what I saw, I have to give Emily kudos for her creativity and tenacity in completing this interesting design.

Accent furniture/tables

In the 'Accent Furniture/Tables' category, the first prize winner was Mark Manczyk, also from the University of Kentucky, with his 'Intersection Table'. Mark was at the

show, so I spent some time dissecting his concept of two solid forms crossing each other at angles. You'll see an upright hollow box with a horizontal hollow rectangle crossing through it, both veneered in Honduran mahogany (*Swietenia macrophylla*). The darker box was finished with a stain, while the lighter one uses just natural Danish oil. There is also some metal tubing and a thick glass top. Particularly interesting is the drawer, which was veneered to mimic the intersection of the two boxes through each other. It was stained black to give it further separation from the rest of the piece. Very smartly done.

John Barry was also on hand at the show and won an 'Honourable Mention' for his 'Puzzle Table'. John studies at Southside Virginia Community College and his table is really quite stunning. He used cherry (*Prunus serotina*) legs and walnut mouldings. The lower parts between the legs were made from teak (*Tectona grandis*) reclaimed from electrical insulators historically used on electrical poles. The top is made of veneers cut on a CNC machine from more than 15 species, such as oak (*Quercus spp.*), maple, cherry, cedar (*Cedrus libani*), beech (*Fagus spp.*), ash (*Fraxinus excelsior*), cypress (*Taxodium distichum*) and more.

Commercial/Office/Hospitality

Youmin Vincent Kim, from South Korea, took home the big prize in the 'Commercial/Office/Hospitality' category for his 'U Lounge Chair'.

His concept was to design a clean, contemporary chair that is oversized so you can sit with a laptop, tablet or other electronic device beside you. So, it's a sort of cross between a chair and a bench, really. He also suggested that it is very comfortable to sit sideways with one arm resting over the back rest. Interestingly, Youmin explained how all the hard maple parts were designed on a computer and cut out with a CNC machine, requiring only minimal hand sanding after assembly. He used large diameter dowels for joinery and finished the wood with water base to keep the light blonde colour. He also sourced a high-wearing commercial felt fabric from Europe for the seat and back and designed a seamless

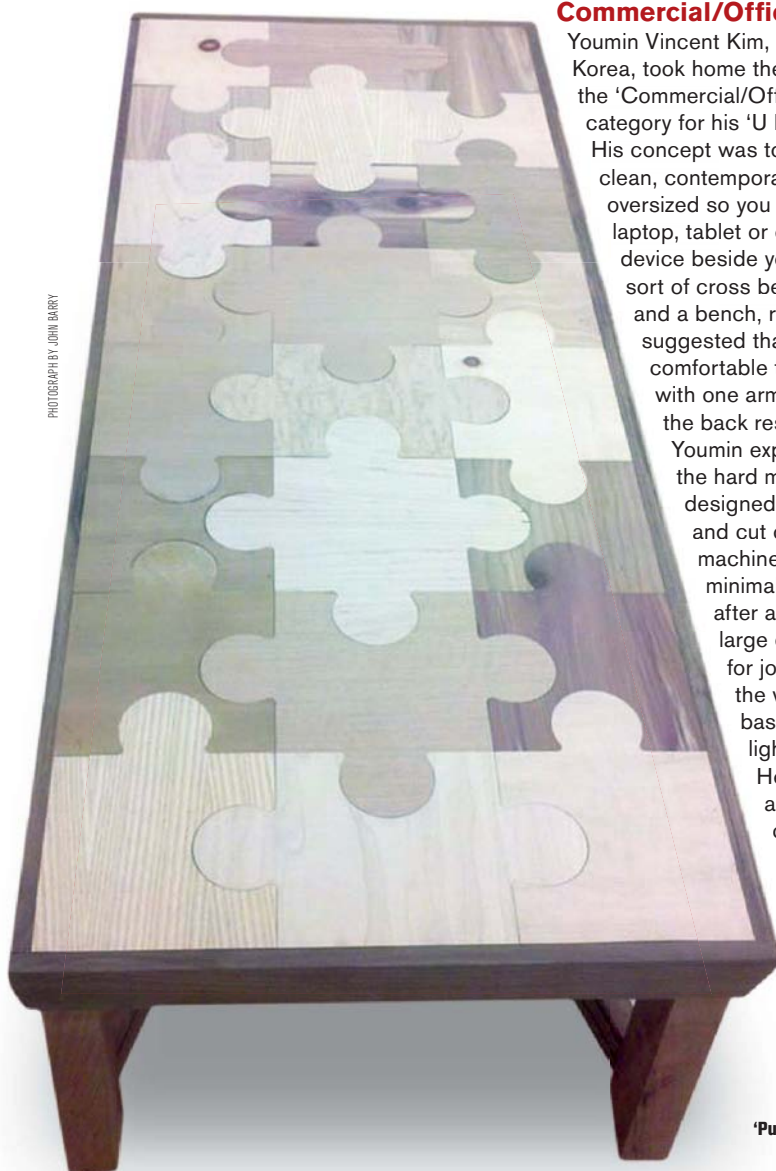
The 'U Lounge Chair' by Youmin Vincent Kim

way to join the upholstered areas to the wooden frame. Youmin designed this chair with the possibility of mass production in mind. He studied for four years at the Art Center College of Design in California and spent four-five years studying painting at the Pennsylvania Academy of Fine Arts before that. He explained that he is travelling back to his home land at the end of this year, where he already has a job lined up at a studio where he'll focus on designing furniture for mass production and experiment with different materials and technologies.

'Design Creativity'

In the 'Design Creativity' category, Valerie Berlage from Haywood Community College in North Carolina won first prize for her 'Home is Where the Heart Is' bench. The frame is made of solid walnut, finished with clear polyurethane. Above the upholstered seat, you see a whimsical scene of three houses, which are birch (*Betula pendula*) plywood boxes clad in painted poplar with some walnut, hickory and bloodwood (*Pterocarpus angolensis*). She is currently working full-time as an artist. Very interesting, indeed.

Receiving 'Honourable Mention' in the same category was Adriana McNinch from Purdue University for her 'Plume Wall Piece'. Adriana was full of energy and we spent at least an hour discussing her trials and tribulations designing and then executing her wall art with a CNC machine. I have to say I was very impressed with her artwork, especially the



'Puzzle Table' by John Barry

PHOTOGRAPH BY PATRICK KIM





PHOTOGRAPH BY ADRIANA MCNINCH

'Plume Wall Piece' by Adriana McNinch

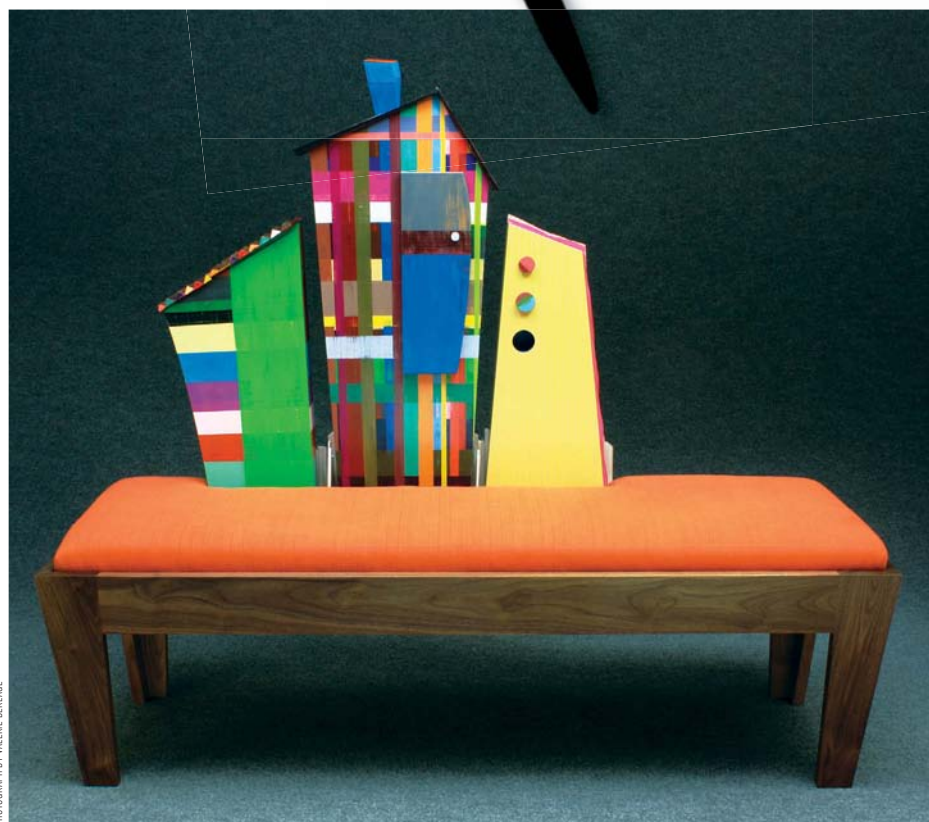
way the inside layers of the plywood were exposed with the CNC programming to reveal what looks like a feather. The larger piece is made of two pieces of ply – the centre piece is separate and was let into a curved groove in the larger section. The smaller feather was made all in one piece. Staining and finishing was done by hand with oil-based products. Absolutely wonderful effort here.

