

FESTOOL

MAGAZINE.

#1

THE EDITION FOR CARPENTERS
AND JOINERS

SUMMER
2020

HAND - WORK - TOOL

THIS EDITION IS ALL ABOUT
YOUR MOST IMPORTANT TOOLS:
YOUR HANDS!



**SAW
STOP!**

FOCUS THE NEW TKS 80 BENCH SAW WITH SAWSTOP TECHNOLOGY 04
KNOW-HOW DUST-FREE WORK WITH THE OPTIMAL EXTRACTION SYSTEM 20
TOOLS NEW SCREWDRIVER FAMILY WITH NEW LITHIUM-ION BATTERY PACK 26
LOOK INSIDE WHY FESTOOL TOOLS FIT PERFECTLY IN YOUR HAND 40
TOOL TIP THE CT WINGS VACUUM CLAMPING UNIT IS LIKE HAVING A THIRD HAND 50

EDITORIAL

Dear Readers,

Festool customers are known for wanting to know all there is to know. What's new? How can I simplify my work even more? What can I do to make my work safer and cleaner? Or: what else is going on in the industry and what are my colleagues up to? You'll find these answers and more in our new **magazine for carpenters and joiners**. It's the magazine for anyone who wants to know all the details and is looking for some inspiration.

This first issue showcases the launch of the new Festool **TKS 80 bench saw** with innovative **SawStop technology**. This new technology makes sawing safer by protecting your most valuable tool: your fingers. Our **new cordless screwdrivers and drills** have been given a bit of 'live cell therapy' thanks to the **Li-HighPower Compact battery pack**, with high-current resistant battery cells that deliver 30 % more endurance and power. Plus, in this issue learn why **working dust-free** is not just a luxury, but a must – and one that pays off in more ways than one.

Our new magazine gives you all this and more. We hope you feel inspired!

Sincerely,

A handwritten signature in black ink, appearing to read 'Barbara Austel', written in a cursive style.

Barbara Austel
General partner of Festool GmbH

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Your hands deserve to be protected.
And we do our best to do just that.
With SawStop technology, Festool is
once again setting new benchmarks
in safety. So you can count on all ten
of your fingers.

Text: Ralf Christofori | Photography: Thomas Baumann, Roger Nellsjö, Torben Jäger, Annette Kuhls

**SAW
STOP!**



Your fingers – invaluable!

With SawStop technology for your safety



It can happen so fast – when you're sawing under pressure, when a colleague rings you mid-job or when your mind is simply somewhere else. It's a matter of just fractions of a second. Just one small slip can cost you a finger – and in the worst-case scenario, even your job.

It's not just relevant accident statistics that confirm this occupational hazard for carpenters and joiners – even just day to day, the danger is ever present. But it's an enormous help when you can reduce the risk of the most serious cutting injuries during sawing. That is exactly what the SawStop technology does. It is designed to protect the most valuable tool any craftsperson has: their fingers.

The SawStop technology was invented by American Dr Steve Gass, who founded his own company based on the idea. Driven by the question of how to make sawing safer, this patent agent and hobbyist woodworker created a product that he then turned into a system ready for series production. The SawStop technology has already saved more than 6,000 fingers in the USA since then.

The company SawStop LLC joined the Tooltechnic Systems (TTS) Group as an independent company and 100% subsidiary in July 2017. While SawStop continues to deliver high-quality bench saws to the American market, Festool is now bringing the intelligent SawStop technology to Europe. For customers and their safety.



THUMBS UP

Have you tried working without your thumbs? Without them we can't grip anything. They are the most agile and strongest fingers we have – and also the most at risk. So give it your seal of approval: thumbs up for the new SawStop technology!

0.005



The SawStop system reacts in just five milliseconds. Five times faster than any airbag.

16

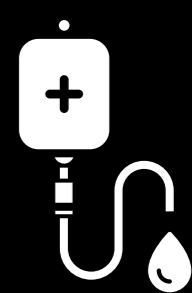
corresponding to 16 injuries per working day.

4,000

Every year approximately 4,000 people are injured on circular saws.*



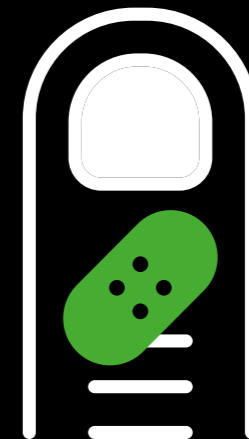
26



Around 26% of serious accidents even result in an accident pension.

The five fingers on each of our hands are our most important tools. With 150 touch receptors per square centimetre, our fingertips have more touch sensitivity than any other area of our skin. Because they are so sensitive, they are also extremely valuable.

JUST ONE SMALL SLIP AT THE SAW CAN COST YOU A FINGER – AND IN THE WORST-CASE SCENARIO, EVEN YOUR JOB.



6,000

The SawStop technology has already saved more than 6,000 fingers in the USA.

* Source: German Social Accident Insurance (DGUV) statistics 'Accidents at work 2017'

Added safety

SawStop technology and Festool DNA

08

BG BAU
AWARD 2019

SawStop 

T

The SawStop technology is a highly complex total system. The sensitive sensors detect conductive materials, and the intelligent electronics permanently monitor the operating status of the saw. Upon contact with human skin, a cartridge is released that drives an aluminium block into the saw blade with the help of a spring. All of this happens in the blink of an eye: the saw blade stops and disappears from the danger zone within just five milliseconds.

The TKS 80 is the first Festool saw with the innovative SawStop technology. And since Festool always considers things within the context of systems, head developers Matthias Kübeler and Andreas Sdrzallek prioritised the perfect integration of the technology. 'Our top motivation was that we were developing a product for tradespeople that would make their work significantly safer,' Andreas Sdrzallek recounts. Matthias Kübeler adds: 'In the end we developed a really good saw with typical Festool DNA.'

The panel of judges for the EuroTest award, which is presented by the German accident prevention and insurance association for the building industry (BG BAU), agree: in April 2019 they presented the SawStop technology in the TKS 80 the award for 'excellent services in occupational health and safety'.

**'WE WERE EXTREMELY
MOTIVATED TO INTEGRATE
SUCH FANTASTIC TECHNOLOGY
IN THE SAW SO THAT TRADES-
PEOPLE WOULD BENEFIT.'**

Matthias Kübeler, Festool developer



↑ Festool developers Matthias Kübeler and Andreas Sdrzallek test the new TKS 80 bench saw with innovative SawStop technology.

FIND OUT MORE

Read the Tech Talk interview with Andreas Sdrzallek and Matthias Kübeler on the new TKS 80 in our blog:
» www.festool.com/blog/inside/tech-talk-tks-80

The SawStop story

A conversation with inventor Steve Gass

The American state of Oregon has a lot of forest and a thriving wood processing industry. So it's no wonder that a clever man from Portland came up with the SawStop technology. We spoke with Dr Steve Gass about his idea.

FM: How did you come up with the SawStop technology for bench saws?

SG: I was working as a patent agent in a law firm in Portland and had been doing woodworking as a hobby for many years. I was in my workshop one day and I thought, 'What if you could stop a saw blade fast enough to prevent bad injuries?' At the time the SawStop idea came to me, I already knew lots of carpenters who had had serious accidents involving bench saws.

FM: How many hot dogs were sacrificed before the technology worked reliably?

SG: I did the first tests with my prototype, where I used my finger but only touched the side of the saw blade, not the teeth. Later I used hot dogs to test the function with the teeth. We went through a whole lot of packs of hot dogs during testing. That said, the technology was really reliable from the start – the hot dogs only had tiny scratches.

FM: Do you get fan mail from people whose fingers your technology has saved?

