

AGR

Aktion Gesunder Rücken e.V.

PRODUCTS FOR A HEALTHY BACK



Certified & recommended: Industrial work benches

The perfect combination of work bench, chair, lighting,
work bench mats and tools



The back-friendly workplace

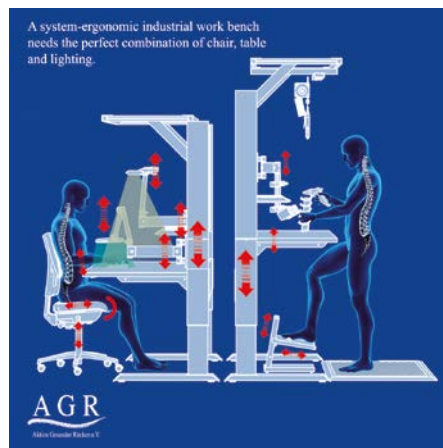
Campaign for Healthier Backs
(AGR e.V.)

They are the backbone of the German economy, the guarantor of living standards and success: Million people in Germany work at an industrial work bench. Areas of activity such as these pose a special challenge when it comes to ergonomics. The work bench system, chair, lighting, work bench mat and tools all need to satisfy certain criteria if they are to protect physical health, mental alertness and not least social satisfaction.

Current scientific findings show that productivity is much higher and sickness rates are much lower at a work bench that satisfies system ergonomic requirements. It is also important to remember that the world of work is constantly changing, with new technologies and processes posing new physical and psychological challenges for workers and businesses. Added to that is the fact that no two people are identical – age, gender, height, build, eyesight and movement needs are all differentiating factors. A good work bench can adapt to this individuality.

Consequently, system ergonomics takes a holistic view of this key economic hub, where working task, suitable working materials, the working environment and of course the workers themselves all come together. Indeed, although back pain is very common, as are other musculoskeletal complaints, it does not have to be that way.

The perfect work bench is always made up of several parts – work bench, chair, work bench mat, lighting and tools. Each component has to satisfy all ergo-



nomie requirements in its own right. A work bench concept can be developed by creating the ideal mix of these individual components to ultimately boost performance, reduce health complaints and have an effect on sick days. Each and every necessary investment quickly pays for itself.

In other words, ergonomics enhances cost efficiency. That is not a hollow claim – it is proven fact. After all, over the course of their working lives, people will spend an average of 10,000 days or approximately 80,000 hours at their work bench. If the ergonomic conditions are not right, the health consequences can be severe, with poor posture and harmful stresses and strain leading first and foremost to back and joint pain. Naturally, that in turn impacts on illness levels and productivity. An industrial work bench that has been designed according to ergonomic criteria is

thus a pretty smart investment. It prevents work-related diseases, reduces absences and boosts staff performance and motivation.



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Since 1995, independent medical panels have been using a stringent certification procedure to give products that are particularly back friendly the recognition they deserve. The major advantage for the industrial work bench is that products carrying this quality seal can be efficiently combined in line with a modular building kit principle. Products that have been certified by the AGR and are put to systematic use meet all the requirements for back-friendly and ergonomic working conditions. What's more, they are not exclusively focused on product ergonomics, but are also geared toward promoting back-friendly practices such as the sit-stand dynamic, which has been proven to be a very healthy concept.

The right work bench system boosts motivation and productivity



Industrial work benches come in all shapes and sizes. Different types of rooms (from simple workshops to industrial plants), varying activities (from heavy-duty work to the assembly of tiny parts) and the specific characteristics of workers (age, height, build, abilities) all put very different demands on work bench design.

It is important that a work bench can be adapted to suit different people and encourage a healthy sit-stand dynamic. This is best achieved using an electrical height-adjustment system that ensures the bench can be raised and lowered safely, quickly and reliably. A memory function makes the adjustment process even easier, including when activities regularly switch between different working heights or when different workers are using

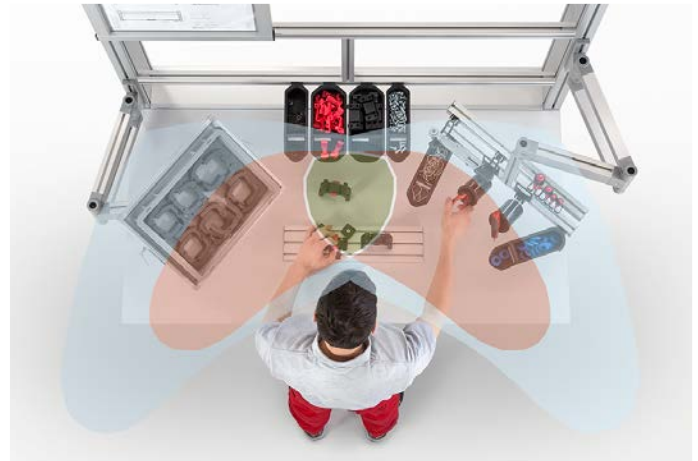
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the same bench. Stability, including under heavy loads, is just as important as integrating a lighting system that is optimum for the working process.