The rewards of creating

During my other three days at the show, I spent time looking at machinery and tools as well, but I have to say that I kept being drawn back to the design competition area. I think people attending woodworking shows tend to focus too much on the tools and not enough on the reason to own all those tools in the first place. Let's face it, we do woodworking in order to build furniture or other beautiful objects as an outlet for our creativity. The joy of turning mere thoughts and ideas into actual objects that we can enjoy and marvel at is not only the centre of the woodworking craft, but I would argue is the crux of our purpose on this earth. If you're searching for the meaning of life, creation of one kind or another is at its centre and, in my opinion, the Design Emphasis competition did an enviable job of bringing that to the forefront. I'm excited to see what these young designers will contribute to our world in the future. *F&C*

Contact:

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PHOTOGRAPH BY VALERIE BERLAGE

'Home Is Where The Heart Is' bench by Valerie Berlage

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20 minutes with... Chester Shuey

We get to know the man behind Appalachian Joinery – furniture maker Chester Shuey

This quality-minded furniture maker makes pieces of original design and reproduction, which are designed to last generations. Chester Shuey also designs and builds custom home projects, which include entry doors, mantles, built-in shelving and wooden kitchen tops. His process is simple and clean, using locally-salvaged trees and timber. Chester is a fan of hand tool skills and comments that “joinery is what makes a craftsman.” The integrity of the pieces he makes is emphasised with traditional exposed joinery and hand-rubbed oil finishes; this is how he expresses his passion for working wood.

F&C: What are you working on at the moment?

Chester Shuey: At the moment I am working on an office room for a local client. The first piece is a live edge walnut (*Juglans spp.*) desk with mitre wrapped corners, two doors and six drawers. The second piece is a wall-mounted mitre wrap walnut media cabinet with four doors.

F&C: What's the tool you can't do without?

CS: I'd have to say the one tool I couldn't live without is my 150mm rule. Without it I would have no way to measure consistency. It's also nice for dialling in machinery.

F&C: What's the last piece of equipment you bought?

CS: A Festool track saw. It's nice for so many things!

F&C: Classic piece – nominate a classic piece of furniture from any period – bespoke, mass produced, studio furniture and tell us why it's so special.

CS: Shaker stools for sure! They're simple, well made and can be used for so many things.

F&C: Why did you become a furniture maker?

CS: I really enjoy making furniture. There is always something new to learn.

F&C: What inspires you?

CS: Really cool pieces of wood inspire me! When I come across a really unique piece of wood, so many ideas pop into my head and from that point on all I want to do is see it through.

F&C: If your furniture were music, what kind of music would it be?

CS: It would be garage rock.

F&C: What do you admire in the craft at the moment?

CS: I see a lot of really neat chair designs. I also dig wood and metal, or wood and glass designs.

F&C: Who has been your greatest mentor/role model?

CS: MacGyver.

F&C: What comes first, design or technique?

CS: I like to emphasise technique in my designs. For me it's 50/50 most of the time.

F&C: Are we too obsessed with outdated modes of work?

CS: I don't think so. Sometimes it's more fun to pick up a hand tool and go at a chunk of wood. I think the end result is more satisfying for both maker and user.

F&C: How or where do you exhibit your work?

CS: I use a variety of different media but my primary method is through my website – www.appjoinery.com. I also have an Etsy shop and use various galleries: Asheville Ceramics Gallery and Asheville City Market.



Chester with some of his pieces

PHOTOGRAPHS COURTESY OF CHESTER SHUEY



'Cascade' dining chairs in walnut



Bench made in live edge maple with cherry spindles



Stool made in sustainably sourced black walnut

“I think artisan furniture is actually making a huge comeback”



Custom walnut credenza

F&C: How comfortable are you with working to someone else's design?

CS: I think it's a great way to learn. Sometimes when I work with interior designers, it's a learning experience for the both of us. A concept sketch doesn't have the limitations of joinery. I've learned new methods of work by trying new things.

F&C: What's your creative process like?

CS: I think about something until it becomes an obsession. At that point I dive right in.

F&C: Do you consider yourself an artist or a craftsman?

CS: Craftsman. In my opinion, nature takes care of beauty.

F&C: What's the practical process you undergo when moving through the stages of a project?

CS: I usually make sure everything has been well thought out before starting. It's nice to flow through a project knowing all of the steps ahead of time.

F&C: Do you think furniture making is in danger of disappearing?

CS: No. I think artisan furniture is actually making a huge comeback.

F&C: What advice would you give to someone starting out?

CS: Make furniture that you're proud of; don't be afraid to try new things along the way and most of all, be friendly!

F&C: What irritates you about the industry?

CS: I'm not a big fan of large scale furniture manufacturing companies. *F&C*

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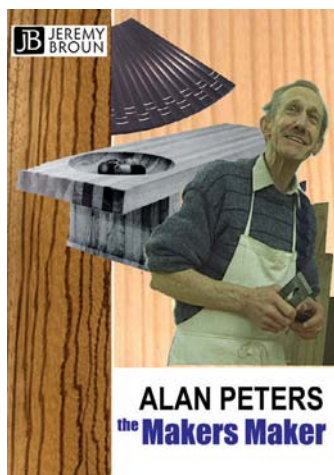
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This month, Andrew Lawton reviews this new e-book on the great Alan Peters and Barrie Hope looks at a book on coffins. Website of the month is Anne of All Trades

BOOKS



Alan Peters – The Makers' Maker enhanced e-book

By Jeremy Broun

Never one to ignore new technology, furniture and film-maker Jeremy Broun has probably chalked up a first in woodworking digital publishing with this excellent e-book about the life and work of Alan Peters OBE, arguably the finest designer and maker of bespoke furniture of the late 20th century.

Jeremy's book is based on and – now replaces – his glossy paperback print-on-demand 32-page publication created in 2009. Interestingly, over

40 copies of the book plus 50-minute DVD package sold at £45 so this new e-book version that integrates three short videos reaches a potentially larger audience at a significantly cheaper price. The e-book is viewed online, although it can be downloaded and printed out. It is user-friendly whether viewed on a traditional PC, smartphone, or tablet, including the Kindle Fire. The verbal instructions are desirable and navigating is pretty much self-explanatory.

The title, which is the only fresh writing on Peters, follows his life from his rural Hampshire boyhood and apprenticeship at the nearby Edward Barnsley Workshop, charting his many significant achievements along the way. Part of Alan Peters' success was down to his being in the right place at the right time and Broun is able to show him in the context of the wider furniture design and making movement of the 1970s and 1980s: the 'art' furniture of makers such as David Field and Fred Baier, the groundbreaking work of John Makepeace and the fine work of Martin Grierson.

Broun convinces us that Peters, through his unflinching integrity in every aspect of his craft, such as dealing with timber movement that every

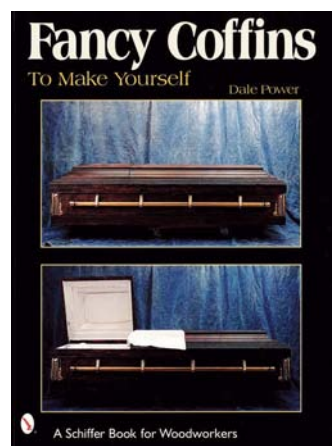
aspiring furniture maker find a valuable read, and strong personal philosophy steeped in Arts & Crafts principles would have made his mark and achieved fame even today when the field is so much bigger. An article written by Peters for the Society of Designer Craftsmen in 1972, and probably never read by any other than its members, gives us a valuable insight into what made him tick.

Another welcome inclusion is an account by Keith Newton of his time as an apprentice and employee in Alan's second workshop; we learn not only about day to day life there but also of the other craftsmen and women who worked there – Stephen Hopper, Robin Furlong and Jane Cleal, for example – all now respected designers and makers themselves.

The book contains extensive tributes from makers before concluding with a meticulous biography of Alan Peters. The numerous well chosen photographs, including some of Alan with his wife Laura, which accompany the text, the instant word-search and page zoom, make this electronic publication a feast and a first for Jeremy Broun's biographical publications. The DVD documentary is sold separately. This e-book is an impressive and valuable work

and I thoroughly recommend it to all who wish to gain an insight into the life and times of Alan Peters OBE.

Published by Jeremy Broun
62 pages – special F&C reader price – £7.99
www.jeremybroun.co.uk

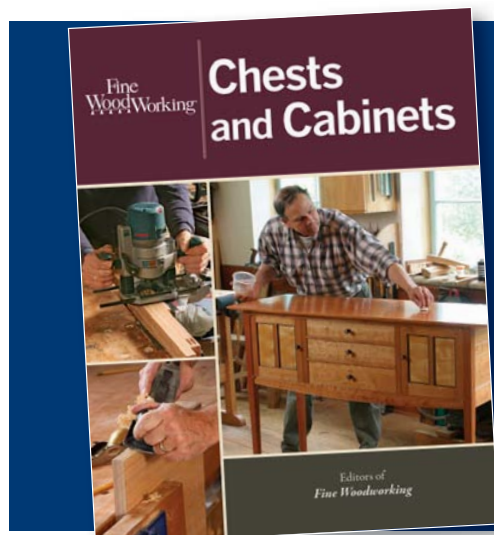


Fancy Coffins to Make Yourself

by Dale Power

At first, one is tempted to treat this book as some kind of macabre joke – the introduction informs us that 'coffin making has always been a grave matter;' however, further into the book it becomes clear that the author is serious. And we are not talking here of the currently fashionable 'green-burial' wicker coffins; this book was written in 2001. The photo on the cover is indeed a fancy coffin and the book proceeds to tell us how to make one.

The basic material for the 'casket' is 20mm plywood held together with a combination of dado and 45° locking-mitre joints. The raw-plywood top edges are trimmed with a narrow birch board section, neatly mitred at the corners. The book provides a series of detailed photographs all the way through the procedures. The 'fancy' part of the construction is the coffin lid, which is made from a series of mouldings built up, one on top of the other.