SG: I can think of two cases in particular: a mother from Chicago whose 15-year-old son came home safe from a school woodworking class with both thumbs thanks to the SawStop technology in our saw, and a letter that came in really early on, from a man who had lost two fingers to a saw because it didn't have our technology. He sent us a simple diagram where he traced out his hand with the missing fingers and described the life-long consequences. That was one of the most moving letters I have ever received.



DR STEVE GASS

Patent agent, PhD physicist and one of the four founders of the company SawStop LLC based in Portland, Oregon, USA.

Innovation in a system

The TKS 80 bench saw with SawStop technology

10

11

1



Extreme precision
The TKS 80 makes precise cuts up to an 80 mm cutting height possible. There is less splintering on the upper side of the material in longitudinal mitre cuts due to swivelling the saw blade to the left.

2



Fast saw blade and cartridge change
After the cartridge has been triggered, it's quick and easy to get the bench saw ready for use again. You just need a new cartridge and a new saw blade: take off the cover, loosen the saw blade together with the cartridge and replace – done!

4



Intelligent electronics
The intelligent electronics in the SawStop controls permanently monitor the operating status of the bench saw. When the green LED lights up, the SawStop technology is ready for use. It can also be deactivated if necessary – such as when conductive materials are going to be cut with the saw

REMAIN VIGILANT
Even with the SawStop technology, you should always remain vigilant when working on the TKS 80 bench saw – do not get complacent! The technology is only the last point of defence for better protection in case something happens despite precautions.



3



Reliable material testing
The sensitive sensors of the integrated SawStop technology ensure safe sawing of non-conductive materials. To prevent accidental triggering, if in doubt the material to be cut should be tested for conductivity while the saw blade is stationary. If the red LED lights up, the function will trigger during running operation.

5



Lightning-speed response
At the core of the SawStop technology is a cartridge that drives an aluminium block into the saw blade with the help of a spring. The saw blade stops within five milliseconds and disappears from the danger zone on contact with human skin.



www.youtube.com/user/festool

Scan the QR code and see the SawStop technology in action.

**'I THINK IT'S FANTASTIC
THAT THERE IS FINALLY
A MACHINE ON THE MARKET
WITH THE TECHNOLOGY
ACTUALLY INSTALLED –
IT'S NO LONGER JUST
THEORETICAL.'**

Markus Michalski, carpenter, Raumdynamik,
Lichtenwald, Germany

**'THERE IS GREAT PEACE
OF MIND IN KNOWING
THAT IF SOMETHING
HAPPENS YOUR FIN-
GERS ARE STILL SAFE
AND ATTACHED.'**

Daniel Knoblauch, carpenter, Raumdynamik,
Lichtenwald, Germany

Customers are best placed to know whether a product does what it says it will do. The new TKS 80 with SawStop technology clearly impressed all of our test customers.

A worthy investment

Added value that truly adds value

T

The new TKS 80 bench saw also achieves impressive precision and cutting quality, of course: with 80 mm cutting height and a precise angle stop, this saw can do anything. There is less splintering in longitudinal mitre cuts due to swivelling the saw blade to the left. It also comes with an extensive range of system accessories, such as the work surface that is extendible in length and width, or the sliding table for mitre cuts up to 920 mm. But most professionals are raving about the SawStop technology. Initial scepticism and curiosity have since given way to appreciative enthusiasm.

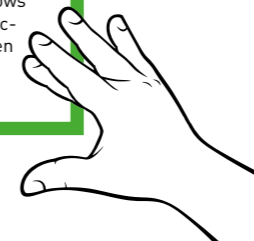
It's no wonder that Festool product manager Tobias Beisbart shares this enthusiasm: 'The TKS 80 is the first portable bench saw on the market in Europe with technology of this type. It gives us a unique opportunity to make the lives of tradespeople safer and therefore offer them better protection. And we want to continue investing in this.' The investment in a new TKS 80 with SawStop technology certainly does pay off, especially for companies that work with wood day in, day out. After all, in this trade every finger counts – every grip, every bit of performance, every employee. Their health is invaluable.

'I SHOULD HAVE DONE EVERYTHING POSSIBLE TO GET THIS SAW. SINCE BEING INJURED I'VE BEEN LIMITED IN EVERYTHING.'

Johannes Feldhoff, M&M Zimmerei, Malmö, Sweden

DUST-FREE

Health and safety take top priority in the day-to-day work of a wood workshop. And that means more than just keeping your fingertips intact. Protection against harmful dust is important, too. That's why the new TKS 80 bench saw follows the mantra: efficient dust extraction is essential, especially when it comes to wood dust!



TKS 80



TKS 80 BENCH SAW

- > **Added safety.** The first Festool saw with innovative SawStop technology for greater safety during sawing. The saw blade stops instantly and disappears into the work surface on contact with skin. The risk of serious cutting injuries is reduced.
- > **Greater flexibility.** With a cutting height of up to 80 mm, extendible work surface, longitudinal stopper and angle stop, the TKS 80 is extremely variable, even with large workpieces.
- > **More precision.** Less splintering on the upper side of the material in longitudinal mitre cuts due to swivelling the saw blade to the left.
- > **Improved health.** The dust-extraction attachment with CLEANTEC dust-extraction sleeve keeps dust levels low while you work and provides a clear view of the workpiece.

FIND OUT MORE

Found out all about the new TKS 80 bench saw and the SawStop technology on our website:
» www.festool.com/sawstop

ANY TIME, ANYWHERE

DUST-FREE

Whether you work in a workshop or on a construction site, you'll find the right Festool CLEANTEC mobile dust extractor for any job and any dust category. And those who really value a clean job should check out our new CT 15 cleaning dust extractor.

Text: **Anja Soeder**
Photography: **Torben Jäger, Thomas Baumann**

W

Wood is a wonderful material. It is a living thing, it feels good and it even smells good. That said, it should not be inhaled. They say where wood is chopped, splinters must fall – but that's true not just for chopping, but for routing, sanding and sawing. The finer the sawdust, the more precautions you should take. It is especially dangerous when renovating wooden doors or windows that are already coated or painted, as then dust particles are released that in the worst-case scenario may even contain unknown substances.

That's why you should always aim to work dust-free. It's not a luxury that you earn – it's a must that pays off with three benefits in one: with the dust-extraction systems from Festool, your work is cleaner and you can protect your tools. But the real benefit is the protection you get from health hazards or even harmful substances. And when we say system, we mean it. The machine, hose and mobile dust extractor all come together to form a perfectly coordinated unit.

Healthy working with a system

The dust is extracted right at the machine where it is created: on the saw blade, sanding pad or router. We have continuously optimised the hose over the years, so that it transports the dust as effectively as possible without hindering your work. The heart of the system clearly beats strong in our CLEANTEC mobile dust extractors, which we have developed for every purpose and every dust category. The various models have different suction power and container sizes, are available in compact format and can even be carried over the shoulder.



Festool mobile dust extractors

A small selection for any application and dust category

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We have compiled a selection of CLEANTEC mobile dust extractors for carpenters and joiners here. The newest member of our large extractor family is the new CT 15 cleaning dust extractor. When you want to leave customers or workshop visitors with a particularly clean impression of your work, the CT 15 of an absolutely reliable companion. All other CLEANTEC mobile dust extractors are optimally designed in quality and versatility for dust extraction for different tools – depending on the application, dust category and workplace.

Did you know that Festool is the only power tool manufacturer that develops its own mobile dust extractors and produces them in Germany? For good reason. After all, the main factor in determining suction power and performance is the perfect coordination of the mobile dust extractor and the tool as part of one system. We put our heart and soul into doing just that. To protect your health.

CT 15

The ideal cleaning force
Ideal for cleaning construction sites, workshops or offices, as well as your vehicle.

Application: the CLEANTEC CT 15 has a generous capacity and extracts dust, dirt and even water.



CTL SYS

The portable service extractor
For mobile use during smaller assembly and servicing jobs, including on scaffolding or a ladder.

Application: for low amounts of dust and coarse dust particles, like those created during retrofitting work.

CT MINI & MIDI

The compact on-site extractors
Our compact, mobile, sophisticated companions for assembly, installation and renovation work.

Application: perfectly extracts dust for all required tools and devices, for example, during a typical furniture assembly job.



CTM 26/36 AC HD

For high dust volumes
The extractors for routing and sanding with high material removal, where an especially large amount of fine dust is produced.

Application: the larger hose diameter makes it especially suitable for devices like the RG 130 diamond grinder for preparing the substrate before laying parquet, for example.



CTM 26/36/48 E

The workshop and on-site extractors
The all-rounders for assembly and workshop work with a maximised container volume, available in three sizes for any requirement.

Application: the best choice for extraction of wood dust and chips, e.g. during sawing, chopping, planing or routing.



CTM 26/36/48 AC

More suction power with cleaning
Constantly high suction power and longer working intervals thanks to the AUTOCLEAN automatic filter cleaning function.

Application: especially suitable for fine mineral dust, like that produced when working on drywall with manually operated machines, for example.



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www.festool.com/products/dust-extraction

Scan the QR code to see an overview of all CLEANTEC mobile dust extractors.

DUST-FREE WORK

Dust in the workplace is a nuisance – in particular, it poses health risks. Dust extraction systems are therefore not merely optional but essential. We have put together everything worth knowing for you.

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DUST CONCENTRATION

There are maximum allowable concentrations for harmful dusts. These define the maximum concentration of dust in the air we breathe, at which no negative health effects would be expected during a 40-hour working week.

DUST CATEGORIES

Dust categories are crucial. They indicate the suitability of any given dust and the specified maximum allowable concentrations (MAC). And they define the required filtration efficiency of the corresponding filter systems.



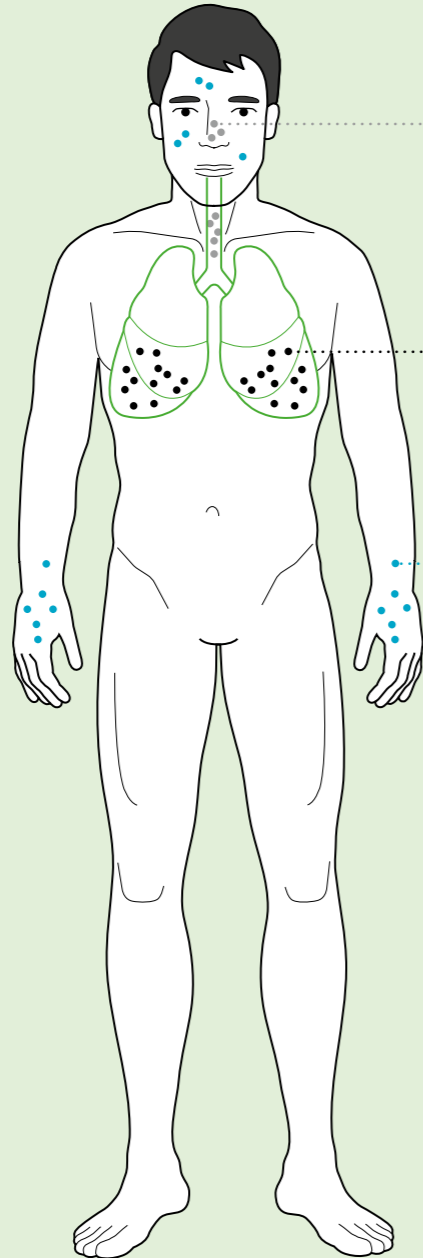
Harmless dust such as varnish and plaster, as well as materials such as soil
MAC > 1 mg/m³
Filter system filtration efficiency > 99%



Harmful dust such as all wood dust or dust from putty, filler, cement and paint
MAC > 0.1 mg/m³
Filter system filtration efficiency > 99.9%



Pathogenic dusts that are carcinogenic (such as asbestos, arsenic and lead) or are contaminated with bacteria, germs or mould
MAC < 0.1 mg/m³
Filter system filtration efficiency > 99.995%



SYMPTOMS

- **Coarse dust particles** are generally caught by the nasal hairs or the mucous membranes of the nasopharyngeal space but can cause diseases and irritation there too.
- **Fine dust particles**, which are inhaled, can penetrate as far as the alveoli (air sacs) and cause serious diseases, such as asthma, chronic bronchitis or even cancer.
- **Harmful dust** in the air can – depending on the pollutant content – also cause irritation or allergic reactions of the skin.

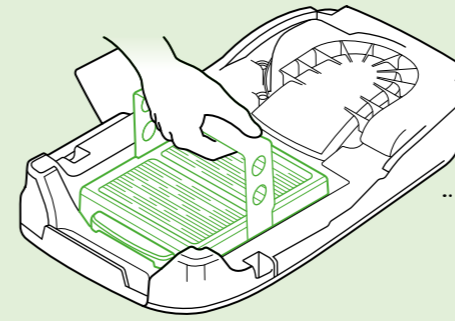


DUST VOLUMES

Every year up to four wheelbarrows full of dust are produced in a joiner's workshop. No one would ingest or inhale an amount such as this by choice – no matter how concentrated, coarse or harmful the dust released may be.

DUST-FREE INITIATIVE

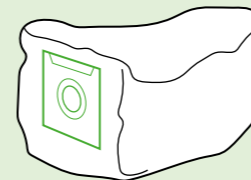
Impressively clean: Festool mobile dust extractors are an integral part of the system philosophy and guarantee the extraction of up to 99.995% of the dust produced during typical sanding, sawing or cutting work.
» www.festool.com/dustfree



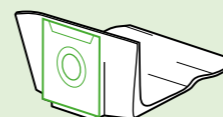
A clean machine
Fast and easy changing of the main filter and filter bag with tool-free replacement.

DUST-FREE WITH A METHOD

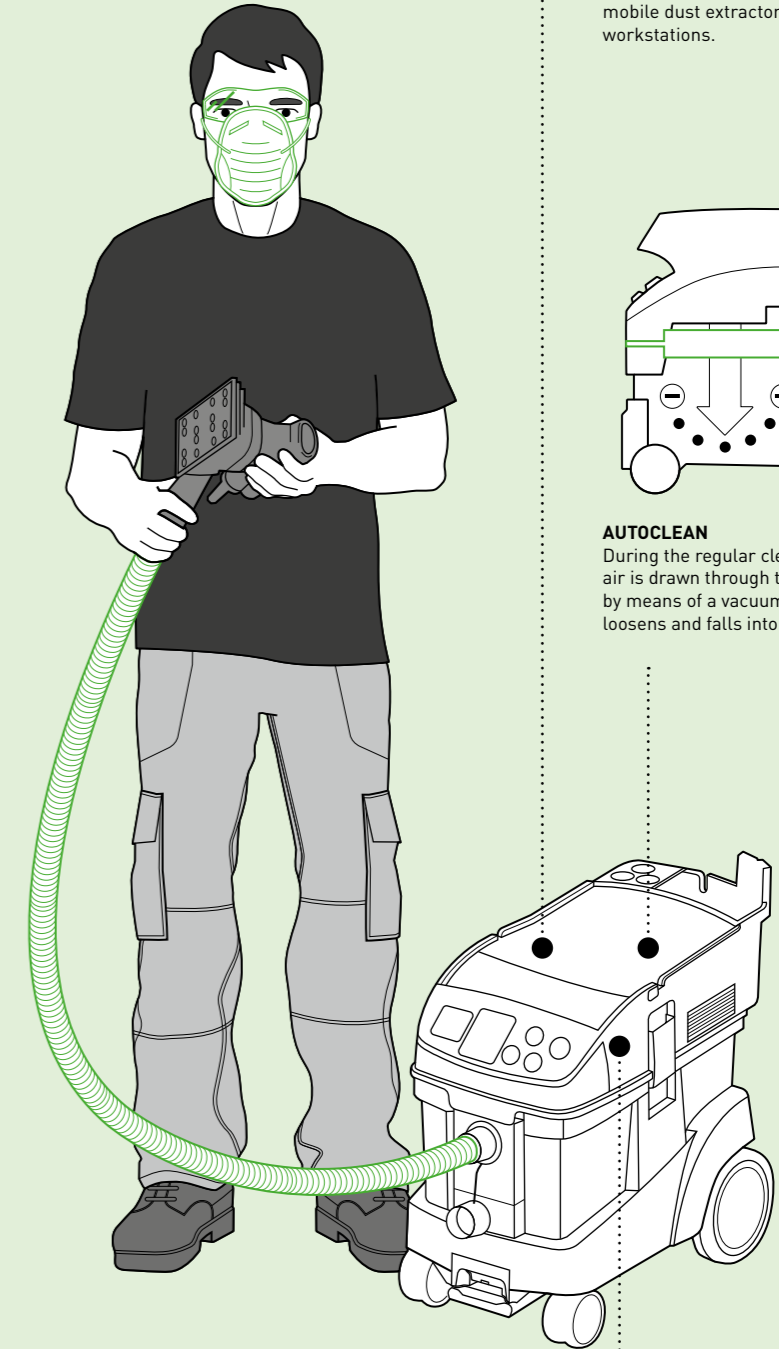
With Festool, the mobile dust extractors are perfectly designed to work alongside the power tools. The dust is extracted directly at the device – exactly where it is produced. A positive side effect: working dust-free significantly extends the life of the machines and consumable materials.