Book offer

This month, we have a great offer on the brand new book **Chests and Cabinets**, from the Editors of **Fine Woodworking Magazine**

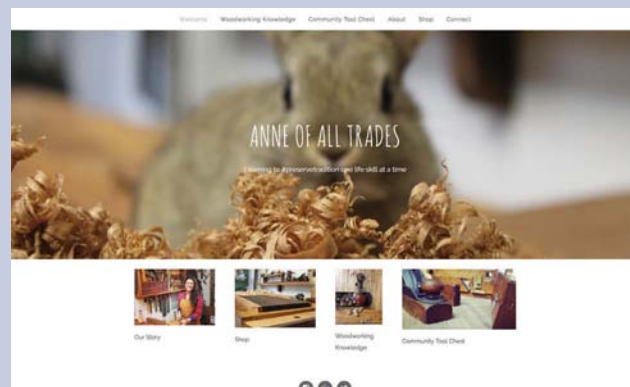
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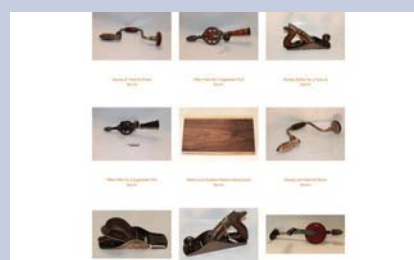
To order please call 01273 488 005 or go to www.thegmcgroup.com and quote code: R4671. Closing date is 30 January, 2015. Please note that P&P is £2.95 for the first item and £1.95 for each additional item.

Website of the month Anne Of All Trades



Anne Of All Trades is not just a website dedicated to woodworking, but also to the traditional skills through which society used to trade, all through the eyes of the website's author, Anne. Anne is trying to get back that community spirit, which has been lost through the corporate jobs we take, leading to us paying someone else to fix our problems. Anne is working through all of her own DIY, automotive, etc. problems and sharing her stories with you, in her blog. Anne and her husband run a farm in Seattle, USA, in trying to live a creative and productive life. Anne does various woodworking projects, pointing out 'woodworking is more about the relationships and community'.

The website, although ultimately on a little more complex concept and subject than the usual woodworking shop website, is simple in layout. On Anne's 'Our Story' page, she explains the reasoning behind her website and her ideas. The writing is insightful and entertaining. Under the 'Shop' tab Anne sells a range of tools and her own work. Anne also includes a 'Woodworking Knowledge' page,

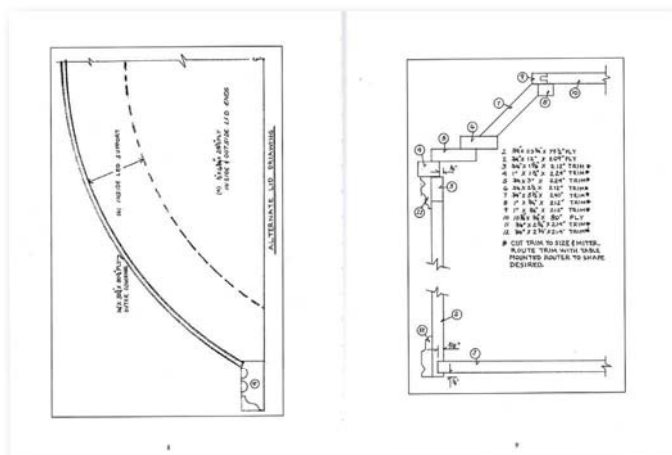


giving all she knows about the woodworking world so far. The website is certainly a fun and creative idea, most definitely not your typical woodworking shop website.



Details

Web: www.anneofalltrades.squarespace.com



Two of the many hand-drawn illustrations that the book offers



The book takes you through the various steps for completing your very own coffin

Once the lid is complete, it is cut through to provide a split-lid facility so that the deceased's head and shoulders can be displayed in the funeral parlour.

Moving on, all the hardware is covered: hinges, stays and catches. The corner brackets and the carrying handles – which give 'plenty of lifting support' – are detailed. Finishing, consisting of applying a few coats of dark walnut stain, is next and then we have the lining procedure. This is extraordinarily detailed, showing the foam and fabric which conceal a sprung bed

frame. The final pages have a gallery of photographs showing the completed project.

I am at something of a loss as to whether to recommend this book or not. Obviously aimed at the North American market, it is not clear if the final result would appeal in other countries. Thoughts of taking the book to an undertaker to discuss the finer points were resisted – that would have been a review task taken too far.

Published by Schiffer
64 pages \$14.95 (£9.15)
ISBN: 9780764312496



An example of the easy to follow step-by-step process



Kate Aughey, student. 18th Century Italian pier table, Wallace Collection.

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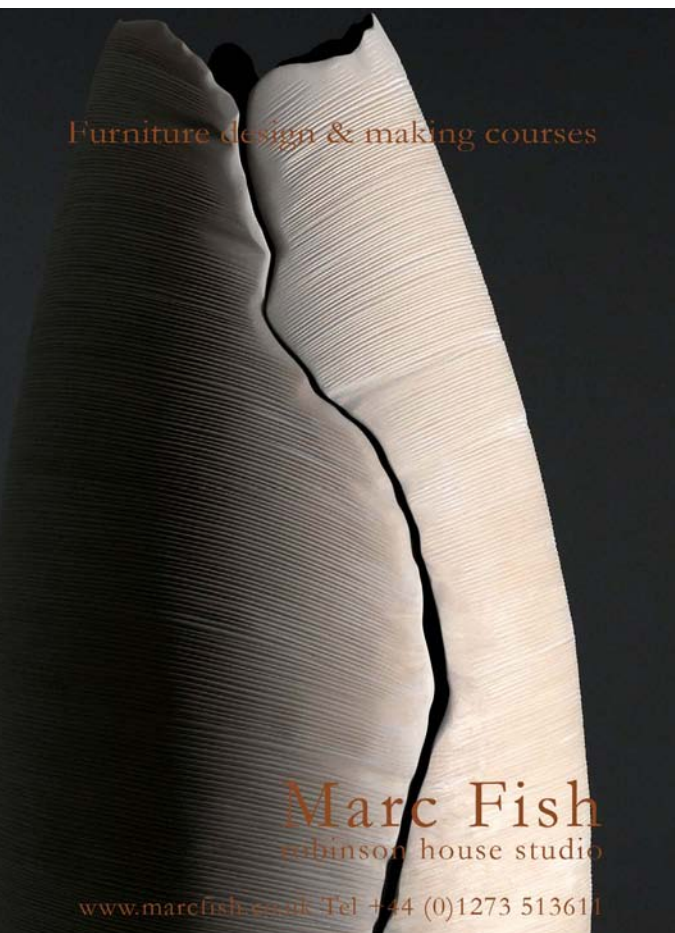
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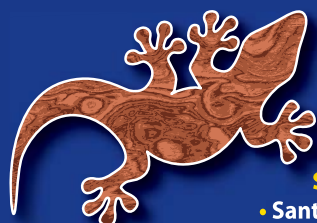
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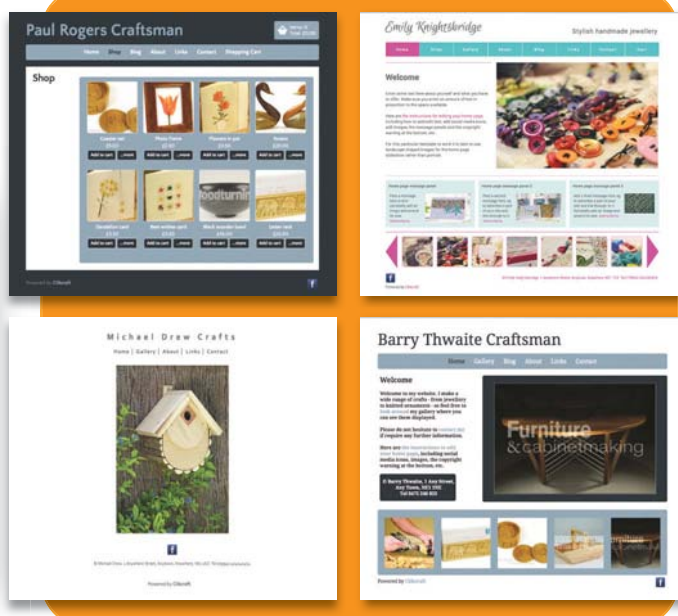
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UNDER THE HAMMER:

Count and Countess Martignone's collection

The contents of a Grand Milanese apartment and a Genoese villa with links to 13th-century Italian nobility recently went for sale at Bonhams

In the news pages of issue 223, we mentioned the upcoming auction of the contents of Count and Countess Martignone's Milanese and Genoese properties, selling off a vast collection of art, furniture and sculpture that has continued to grow over generations. But now, with the auction passed – held on 24 September, at New Bond Street, London – we look at what some of the pieces sold for. With over 500 items up for auction, the sale was expected to realise in excess of £1 million, but actually surpassed all expectations and reached a final amount of £2.4 million.

Count and Countess Martignone

The noble family were from the Como area of Italy, famous for their legendary hospitality, often holding parties in their residence at the Italian Riviera. Both Count Ettore Martignone and Countess Maria were influential in their work, Ettore an esteemed doctor and Maria one of the most influential businesswomen in post-war Italy. Both had a passion for art and antiques, which is clear in their quirky and magnificent collection that went up for auction. The historical pieces have links to 13th-century Italian nobility, with the Martignone's residence frequently visited by Kings, Popes and Prime Ministers.

Key pieces

Three of the items up for auction were a fine French, late 19th-century kingwood (*Dalbergia cearensis*) and gilt bronze mounted bombé commode, which sold for £47,500; a Florentine style pietra-dura table top, which sold for £12,500; and a pair of Italian kingwood, tulipwood (*Liriodendron tulipifera*) and marquetry bedside chests, which sold for £2,000. The highest selling item brought in a remarkable £134,500. *F&C*



A fine French late 19th-century kingwood and gilt bronze mounted bombé commode – sold for £47,500



A Florentine style pietra-dura table top – sold for £12,500

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A pair of Italian kingwood, tulipwood and marquetry bedside chests – sold for £2,000

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Precision Routing

Triton Routers are quite simply the most versatile tools in the precision woodworker's armoury. Total control over the tool and the workpiece is guaranteed with patented rack and pinion depth adjustment whilst electronic speed management delivers exactly the right level of power to the cutting face. Precision engineered innovation, without compromise on performance or safety.