Disposal bag for use with an extractor with AUTOCLEAN function
Perfect for dust extractors with automatic cleaning, e.g. when used with the PLANEX long-reach sander or for dust extraction of coarse dirt and chippings. Low-dust disposal thanks to a closure on the disposal bag.

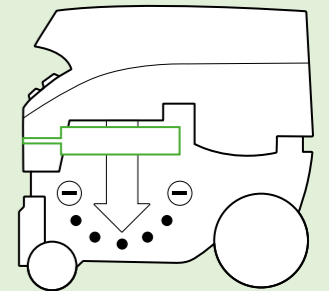


SELF-CLEAN filter bag
Prevents the formation of dust thanks to a self-cleaning effect and is sealed prior to disposal for maximum health protection.



DUST-FREE WITH A SYSTEM

Festool has the right mobile dust extractor for every job. For every dust category. And every location. Whether it's the big and powerful CT 48 for use in the workshop or the small CTL SYS, which is easy to sling over your shoulder and take up on the scaffolding. Coupled with a SORTAINER and SYSTAINER, the mobile dust extractors become mobile workstations.



AUTOCLEAN
During the regular cleaning process, air is drawn through the main filter by means of a vacuum; the fixed dust loosens and falls into the container.

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A HOUSE IN HOUSE

Modular pre-fabricated houses made of wood are trending. Why? Because with them, you can realise the dream of having your own home relatively quickly and cheaply – and also have a home that is sustainable and built to a high standard. Haas Fertigbau in Großwilfersdorf, Austria, showed us how these houses get built.

Text: **Ralf Christofori** | Photography: **Markus Angerer, Manuel Marakovits**





**'MOBILITY PLAYS
AN IMPORTANT ROLE
FOR US. THAT'S WHY
WE PREFER BATTERY-
OPERATED TOOLS.'**

Worker, Haas Fertigbau



Großwilfersdorf in Austrian Styria is not a place where the sun always shines. But the weather doesn't matter in the massive production hall of Haas Fertigbau, where the 20 to 25-strong production team builds a house in house, so to speak. More specifically, they build modular homes, designed and constructed as wooden pre-fabricated houses that can still be customised as desired. The innovative concept is called FlexHome, developed by Haas Fertigbau in collaboration with the Graz University of Technology. 'The FlexHome modular home can be used as living quarters, an office, a weekend

getaway, a mobile home or a doctor's surgery,' explains Markus Schweinzer. 'The possibilities give our customers an extreme degree of flexibility.'

As the chief engineer, Schweinzer is responsible for ensuring that work processes flow smoothly. And since precision and speed are needed in equal measure during production, Festool tools are used virtually everywhere here. An employee uses the QUADRILL DR 20 drill to create holes for screw connections for the stable wall elements. On another module, the walls are perfectly sanded smooth with the PLANEX LHS 225 long-reach sander and then plastered. 'Mobility plays an

important role for us. That's why we prefer battery-operated tools like the PSC 420 jigsaw or the PDC percussion drill,' a worker explains.

At the hall exit, the crane loads a module onto a lorry. 'Right now we need four weeks to complete the production of a modular home. But we are working on optimising processes to speed things up even more. The demand is high,' Schweinzer says with a smile.

↑ A look at the production hall where the modules are made – from the basic structure to the interior.

→ During production, workers need more than just innovative solutions; they also need reliable and efficient tools.

HAAS FERTIGBAU

Company founder Xaver Haas started his journey almost 50 years ago with a carpentry shop and three employees. The idea to optimise building successively quickly brought him to the concept of pre-fabricated construction. The company in Falkenberg based in Lower Bavaria grew, adding locations in Großwilfersdorf (Austria) and Chanovice (Czech Republic). Today Haas Fertigbau has approximately 1,000 employees who work at the three locations.

FIND OUT MORE

Read about other exciting projects in the trade in our blog:
» www.festool.com/blog/work

THE MAGNIFICENT FIVE

C 18

T 18+3

TID 18

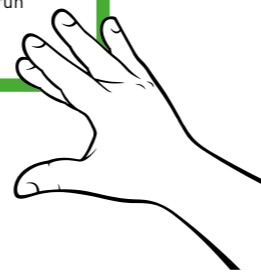
PDC 18/4

DRC 18/4

The modern tradesperson always has their cordless tool holstered on their belt. And partner, if you can recharge your tools fast, you're ready for any quick draw. The new Li-HighPower Compact battery packs fit the bill – for drilling, screwdriving and for quick changes. There's never been so much cordless power in one small package.



SCREWDRIVING WITHOUT KICKBACK
The TID 18 cordless impact-driver turns the screw without straining your wrist thanks to the tangential hammer mechanism with no strength-sapping back torque. So you can work for a long time without fatigue – until you run out of screws.



Standing the test of time

The new TID 18 cordless impact-driver with tangential hammer mechanism

C

Cordless tools are getting smaller and more compact as time goes on. They make the job much easier and lighten the load, offering the persuasive benefits of unrestricted mobility and freedom of movement. And for some time now, they've had nothing to be ashamed of in terms of performance. On the contrary.

Take the new Festool TID 18 cordless impact-driver, for example, with the new Li-HighPower Compact battery pack. Weighing just 960 grams, this tool is extremely light. The ergonomic, compact design of the TID 18 allows for long-lasting, fatigue-free,

precision work even in areas that are difficult to reach. The newly developed handle fits ergonomically in the hand. Thanks to the tangential hammer mechanism, the TID 18 effortlessly drives screws in, one after the other, with powerful and always reliable performance. The latest-generation brushless EC-TEC motor produces exceptional power while consuming the lowest amount of energy possible. It comes into its own in the new TID 18: powerful, long-lasting and durable. Maximum 180 Nm torque is no small feat. The EC-TEC motor also has three speed settings for material-specific work and a T-mode for self-drilling screws.

All of this makes the new Festool TID 18 impact-driver an extremely impressive cordless tool – and even more impressive with the Li-HighPower Compact battery pack, which is new as well!

THE LATEST-GENERATION EC-TEC MOTOR COMES INTO ITS OWN IN THE NEW TID 18: POWERFUL, LONG-LASTING AND DURABLE.

TID 18



TID 18 CORDLESS IMPACT-DRIVER

- > **Powerful.** Latest-generation brushless EC-TEC motor with 180 Nm maximum torque and three speed settings.
- > **Ergonomic.** The new cordless impact-driver is extremely compact, lightweight and easy to handle – and thanks to the kickback-free tangential hammer mechanism, it's also easy on the wrist.
- > **Convenient.** tool-free 1/4" tool reception and integrated bit storage; optimum LED illumination of the work area on both sides.
- > **Cordless.** For applications with high power needs, the 4.0 Ah Li-HighPower Compact battery pack provides the ideal powerful, compact and lightweight solution.
- > **Mobile.** Packed in the also new Systainer³, the TID 18 can be perfectly stored and easily transported.

An unbeatable team of five

The new screwdriver family with new, even more compact lithium-ion battery pack

The new Festool HighPower BP 18 Li 4.0 HPC-ASI battery pack is only half the size of a standard 5.2 Ah battery pack and weighs just under 600 grams. It is measured not only by its ampere-hours (Ah) but also by its high-current resistant cells with enormous power reserves. These cells deliver 30% more endurance and 30% more power than a standard lithium-ion cell. So the motto goes: less is more, because less weight and more power make the job much easier – when driving screws, when drilling, up on a roof truss or on scaffolding, overhead and in places that are hard to reach.

That's why not just the TID 18 but all of the other cordless screwdrivers are getting a bit of 'live cell therapy': the whole new screwdriver family is now available with the new Li-HighPower Compact battery pack. The C 18 cordless drill is compact, light-weight and now even easier to handle with the HighPower Compact battery pack. The T18+3 makes it faster to drive screws, drill and make quick changes. Our two powerhouses, the DRC 18/4 and PDC 18/4, run in best form with the High-Power Compact battery pack – the PDC 18/4 even has a selectable axial hammer.

You're spoilt for choice – or rather, you have the luxury of choosing exactly the right Festool cordless tool for your job. And that's true not just for our new screwdriver family but also the entire range of powerful Festool batteries.

**OUR CORDLESS TOOLS ARE
EVEN EASIER TO OPERATE
WITH THE NEW BATTERYPACK.
IT'S CLEAR TO SEE – DURING
THE ACTUAL WORK AND IN
THE RESULT.**



TID 18

The compact and powerful cordless impact-driver with robust tangential hammer mechanism for effortless, long-lasting work.

C 18

Thanks to its ergonomic C-shape, this cordless drill fits perfectly in your hand – and works even better with the Li-HighPower Compact battery pack.

DRC 18/4

The cordless drill with the robust four-speed metal gearbox and enormous power; it can easily handle 10 x 300 mm screws even in first gear with 60 Nm.

T 18+3

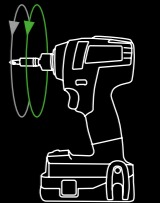
For rapid drilling and screwdriving; only takes the exact amount of power that is needed and remembers the set torque.

PDC 18/4

The exceptional performer among the cordless percussion drills with selectable axial hammer; for flexible drilling and screwdriving, including angular drilling and angular screwdriving.

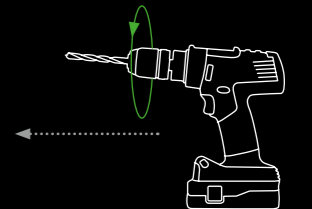
THE RIGHT HAMMER MECHANISM

Hammer mechanisms deliver enormous power – axial during drilling and in the direction of rotation during screwdriving. They save the craftsman from having to provide the extra force themselves.



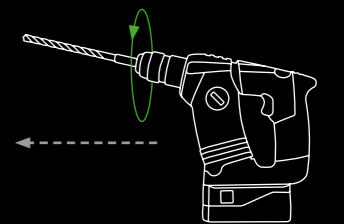
TANGENTIAL

TID 18 cordless impact-driver
With the TID 18, the force of the hammer mechanism works in line with the direction of rotation, for effortless screwdriving.



AXIAL

PDC 18/4 cordless percussion drill
The PDC 18/4 has a selectable axial hammer mechanism with a force that works in the axial direction.



AXIAL & PNEUMATIC

BHC 18 cordless hammer drill
The BHC 18 cordless hammer drill with pneumatic hammer mechanism is unbeatable when working with especially heavy-duty materials.

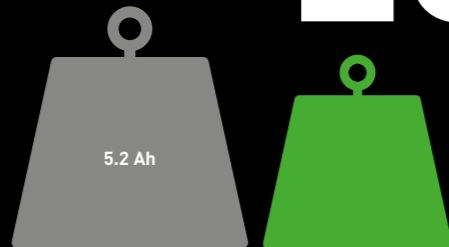
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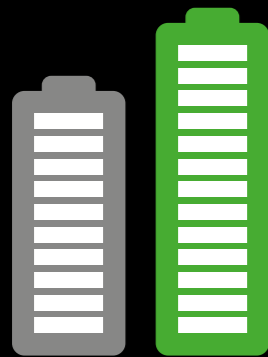
Never before has strong performance been so compact
The Li-HighPower Compact battery pack is so small that it even leaves room to work in tight spaces. It is half as big as the standard 5.2 Ah battery pack but offers the same level of performance.

**COMPACT, LIGHT,
INGENIOUS. EVERYTHING
YOU NEED TO MAKE
YOUR JOB EASIER.**

-20%



Never before has strong performance been so light
Effortless work and minimal stress when working overhead: the Li-HighPower Compact battery pack weighs less than 600 grams – 20% lighter than the standard 5.2 Ah battery pack.



+30%

Never before has strong performance been so great
The new high-current-resistant battery cells in the Li-HighPower Compact battery pack offer 30% more endurance and 30% more power compared to standard lithium-ion cells.



UNCOMPROMISING PERFORMANCE

Benefit from the wide range of services that are part of our Warranty all inclusive. After registering your new Festool tool, it is fully covered during the first three years, allowing you to concentrate on what really matters: Your work.*
For example, we guarantee the availability of every spare part for at least ten years after discontinuation of the tool model.

Discover even more Festool services at:
» www.festool.com/service

* Warranty all-inclusive is valid for all Festool tools purchased from 6 March 2013 onwards and registered within 30 days of purchase. The Festool service terms and conditions shall apply and are available at www.festool.com/service. The service offer may vary depending on the country and dealer.

** The offer for 'full repair, free of charge' does not apply for damage to consumables and accessories, misuse, damage caused by the use of non-original accessories or spare parts, nor in the case of tools which have been dismantled or subjected to constant, hard-wearing use. Wear parts are excluded.

Extremely versatile!

The new Li-HighPower Compact battery pack in use



These days cordless tools are more the rule than the exception. But since Festool is Festool, our 18 V cordless system does more than just follow the rules. We go a step further, starting with the design of the tools and not forgetting the intelligent motor controls, smart power electronics and rapid chargers with integrated cooling devices.

Naturally the battery packs are the driving force in the system. They provide the 'juice' that carpenters and joiners just can't get enough of. Festool has pumped a whole lot of juice into the new Li-HighPower Compact battery pack. It is powerful enough for every application, because we may have cut down on the weight, but not on performance.

HIGHPOWER BP 18 LI 4.0 HPC-ASI BATTERY PACK*

Maximum power with a lower weight – and powerful enough for every application: the new Li-HighPower Compact battery pack is the perfect choice for work that needs to be as ergonomic and lightweight as possible.

FIND OUT MORE

Discover more Festool cordless tools and the entire 18 V cordless system on our website:
» www.festool.com/ready

* products with Bluetooth® technology are not available in all countries. Please contact your dealer for further information.

CONNECT FOUR

34

Board cutting at the construction site or in a smaller workshop generally involves the Festool circular saw and guide rail. The new mobile STM 1800 sawbench and 90° angle stop for precise, repeatable cuts complete the quartet. So you can get big jobs done even on your own.