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

TRA 001 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

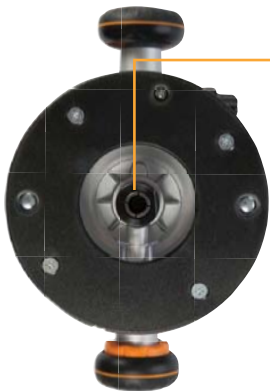


Soft Start & Variable Speed

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

DCA300	Dust Collector	Pg 88
RTA300	Precision Router Table System	Pg 90-91
BJA300	Biscuit Joiner	Pg 93
FJA300	Finger Joiner	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: 12mm & 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

Side Air Vents

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

1/2" & 1/4" (EU: 12mm & 12mm) Collets

for a greater range of bit fitment

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

Single Button Switches from Plunge to Fixed-Base Router

with rack & pinion adjustment

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	2400W / 3¼ hp / 15A
Speed	8000 – 20,000rpm Speed Maintenance Under Load
Soft Start	Yes
Electronic Speed Maintenance	Yes
Collets	1/2" & 1/4" (EU: 12mm & 12mm)
Depth Adjustment	1. Winder Handle Rack and Pinion 2. Micro Winder 3. Conventional 'Free' Plunge
Plunge Range	0 – 68mm / 0 – 2 ¹ / 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

MOF 001 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

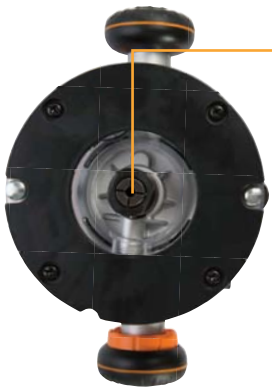


Soft Start & Variable Speed

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 Joiner	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

Single Button Switches from Plunge to Fixed-Base Router

with rack & pinion adjustment

Safety Switch Shutter

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



1/2" & 1/4" (EU: 1/4" & 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



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 / 2¼hp / 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 – 2⅝"

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

JOF 001 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

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: 12mm & 12mm) Collets
Multi-Function Fence, Collet Wrench

Easy Access Brushes

allows changing of worn brushes

Soft Start & Variable Speed

provides the perfect speed
for all cutter types

Safety Switch Shutter

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

Side Air Vents

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

1/2" & 1/4" (EU: 12mm & 12mm) Collet

for a greater range of bit fitment

Automatic Spindle Lock

engages only when the power
switch cover is closed

Fully Enclosed Guarding

provides maximum protection
from the cut zone

Quick-Fit Pins

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



Technical Specification

Power	1010W / 1 1/2 hp / 9A
Speed	8000 – 20,000rpm Speed Maintenance Under Load
Soft Start	Yes
Electronic Speed Maintenance	Yes
Collets	1/2" & 1/4" (EU: 12mm & 12mm)
Depth Adjustment	1. Micro Winder 2. Conventional 'Free' Plunge
Plunge Range	0 – 59mm / 0 – 2 3/16"

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



Powerful Cutting

Precision cutting performance directed by simple-to-use adjustments ensures total accuracy from Triton saws. Though lightweight and comfortable to use, the rigid framing controls the power output to deliver clean, laser-straight cuts every time.



Powerful Motors

with soft start for safe, smooth and accurate cuts



Precise Depth, Bevel & Alignment Adjustment

for fine tuning of the cutting angle



Ergonomic Design

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



Integral Dust Extraction Port

for a safer, cleaner working environment

Plunge Track Saw

TTS 1400 165mm / 6½"

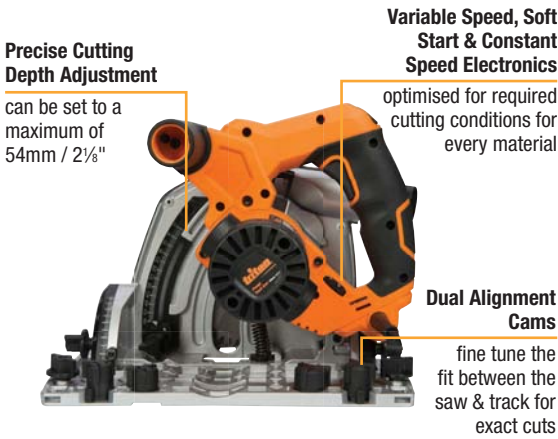
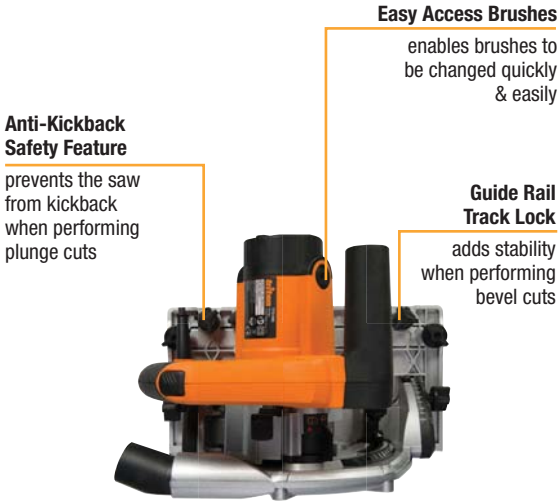
The TTS1400 Plunge Track Saw is a highly versatile, feature-packed tool with easy mode selection, fast set-up and advanced safety features.

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
TTSDS	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

Highly Efficient Dust Extraction

with universal adaptor & 360° outlet

Precision Bevel Cut

angle adjustment from 0 - 48°

Width of Cut Indicators

for exact positioning of blade on the workpiece

Fast Blade Replacement

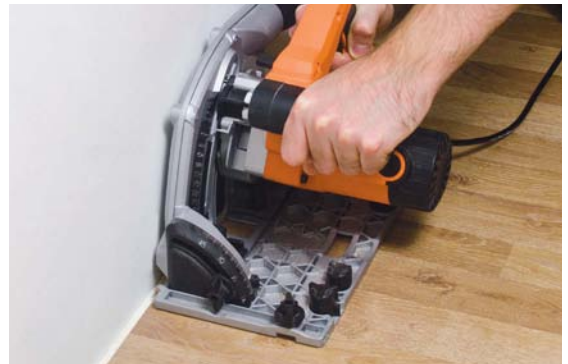
easily accessed through the blade guard

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 / 2⅜"
Depth of Cut @ 45° with Track	38mm / 1½"
Depth of Cut @ 45° without Track	42mm / 1⅞"
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.



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

Laser Line Generator

for increased accuracy,
safety & maximum
productivity



Saws



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° - 2⅜" 45° - 39mm / 45° - 1⅞"
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

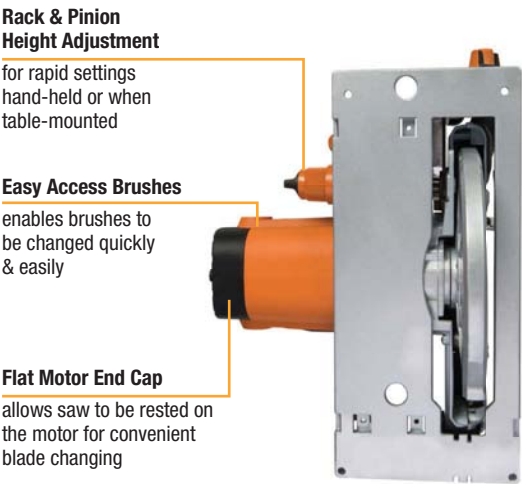
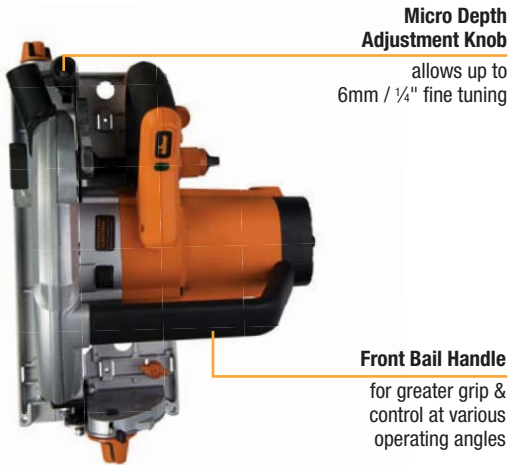
TA 235CSL 235mm / 9¼"

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 - 3¹⁵/₆₄" at 90°
enables cutting
of thick material

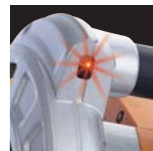
Power Neon-On

increases operator safety

LASER*

Laser Line Generator

for increased accuracy,
safety & maximum
productivity



Saws



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 / 3 ¹ / ₂ hp
No Load Speed	4500rpm
Insulation Class	Double Insulated
Blade Diameter	235mm / 9 ¹ / ₄ "
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° - 2 ³ / ₈ "
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

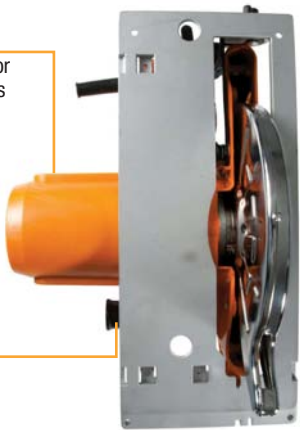
Bevelling to 45°

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

Saws



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 / 9 1/4"
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 1/32"
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

T12 DD

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 ($\frac{3}{8}$ ") keyless chuck and concealed $\frac{1}{4}$ " 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 ($\frac{3}{8}$ " Keyless Chuck & Concealed Magnetic $\frac{1}{4}$ " Bit Holder

for rapid switching between
drilling & driving

2 x 1.5Ah Li-Ion Batteries with Samsung Cells

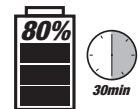
for extended runtime with
no tool downtime

Intelligent 1-Hour Charger

protects tool, batteries & charger
& minimises charge time

Fast 30-Minute 80% Charge

ensures a charged battery
pack is always available



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 / $\frac{3}{8}$ " 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

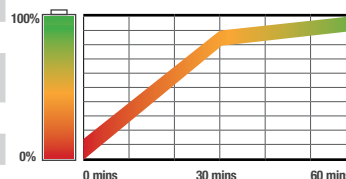
Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

Interchangeable across T12 range

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

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



tritontools.com

Impact Driver 12V

T12ID

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 1/4" 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.