Text: **Anja Soeder** | Photography: **Thomas Baumann**

Board cutting is part of everyday life for carpenters, joiners and interior fitters. The cutting itself is not usually a problem. With the Festool TSC 55 cordless circular saw and guide rail, precise cuts are practically automatic. But to get to that point, you first have to heave massive boards onto a sturdy surface and get it into a stable horizontal position. It's a tiresome job – unless you have a second person to help you, or a sleek workbench.

Introducing the Festool STM 1800: when it comes rolling onto the construction site folded together in a truly compact package on its four wheels, it's a curious sight for carpenters or joiners. But curiosity gives way to pleasant surprise when the frame and work surface are quickly unfolded. And it earns a nod of approval when the workbench reveals its qualities: it is extremely stable and sturdy, and also extremely flexible, because the work surface can be extended or retracted as needed and its height optimally adjusted. The STM 1800 is excellent for assembly, routing or sanding work on large workpieces. But above all, it is the perfect solution for mobile board cutting. This is

because you can tilt the bench over onto a side to hold even large boards measuring 3,100 x 2,150 mm on a rotatable wedge and then bring the board into a horizontal position on the workbench by tilting it back into place. And you don't need an extra person to do it, nor do you need extra-long arms. Other people on site can get on with other jobs.

That's not just sleek, it's a practical aid for board cutting, in combination with the Festool circular saw and guide rail. And since boards are normally cut at right angles, there is also the new 90° angle stop, which can be used to precisely position the guide rail. Together, these connect four are winners every time for board cutting on the construction site or in a smaller workshop.



Mobile use
The STM 1800 saw/workbench can be folded up to be very compact. It fits in any van and can be easily rolled from A to B.



One-person operation
The STM 1800 saw/workbench has two rotatable wedges on the side that can be used to hold boards vertically leaned against the wall – no additional helpers needed.



Board cutting at a 90° angle
Just position the FS-WA/90° angle stop, securely clamp the guide rail and you're ready to go! Board cutting at a right angle is always repeatable and precise thanks to these tools.

3

FS 1400/2

GUIDE RAIL
Invented by Festool, perfected and indispensable for board cutting: the circular saw runs along the guide rail automatically and makes highly precise cuts. The original is available in eight different lengths from 800 to 5,000 mm.

4

TSC 55

CORDLESS CIRCULAR SAW
Cutting boards on the construction site with the TSC 55 cordless circular saw leaves nothing to be desired: it is cordless, powerful, durable and precise.

2

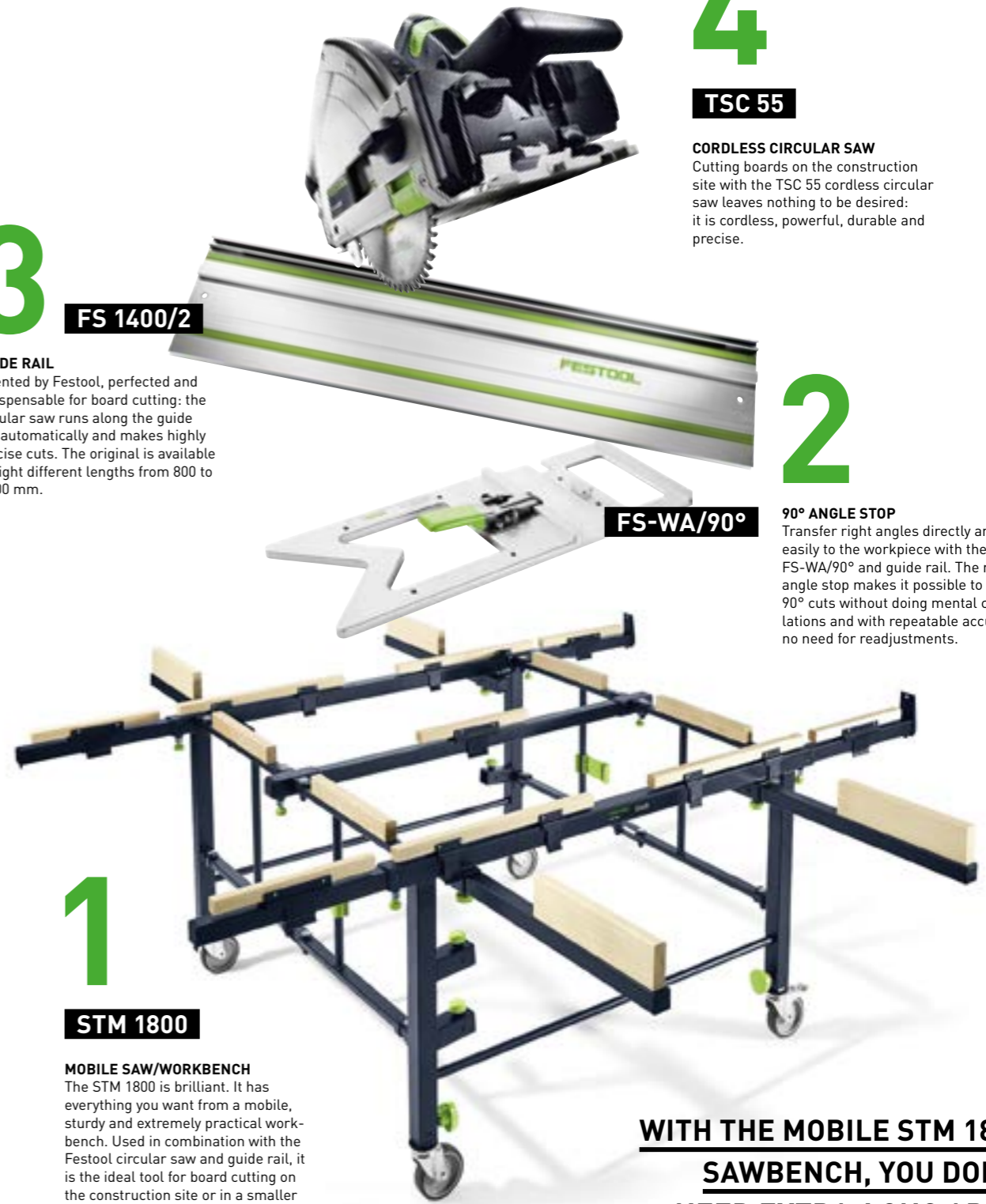
FS-WA/90°

90° ANGLE STOP
Transfer right angles directly and easily to the workpiece with the new FS-WA/90° and guide rail. The new angle stop makes it possible to make 90° cuts without doing mental calculations and with repeatable accuracy, no need for readjustments.

1

STM 1800

MOBILE SAW/WORKBENCH
The STM 1800 is brilliant. It has everything you want from a mobile, sturdy and extremely practical workbench. Used in combination with the Festool circular saw and guide rail, it is the ideal tool for board cutting on the construction site or in a smaller workshop. And best of all: it allows even large boards to be handled and cut by just one person.



**WITH THE MOBILE STM 1800
SAWBENCH, YOU DON'T
NEED EXTRA-LONG ARMS
OR A SECOND PERSON
FOR BOARD CUTTING.**

35

I, ROBOT

A wooden construction following a natural shape and produced by robots: is this the future of the industry? Not really. But it's still something to marvel at. If the robots were made of flesh and blood, you would still at least clap them on the back in recognition of a job well done.

Text: **Ralf Christofori** | Photography: **ICD/ITKE University of Stuttgart**



The wooden pavilion at the National Garden Show in Heilbronn has left a lasting impression, not only because of its pillar-free span width of 30 metres.

‘I, Robot’ is the title of a science fiction film released in 2004, which looked 30 years into the future and gave us a really dismal prediction of what the robotics scene might look like. In one scene, a demolition robot becomes sentient and tears into the house of its creator. It’s no news that robotics are no longer science fiction, and that robots have much more potential for erecting buildings rather than tearing them down.

That was proven last year at the National Garden Show in Heilbronn, where an impressive pavilion was put together like a three-dimensional puzzle of 376 hollow tile pieces made of spruce veneer laminated wood. Two heavy-duty robots first routed and manufactured the tile segments, giving them finger joints and openings accurate to 300 µm. All of the construction elements were designed for easy assembly, disassembly and re-assembly. In just twelve days, the segments were put together by a small team on site and the pavilion was completed.

The innovative wooden pavilion was planned and designed by two research teams at the University of Stuttgart. But in reality, many more professionals from the fields of carpentry, digital innovation and research were involved. Professor Achim Menges (ICD) speaks of consistent ‘cross-disciplinary lateral thinking’: after all, this is where bionics meet architectonics and structural engineering meets robotics. And the result is an impressive wooden architecture that is still efficient, economical and ecological.

WOODEN PAVILION, HEILBRONN, GERMANY
Two teams from the Institute of Building Structures and Structural Design (ITKE) and the Institute for Computational Design and Construction (ICD) at the University of Stuttgart planned and designed the wooden pavilion for the National Garden Show 2019 in Heilbronn.



↑ Two industrial robots manufactured 376 different tile segments with 17,000 different finger joints.

→ The hollow tile segments were partially pre-assembled and put together on site without substructures or a support frame.



→ The hollow tiles reduce the weight and material usage significantly, while still forming an extremely efficient structure.

↓ Built bionics: the shape and construction of the wooden pavilion is based on the plated shell of a sea urchin.



‘USING ROBOTS FOR PRE-FABRICATION ALLOWS FOR EXTREME PRECISION, SO THAT THE SHELL COULD BE ASSEMBLED VERY QUICKLY WITHOUT TOLERANCE ADJUSTMENT AND WITHOUT LARGE FRAMES.’

Prof. Jan Knippers, engineer, ITKE

HAND WORK TOOL

The most important tool of any craftsperson is their hands. And Festool develops tools that fit perfectly in those hands: practical, ergonomic, safe.

From hand to tool

Craftspeople have always used their hands and tools to create amazing works. The topic of ergonomics is much more recent – and impossible to imagine not considering in today’s working world. Festool tools make an important contribution here.



T

Things weren’t always better in the good old days, but they sure were different. Especially in the industry. If you believe the stories of the ‘old hats’ in the trade, they hammered grooved nails into hardwood with just their fists in their younger days. Their hands were so rough, they didn’t need sandpaper. Working until you were twisted and hunchbacked was a sign of hard effort that earned you high regard. It was definitely not healthy. And absolutely not ergonomic.

It’s a different story today. And in many ways, it’s better. Awareness of the fact that physical labour is not a race against time has grown. The life span of a craftsman’s career from their apprenticeship to retirement now runs up to 50 years. That’s why it is all the more important to protect your body and be nice to it in the long term. And as far as ergonomics are concerned, that is true for every part of the body, especially the hands.

25,000,000

A human bends and stretched their fingers an unbelievably 25,000,000 times throughout their life. Craftspeople likely do this a few times more.

41

There are 41 muscles in the forearm and hand. They make sure we can really get things done.

FESTOOL DESIGNS ITS TOOLS LITERALLY FOR THE HAND. YOU CAN SEE AND FEEL IT.

The five fingers of the hand are strong, durable and resilient and provide one of the best grips of all creatures on earth. At the same time, they are so fine and flexible that they can adopt a seemingly infinite number of positions.

5

17,000

Over 17,000 touch receptors in the hand ensure that we feel heat, cold, vibration, touch, pressure and pain.

27

The hand has 27 bones. This is about a quarter of all bones in the human body.

RIGHT AND LEFT-HANDED

10–15% of people are left-handed. This figure is increasing as earlier left-handed individuals were often forced to use their right hands. Whether left-handed individuals are more creative remains speculation.



From the idea to the product

How does a product with impressive shape, function and ergonomics come into being? Product designer Timo Kuhls explains.

W

FM: When you imagine the work of a product design, you think of a blank page, where something amazing develops. That's not really how it is, right?

TK: Well, the page is never blank. Because a new product does not just come out of nothing. There are clear requirements in place from the beginning. Our tools need to be very powerful and durable, but at the same time lightweight, easy to handle and ergonomically perfect. When something amazing comes out of that, it is the result of a long and intensive development process directly involving lots of colleagues and also especially customers. Each person contributes their expertise and experience.

FM: How much do you think and design from the point of view of the user?

TK: When we are developing a product, there is always a user sitting on our shoulder – or an imaginary one, at least (laughs). But seriously, what is crucial is the fact that our tools offer craftspeople ideal ergonomic support. With every new product idea, we ask ourselves what users need and how we can make their work easier. Asking ourselves this question results in very specific decisions when it comes to the technical and ergonomic design of a tool.

FM: Is it even possible to create an ergonomic template that works for all of the many different customers?

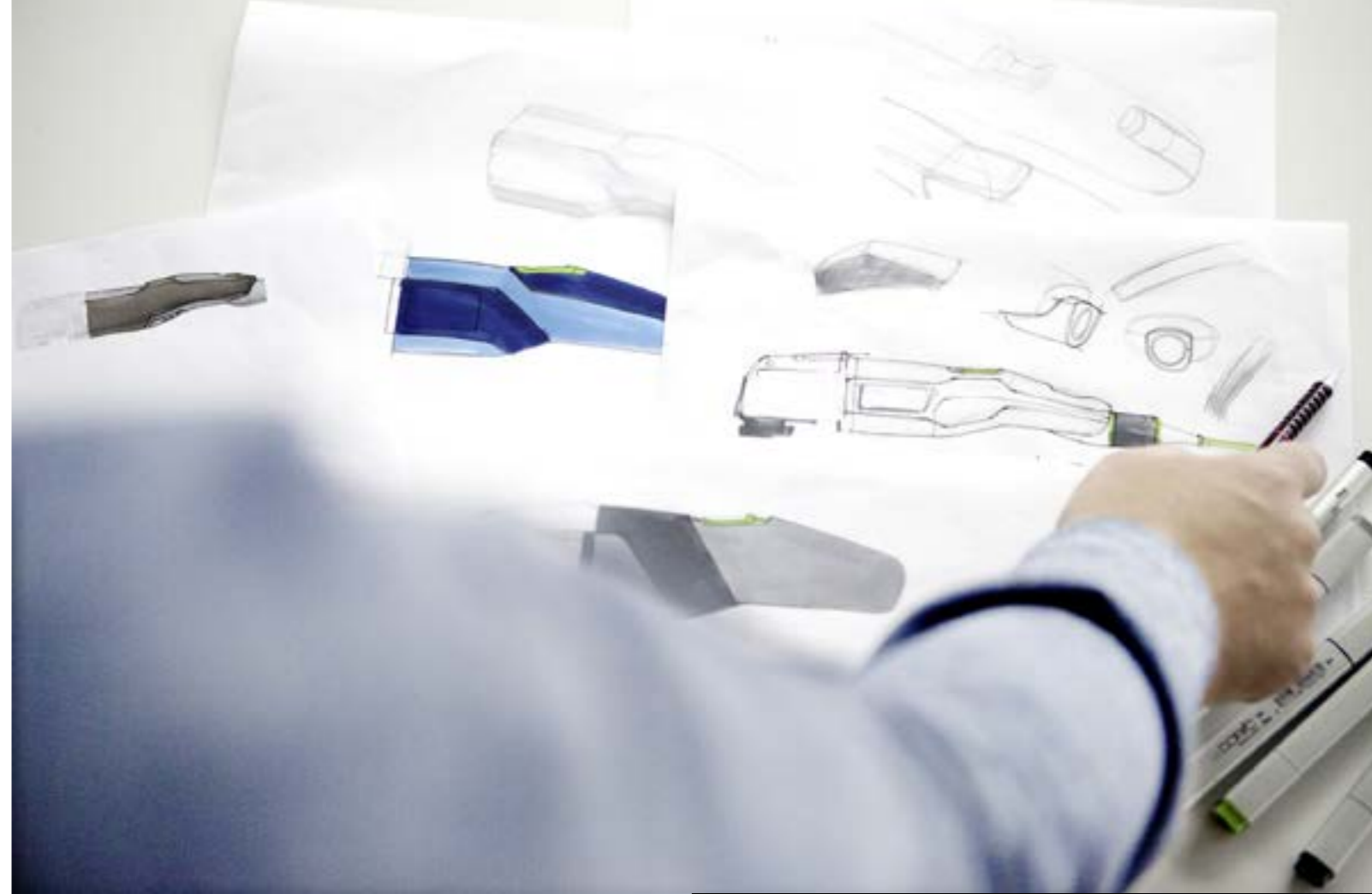
TK: It's really not easy. Our tools have to work well for right and left-handed individuals in equal measure, for large and small hands, men and women – and for people working in different trades. For example, carpenters working with the eccentric sander mainly work on horizontal workpieces, while painters also often work on vertical walls or angled roof pitches. We take every single one of these application situations into account.