Built-In LED Worklight
for clear visibility of the workpiece

Rubber Over-Moulded Grip
for secure holding & reduced vibration



Optional Accessories

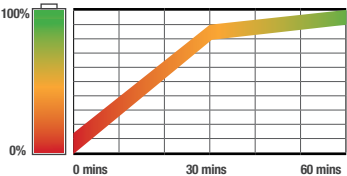
T12HCB	Triton Hi-Cap Battery 3Ah Li-Ion
--------	----------------------------------

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 1/4" Hex Bit Holder

for fast-changing of screwdriver
bits & adapters

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

Intelligent 1-Hour Charger

protects tool, batteries & charger
& minimises charge time

Powerful Mabuchi RS-550 Motor

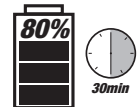
for class-leading performance & long life

Precision Metal Gearing

for long life even when used at
high speed & torque

Fast 30-Minute 80% Charge

ensures a charged battery
pack is always available



Lithium
technology

Technical Specification

Power	12V
No Load Speed	0 - 2000rpm
Battery Type	2 x 1.5Ah Li-Ion Samsung Cells
Chuck Type	6mm / 1/4" 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

T12 TP



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 ($\frac{3}{8}$ ") 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.

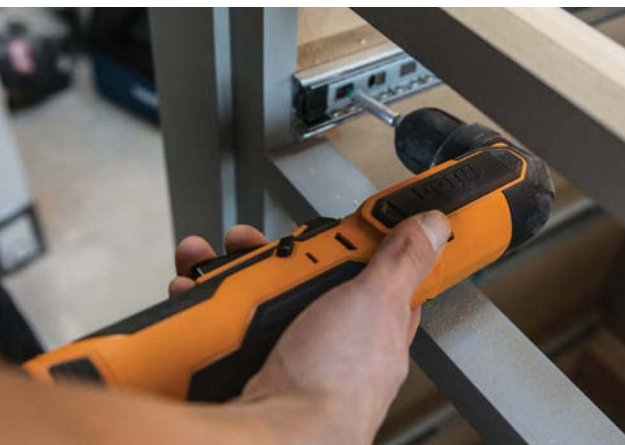
The intelligent 1-hour charger maximises battery runtime and reaches an 80% charge level after 30 minutes. A range of safety features protects the batteries, charger and the tool. Includes 2 x 1.5Ah battery packs fitted with high-performance Samsung Li-Ion cells, and is supplied with a soft case.

Built-In LED Worklight

for clear visibility in confined areas

Intelligent 1-Hour Charger

protects tool, batteries & charger & minimises charge time



Included Accessories

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

90° Drill Head & Sanou Low Profile 10mm (3/8") Keyless Chuck

for accessing confined spaces

Variable Speed Extended Length Trigger

for precise control
& multi-position handling

2 x 1.5Ah Li-Ion Batteries with Samsung Cells

for extended charge
with no tool down time

Lithium
technology



Precision Metal Gearing

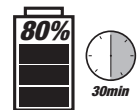
for long life even when used at
high speed & torque

Mabuchi RS-550 Motor

for class-leading performance & long life

Rubber Over-Moulded Grips

for secure holding & reduced vibration



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

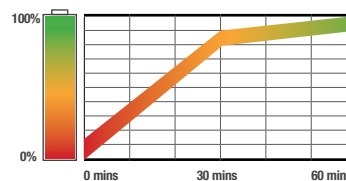
Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

Interchangeable across T12 range

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

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



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**

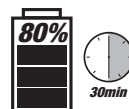
for long life even when used
at high speed & torque

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**

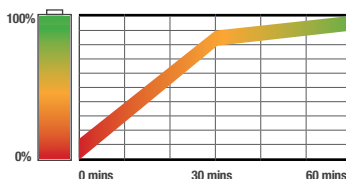
Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

Interchangeable across T12 range

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

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



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.

Built-In LED Worklight

for clear visibility in confined areas

Compact & Lightweight Design

allows single-handed operation in confined areas



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

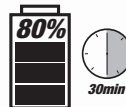
for extended life with no tool down time

Lithium
technology

Powerful Mabuchi RS-550 Motor
for performance & long life

Electric Brake
for enhanced control

Rubber Over-Moulded Grip
for secure handling & reduced vibration



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

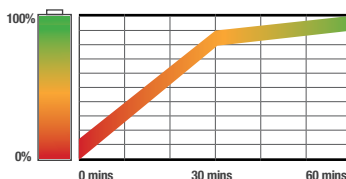
Triton Hi-Cap Battery 3Ah Li-Ion

Samsung ICR 18650 Cells
& intelligent charging system

Interchangeable across T12 range

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

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



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 toggle switch for weather resistance, and the 135° swivelling head allows light to be directed exactly where it's needed.

100 Lumens 1W LED Lamp

for high light output & long life

Rubber Coated On/Off Toggle Switch

to provide weather protection



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



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

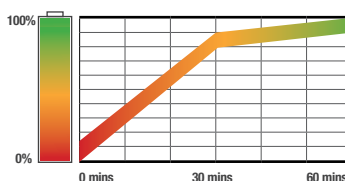
Triton Hi-Cap Battery 3Ah Li-Ion

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

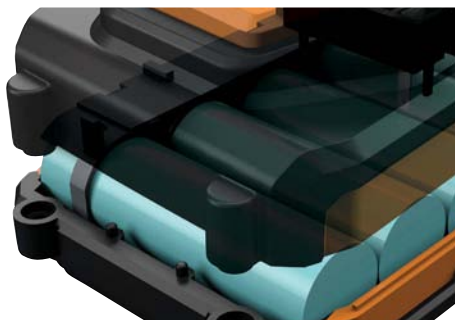
Interchangeable across T12 range





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.



Built-In LED Worklight
for clear visibility of
the workpiece

**Over-Moulded Grip for
Comfort & Control**
combined with
lightweight design
reduces fatigue during
prolonged use

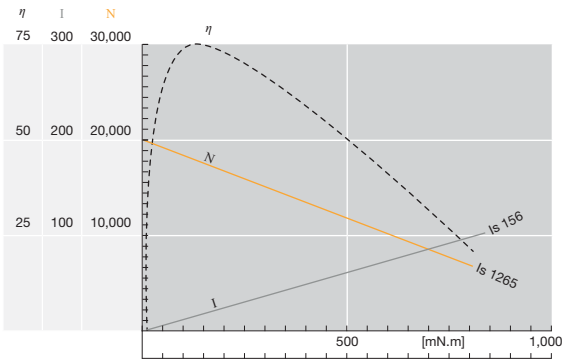
Mabuchi RZ-735 Carbon Brush Motor

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

T20 Cordless

6mm Quick-Release Bit Holder

allows rapid single-handed bit changes

Uniquely Efficient Impact Mechanism

delivers 160Nm sustained torque & 3300 impacts per minute

Compact Lightweight Design

for prolonged use in confined areas

Powerful Mabuchi RZ-735 Motor with Variable Speed & Reverse

utilises the available power efficiently for maximum runtime

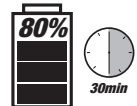
Sintered Steel, All-Metal Gears

for controlled torque & speed, delivering power to the workpiece

Belt Clip

keeps the tool to hand

Lithium
technology



Technical Specification

Power	20V
No Load Speed	0 - 2400rpm
Battery Type	2 x 4Ah Li-Ion Samsung Cells
Chuck Type	6mm / 1/4" 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.

Built-In LED Work Light

for clear visibility of the workpiece

Over-Moulded Grip for Comfort & Control

combined with Lightweight Design reduces fatigue during prolonged use



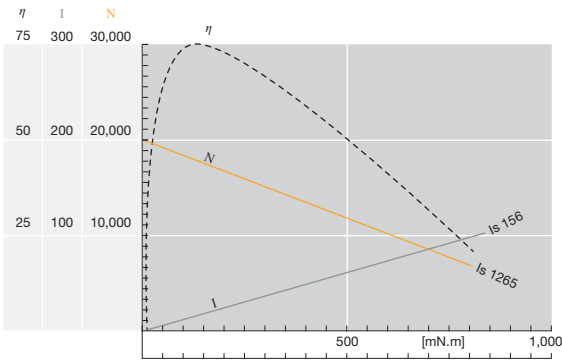
Mabuchi RZ-735 Carbon Brush Motor

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

T20 Cordless

Powerful Mabuchi RS735 Motor with Variable Speed & Reverse

utilises the available power efficiently for maximum runtime

2 Speed Sintered Steel All-Metal Gearbox

for controlled torque & speed, delivering power to the workpiece

Keyless Single Sleeve 13mm / ½" Sanou Chuck

for rapid tool-free bit changes

19+1 Torque Settings

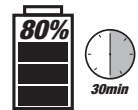
for controlled driving with a wide variety of materials & screw settings

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 / 1/2" Sanou chuck allows compatibility with all commonly-used drill bits and accessories.



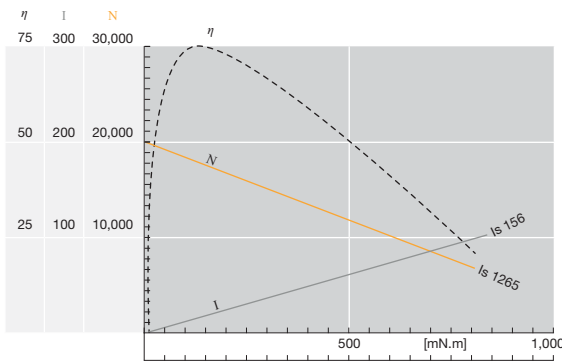
Built-In LED Worklight
for clear visibility of the workpiece

Over-Moulded Grip for Comfort & Control
combined with Lightweight Design reduces fatigue during prolonged use

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

T20 Cordless

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

Compact Lightweight Design

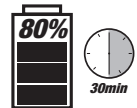
for prolonged use in confined areas

Belt Clip

keeps the tool to hand

2-Speed Sintered Steel All-Metal Gearbox

for controlled torque &
speed, delivering power to
the workpiece

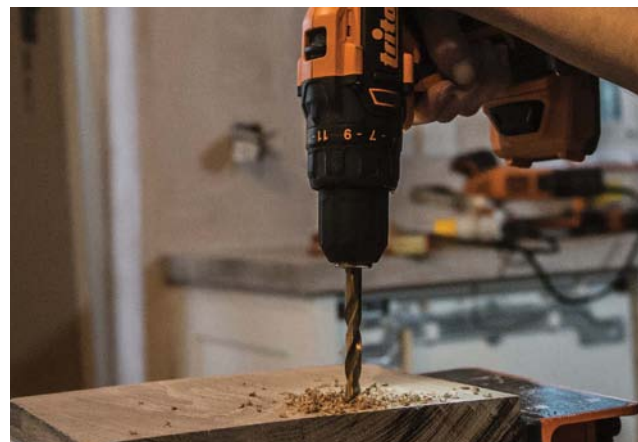


Lithium
technology



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)





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

TCM BS 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.

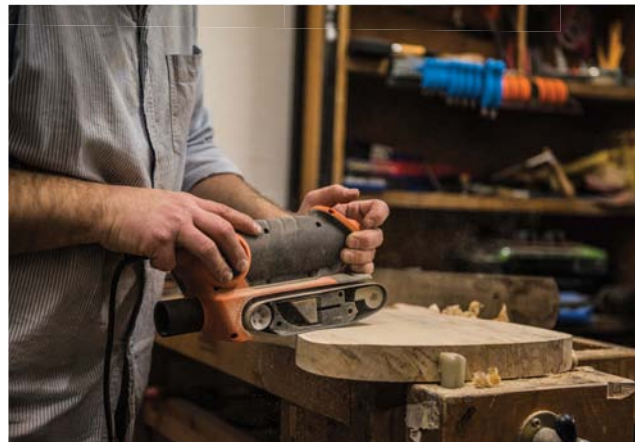
Fitted with a comfortable, over-moulded grip and dust extraction port for safe, clean working, the Triton Palm Sander is designed for on-the-spot convenience and makes light work of most common sanding applications.

On-Off Power Switch
to reduce user fatigue

Flush Side
for sanding up to the edge of the workpiece

Small Diameter Front Roller

allows sanding in confined areas



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



Belt Tracking Adjustment

enables the
sanding belt to
be re-centered

Dust Extraction

for a cleaner, safer
working environment



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



Variable Speed Control

improves versatility when
working with different
workpieces

Powerful 1200W / 10A Motor

for rapid stock
removal

Easy Access Brushes

allows changing
of worn brushes

Belt Tracking Adjustment

for accurate alignment of
the sanding belt



Technical Specification

Power	1200W / 1½hp / 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.

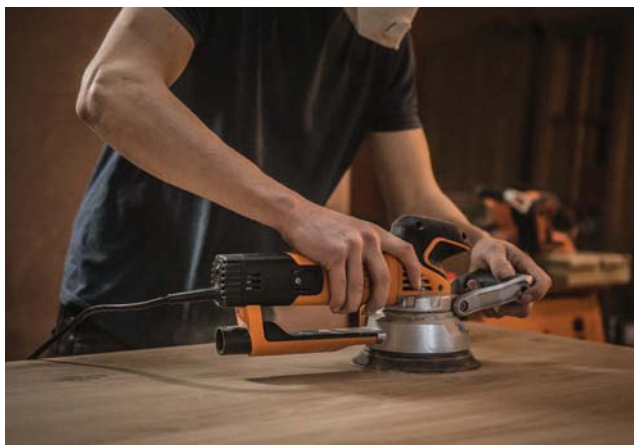
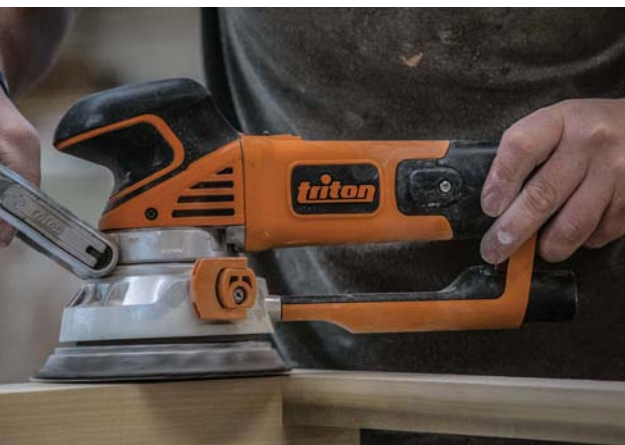
Rubber Over-Moulded Grip

provides comfort & grip for extended use



Powerful 500W Motor

provides ample power for the most demanding sanding & polishing tasks



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

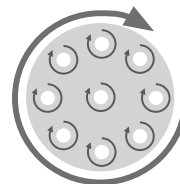
Technical Specification

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

Free-Run Mode:



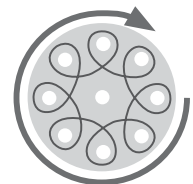
Fine sanding with low material removal



Fixed Orbit Mode:



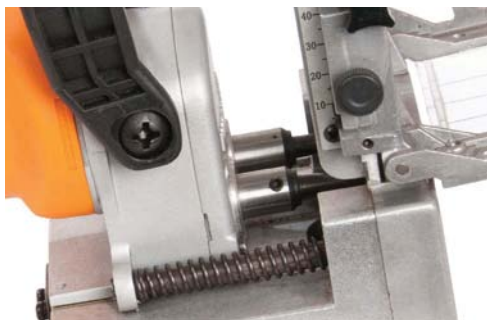
Coarse sanding with high material removal & buffing





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.



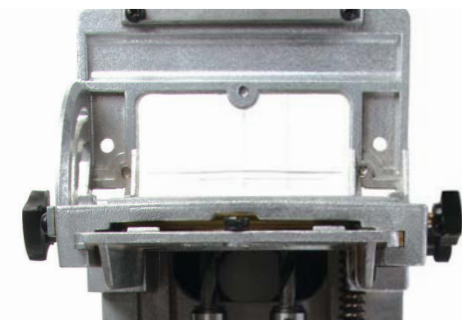
Precision Rack & Pinion System

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

TDJ 600 600W / 5A

Offering precise control of height, depth and angles, the TDJ600 Duo Dowel Jointer drills two holes at 32mm / 1 1/8" 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



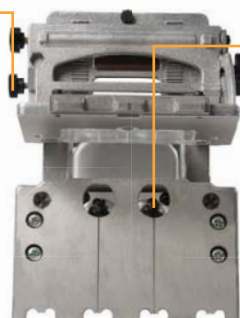
Angle Adjustment
0° - 90°

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 / $23\frac{3}{64}$ - $1\frac{11}{16}$ "
Drilling Depth	0 - 38mm / 0 - $1\frac{1}{2}$ "
Drill Bit Spacing	32mm / $1\frac{1}{8}$ "
Weight	3.3kg / 5.9lbs

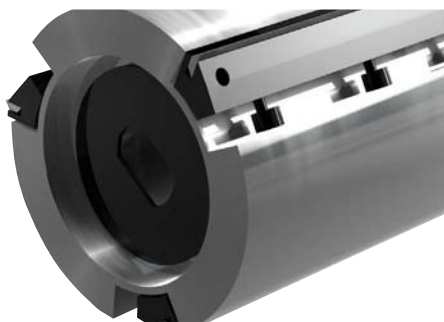
"With one smooth, simple action the Triton Duo Dowel Jointer cuts two perfect dowel holes straight, or at an angle, into the edge or surface of a material."

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



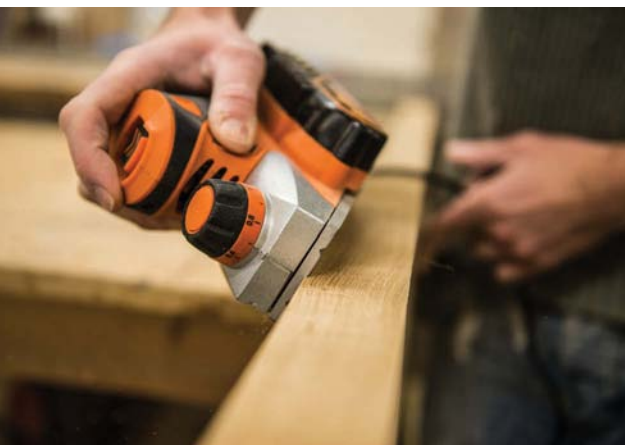
3 Bevelling Grooves

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



Stepped Depth Control

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

Parking Stand

protects the blades & workpiece from damage on run down



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

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

Système D Magazine

Optional Accessories

TCMPLB60	60mm / 2 3/8" Planer Blades x 2
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Unlimited **Rebate Planer**

TRP UL 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 / 0-1/8" 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

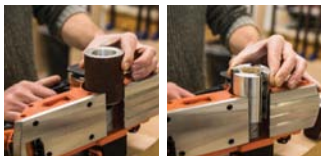
adjusts the drum speed to suit the material

Bail Handle

for improved ergonomics & increased control

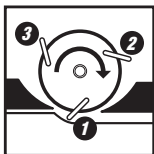
Spindle Lock Button

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 / 1/8"
Planing Width	82mm / 3 1/4"
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

TPL 180 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.