FM: Are there ergonomic product features that users don't notice at first?

TK: Yes, of course. For example, there are circular saws that have the same weight on paper. But one feels much lighter in your hand than the other. Our compact sanders are especially ergonomic, in my opinion. But how we got there, of course, remains our secret.



The path to a tool that fits perfectly in your hand takes the product through countless studies, diagrams, prototypes, tests and evaluations before the final result is achieved. A lot of heart and soul goes into it. Some call it a keen eye for detail, others called it perfectionism. Both sides are right.



'WHEN WE ARE DEVELOPING A PRODUCT, THERE IS ALWAYS A USER SITTING ON OUR SHOULDER – OR AN IMAGINARY ONE, AT LEAST.'

Timo Kuhls, product designer

From inside and out

46 Making a hand axe ergonomic is relatively simple. When it comes to a high-tech Festool tool, however, the task is much harder. We took a look inside.

T

The Festool ETS EC 150 eccentric sander is ergonomic in form and function. From the outside, it must first be broad, easy to grip and ergonomically designed so that it fits perfectly in your hand every time. The inside of the tool is much more complicated by comparison, because electronics and mechanics, gearbox and motor, cable strands and screws all have to be brought together in as compact a space as possible.

Festool has actually succeeded in integrating a few additional technical tricks in the interior of the compact eccentric sander, which provide extra support for ergonomics and the user's health: a vibration stop that actively regulates the speed when vibrations are too high, noise insulation that ensures that extremely unpleasant frequencies are filtered out and minimised, and not least, an enormously efficient dust extraction feature that protects both the user and the machine.

50,000

On – off

The operating switch on the ETS EC 150 fits perfectly in your hand or on your finger. Series of tests involving 50,000 switching processes ensure that the switch works ergonomically and reliably from a technical standpoint.

4.8

Vibration stop

The vibration level of the ETS EC 150 is 4.8 m/s². With excessive vibrations the 'vibration control system' engages and reduces the speed.



99.9

Dust-free work

Dust-free is better – for humans and machines. The ETS EC 150 extracts dust right where it is produced. Festool mobile dust extractors in emissions class M collect 99.9% of the dust generated during sanding.

**THE ROBUST, DURABLE
EC-TEC MOTOR IN
THE ETS EC 150 ENSURES
OPTIMAL OPERATION AT
SPEEDS UP TO 11,000 RPM.**

69

Noise insulation

With a noise level of 69 dB(A), the ETS EC 150 eccentric sander is relatively quiet compared to its performance.

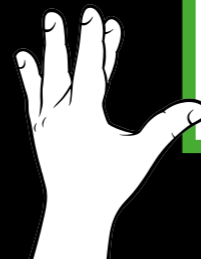


www.festool.com/products/sanding-and-brushing/random-orbital-sander

Scan the QR code to find out more about the Festool eccentric sander.

BAD VIBRATIONS

Tools with vibration damping protect your hand and arm. After all, sustained hand-arm vibrations can cause chronic problems such as Raynaud syndrome (blood flow disorders) and carpal tunnel syndrome (compression of the median nerve).



From Festool – for any eventuality

The ergonomic quality of Festool tools is only really proven in day-to-day use. Whether used to create the perfect sanding result or a precise cut, it's simply easier to get the job done.

T

There is lots of advice out there on ergonomics. But the best advice is of no use if your tool is unsuitable. You know how it goes: if the result is botched, in case of doubt it's the tool's fault. The opposite is much closer to the truth: with the perfect tool, the job practically finishes itself – and the result reflects this.

In any case, it is worth investing time and thought into choosing the right tool. After all, the right tool affects everything: the material to be processed, your own well-being and the customer's satisfaction. Festool offers a wide range of saws and routers, drills, screwdrivers and sanders, mobile dust extractors, abrasives and accessories for an effective and healthy workplace setup.

Whether you are in the workshop or working on site, you achieve the best results. When a colleague down the pub talks about how their work is more comfortable, less hard on them and how the job is done faster, they are probably talking about working day in, day out with Festool tools. And ultimately they would say that it was worth the investment. Does that sound unlikely? And yet, it's true.

And why is that? Because perfect handling and healthy posture pays off in the long run. Ergonomics is not the be all and end all. But without ergonomics, everything means nothing. After all, working until you are twisted and hunchbacked cannot be the objective. You should be thinking about these things now before problems arise in later years.

This is true not only for working with tools but also for ensuring that your workshop and transport to the construction site are set up ergonomically as well. And Festool has thought of this, too. It's no secret that the ingenious Systainers from Festool and the rolling SYS-Cart save you lots of effort. And that the multifunction table guarantees the ideal working conditions both in the workshop and on the construction site.

What is for sure is that when man, machine and material are harmonised, physical labour is more than tolerable. And with Festool the world of the craftsman is always in the best of hands.



www.instagram.com/festool



OUR HANDS GRIP, HOLD,
SWITCH, GUIDE AND
PRESS. WITHOUT THEM
WE WOULD NOT BE ABLE
TO SAW, SAND, ROUTE
OR DRILL.

CT WINGS



Inconspicuous yet useful

The vacuum clamping unit attaches itself firmly to the wall so that nothing slips when you are making precise scribe marks along your long spirit level.



Clever and variable

The CT WINGS is extremely variable and keeps a secure hold on the workpiece when you need both hands to work with your tool.

A THIRD HAND

Mankind has created masterpieces of craftsmanship with just two hands. But there are some situations where it would be nice to have a third hand. That is exactly where the inconspicuous yet ingenious CT WINGS vacuum clamping unit comes into play. It is easily connected to the mobile dust extractor via a 27 mm suction hose. One press of a button and it attaches firmly to walls or the ceiling. The adjustable segments on the clamping unit hold spirit levels or measuring sticks with ease, and even rails and workpieces weighing up to three kilograms. The CT WINGS is therefore a practical assembly aid for scribing, marking, clamping or clasp. Basically any situation where you need a third hand.

» Find more useful helpers and accessories from Festool at: www.festool.com/accessory

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Vibration levels and emission values can be found in the operating instructions at www.festool.com/operating-instructions

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20% lighter and even more mobile:
with Li-HighPower Compact battery
pack and Systainer³.

FESTOOL



Ready

A tool that will stand the test of time

The new TID 18 cordless impact screwdriver: This compact powerhouse offers an impressive service life thanks to its extremely robust hammer mechanism. The perfect combination of the new-generation brushless EC-TEC motor and the battery pack ensure maximum performance and endurance. In addition to this, the TID 18 with 1/4" tool holder turns the screw without straining your wrist – thanks to the tangential hammer mechanism with no strength-sapping back torque. The machine weight of just 960 grams also allows you to work for longer without becoming tired.

Find out more at www.festool.com/ready

Tools for the toughest demands