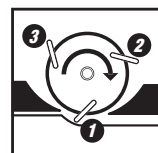
Power-On Neon
indicates a live power connection

Powerful 1500W Motor
for heavy duty planing of the toughest wood surfaces

Dust Port
for connection to a dust extraction system

Revolutionary 3-Blade Drum Design
for faster, smoother cuts & a superior finish

10-Position Depth Control Dial
sets the cut depth from 0 – 2mm / 0- $\frac{3}{32}$ "



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



180mm / 7"

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
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"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.



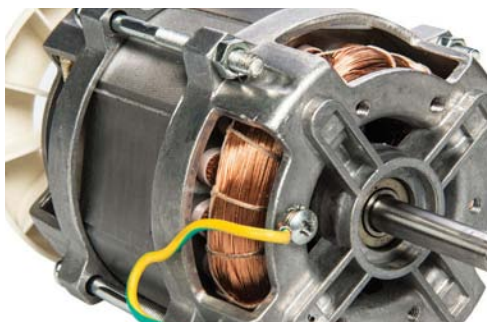
Solid Construction

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.

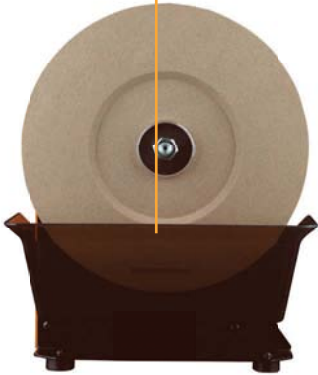
Used in conjunction with the supplied honing compound, the leather honing wheel delivers a finely polished finish, ideal for hand tools, knives, plane irons, chisels and other wood-carving tools.

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.

Water Trough

keeps the stone wet & the grinding surface cool, preventing overheating



Smooth 120W / 1A Induction Motor

provides quiet & efficient operation

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
TWSC TJ	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

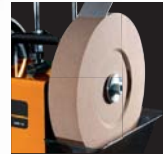


Leather Honing Wheel

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 1 1/16"
Weight	13kg / 29lbs

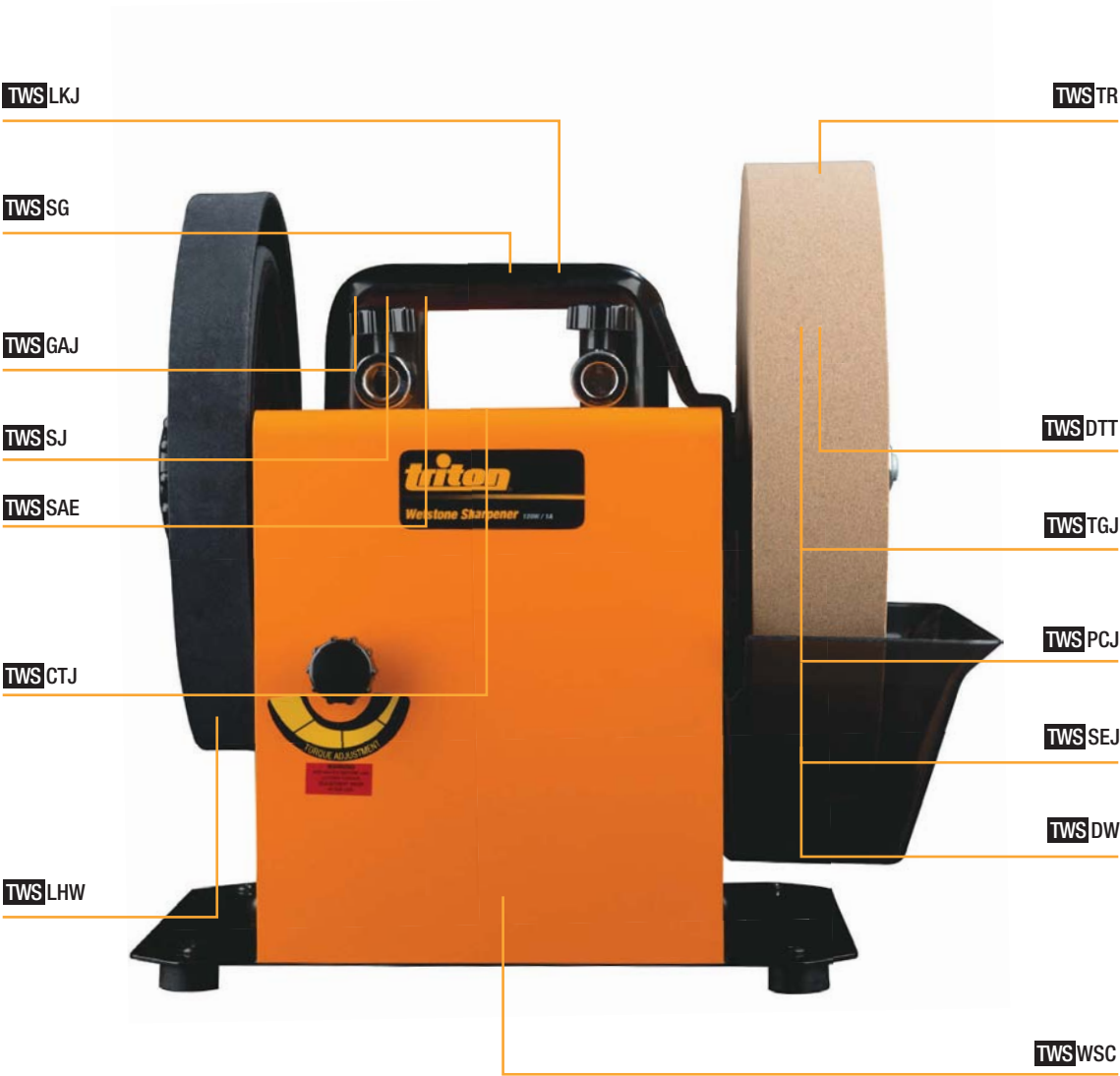


Optional Accessories

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.

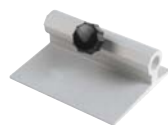




TWSLKJ

Long Knife Jig

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



TWS TR

Tool Rest

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



TWS SG

Stone Grader

For dressing the grinding stone.



TWS DTT

Diamond Truing Tool

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



TWS GAJ

Grinding Angle Set-Up Jig

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



TWS TGJ

Turning Gouge Jig

For controlled, accurate sharpening of woodturning tools.



TWS SJ

Scissors Jig

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



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 SAE

Support Arm Extension

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



TWS SEJ

Straight Edge Jig

Maintains correct sharpening angle. Easy, accurate tool fitting.



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 DW

Pre-Dressed Coated Grindstone

High-grade grindstone that sharpens steel edges efficiently and reliably.



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 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.

Dust Port

connects to an extraction system for a cleaner & safer working environment



Includes 6 Sanding Sleeves

13-76mm dia with matching drums



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 ⅛"
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 Sanding Sleeves 60/80/100/150/240 Grit
TSS19MM	19mm Sanding Sleeves 60/80/100/150/240 Grit
TSS26MM	26mm Sanding Sleeves 60/80/100/150/240 Grit
TSS38MM	38mm Sanding Sleeves 60/80/100/150/240 Grit
TSS51MM	51mm Sanding Sleeves 60/80/100/150/240 Grit
TSS76MM	76mm Sanding 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 / 1 1/2hp
Cuts Per Min	17,500
Planing Depth	3.2 - 150mm / 1/8" - 6"
Planing Width	380mm / 15"
Table Size	317 x 320mm / 12 1/2" 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



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

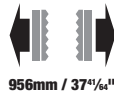


Finishing

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 1/4"



SOLID STEEL



1000KG CLAMPING FORCE



100kg 220lbs

Optional Accessories

SJA460	Log Jaws
SJA470	Engineers Jaws
SJA420	Tool Tray



Reversible Sliding Jaws

allow for extra-wide 956mm / 37⁴¹/₆₄" clamping width capacity

Powerful 1 Tonne Clamping Force

allows application of as much or as little clamping pressure required

Tripod Base

for all-terrain stability

Urethane Jaw Facings

provide a protective, slip-resistant grip



Folds Down

for storage & transport



Stand Alone Design

allows 360° 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 30 ¹ / ₂ x 11 ¹ / ₂ "
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

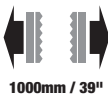


Sanding & Finishing

Tough, All-Steel Construction
holds up to 250kg

Lock / Release Switch
allows fast, trouble-free release of the jaws

Foot-Operated Clamping
frees hands for full control of the job



1000mm / 39"



SOLID STEEL



1000KG
CLAMPING
FORCE



250kg
550lbs

Optional Accessories

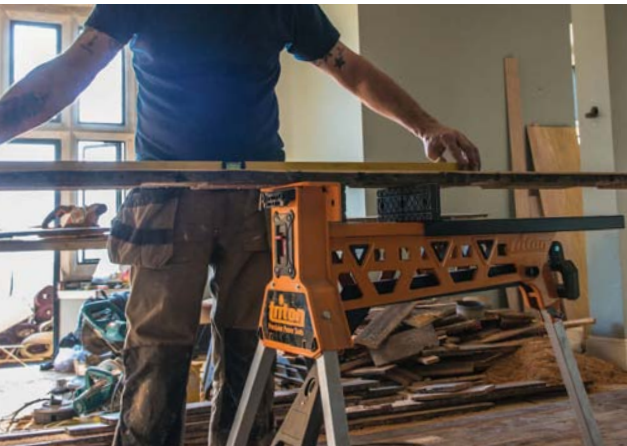
SJAEB	Extension Bars
SJABC	End Stops
SJASS	Standard Side Support
SJARD	Roller Support
SJA420	Tool Tray

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.



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

Tripod Base

for stability & safe operation on uneven surfaces

Improved Frame & Leg Design

allows setting up & folding down in seconds

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.

Low Friction Slide Surfaces

provides smooth controlled travel without unwanted 'steering'

Head Pivots

from horizontal to vertical

Supports

Max 100kg / 220lbs

Height Adjusts

from 635 - 940mm / 25 - 37"

Extra-Wide Tripod

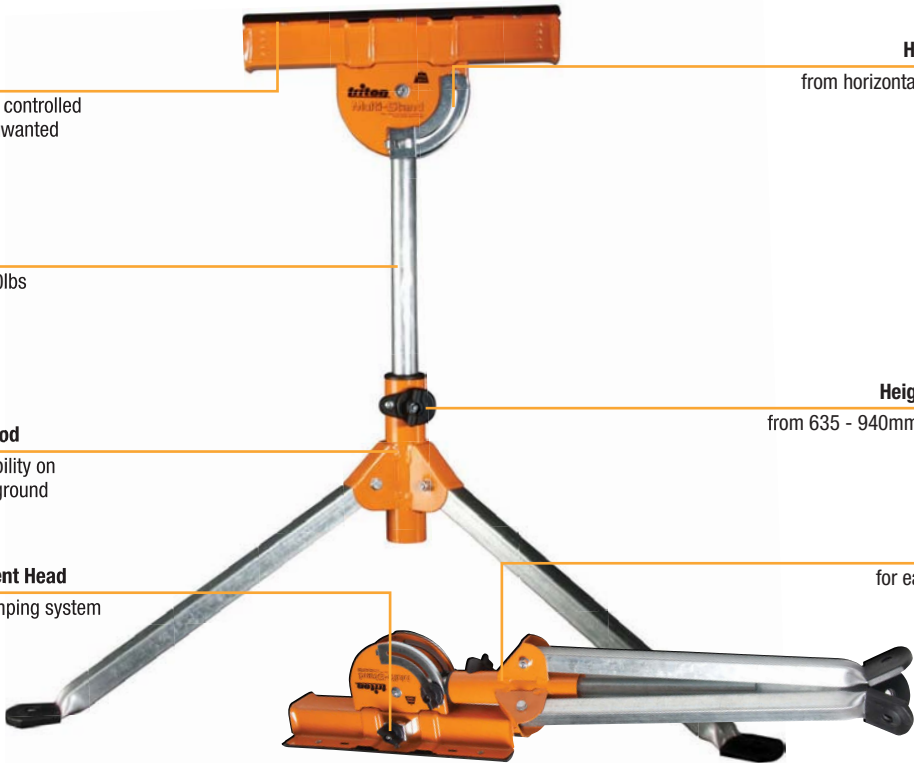
for excellent stability on level or uneven ground

Angle Adjustment Head

with built-in clamping system

Folds Flat

for easy storage



Technical Specification

Max Load	100kg / 220lbs
Height Range	635 - 940mm / 25" - 37"
Angle Adjustment Range	Vertical Through Horizontal
Weight	6.2kg / 13.6lbs



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



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

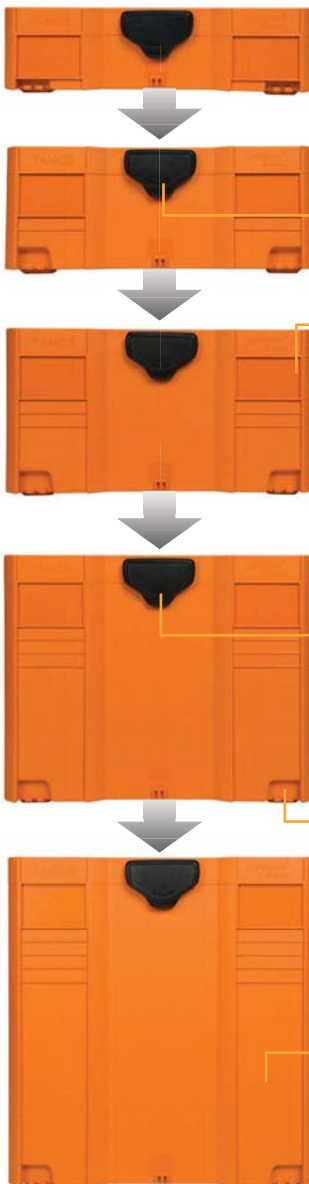
210 x 396 x 296mm

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 / 4 ¹ / ₄ " x 15 ¹⁹ / ₃₂ " x 11 ²¹ / ₃₂ "	75 x 383 x 273mm / 2 ⁶¹ / ₆₄ " x 15 ⁵ / ₆₄ " x 10 ³ / ₄ "	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 ⁷ / 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 / 15 ¹ / ₆ " x 15" x 10 ⁷ / ₁₆ "	2.7kg / 6lbs



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

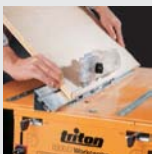
Series 2000 Workcentre System

WCA 201

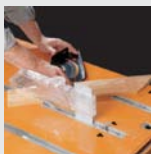
The Series 2000 Workcentre offers superior versatility and portability, and with the addition of Triton accessories, becomes a complete woodworking system.

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" - 24½" Crosscut: 0 - 500mm / 19½" 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
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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 / 24¹³/₁₆" 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 / 19¹¹/₁₆" 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.

WCA 390

AJA 150

RTA 300

BRA 200

EPA 001

ETA 100

ETA 300



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 / 9 1/4" 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 1/4" or 1/2" 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 1/4" or 1/2" Router can be installed.

By adding other accessories, the system will perform jigsaw cutting, biscuit jointing and finger jointing.

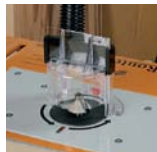
Fitting the Triton Router Table (RTA300) to the Triton Workcentre or Router Stand adds a whole new dimension to woodworking, allowing shaping, planing, rebating, trenching, moulding and grooving.

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

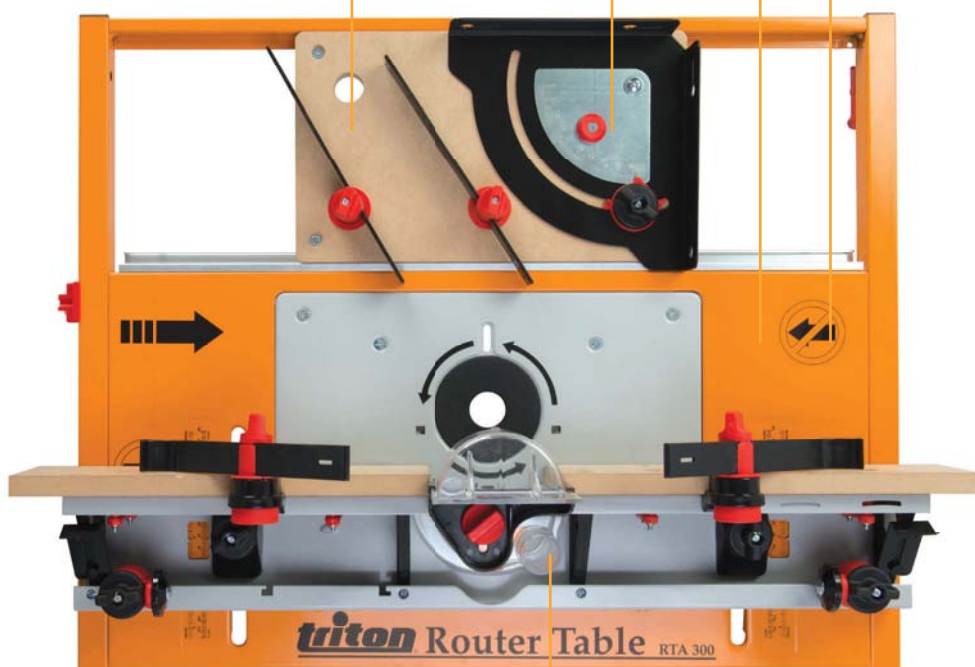
Engineered to perform with precision and simplicity in mind, these accessories are perfect companions to Triton power tools. And for added flexibility, each accessory is supplied with additional fittings for compatibility with almost any brand of power tool.

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 $\frac{1}{4}$ " & $\frac{1}{2}$ " joints in any board thickness from 3mm / $\frac{1}{8}$ " to 32mm / $1\frac{1}{4}$ "
- 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 $\frac{1}{4}$ " & $\frac{1}{2}$ " 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
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“Anyone who buys a Triton becomes a Tritonite and wouldn't swap it for anything else.”

Woodworking Plans & Projects Magazine

Saw Table

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 Ripping Guide	Pg 89
DCA250, DCA300	Dust Collection	Pg 88

Join the Triton Global Community

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.



Media Centre

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.

Mobile Apps

Discover Triton with our fantastic mobile App.

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- Browse the full range of Triton products and accessories
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- Keep in touch on Facebook and let us know what you're doing in your own workshop. [Facebook.com/TritonPower](https://www.facebook.com/TritonPower)
- Share your woodworking triumphs with the world and keep up with the conversation with a tweet to Triton. [Twitter.com/Triton_Tools](https://twitter.com/Triton_Tools)
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