If manual activities are being carried out at a bench, space needs to be factored in for the workpiece itself, tools and material supply systems. The opportunity to extend the work bench in an ergonomic, customised, modular configuration with the relevant accessories is essential. When precision work is being carried out, it is helpful to support the elbows so as to reduce strain on the torso, shoulders and neck muscles.

However, these adjustment options are not enough on their own to fully satisfy ergonomic, process-based requirements. What is needed is a modular design approach based on a comprehensive building kit system that also creates scope for sustainable and continuous improvement.

Ultimately, sound product advice that factors in health issues and instruction in how to use these products correctly is extremely important. Feedback from staff should be followed up and, if necessary, the work bench modified accordingly. This results in a high level of acceptance, which in turn ensures the ergonomic options at work benches are used correctly. The end result is then as intended – motivated, healthy staff working in a successful company.



Benefits of ergonomic work bench design

- Optimised reach boosts efficiency
- Ideal lighting ensures process quality
- Sit-stand work benches eliminate strain and motivate staff
- A modular design approach supports the continuous improvement process (CIP)
- Ergonomic material supply and picking improves cycle times
- Fluid workpiece transport increases productivity
- Being able to access information quickly speeds up throughput times
- Optimum tool provision and stowage keep staff healthy
- Investing in ergonomics always means a good ROI



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Always the perfect lighting

Lighting is a secondary tool. Although it doesn't have a direct impact on the musculoskeletal system, it does affect it through eye strain. Consequently, having the right lighting at the work bench is crucially important. Many people underestimate the fact that we process 80 percent of all information visually, and that the optimum light has a major influence on how we deal with information and on our physical posture. When the lighting at a work bench is ideal, workers don't need to adopt constrained postures, because their visual field is perfectly balanced. They can also maintain an upright position while working because everything is well lit and they

don't need to move to see something clearly. When the lighting at a bench covers a large area, is homogeneous, glare-free and doesn't cast shadows, workers' eyes do not need to constantly adjust to changing levels of brightness. As a result, good lighting is a huge plus point for safety, satisfaction and a healthy back. The lighting system for industrial work benches aims to optimise ergonomic work bench conditions and boost work performance.



Lighting also has to be adequate for the requirements of the relevant task at hand.

This can be achieved, for example, by:

- Adapting the lighting level (supports visual acuity for a range of activities) to DIN 12464.
- Adjusting colour temperatures (4000 to 5000 Kelvin enable the best possible contrast perception).
- Ensuring the central and peripheral fields of vision are evenly lit (this makes it easier for the eye to adjust and prevents eye fatigue).
- Avoiding reflections/reflected glare caused by lighting or by light hitting a surface.
- Avoiding multiple shadows (e.g. by using special films).
- Using flicker-free lights with a high luminous intensity.
- Enabling stepless dimming.
- Fitting reduced-glare lights.

The product features must optimise the field of vision so as to prevent constrained posture.

This can be resolved e.g. by:

- Opting for large-area, homogeneous, low-glare, low-shadow lights.
- Enabling unimpeded near vision at a distance of 40 cm with an arm-mounted light.
- Supporting near vision with an illuminated magnifier.
- Installing a fixture that allows the user to direct light in various directions and distances at the desired area of view.
- Ensuring lighting performs as expected while carrying out work.

Bringing the chair and the user into harmony



Ergonomics and occupational health and safety for the industrial work bench

A chair should consistently encourage its user to practise active sitting. For example, a seat that dips forward supports a good sitting posture and sit-stand approach. Scientific studies confirm that this kind of seat incline opens up the angle of the pelvis, which automatically leads to an upright posture and relieves strain on the spinal column. Industrial work chairs reduce strain even further by incorporating a suitable back rest that automatically adapts as users lean back and forward in their seat. This takes better account of the user's weight, torso size and comfort. What's

more, the seat and rests are breathable, sensitive to the micro-climate and perfectly tailored to the surrounding environment. For example, while robust polyurethane is used in workshop and production areas, artificial leather is used in laboratories and clean-room areas. Special standing chairs are a good solution for standing work benches, as they take the strain off the legs and spine by enabling a dynamic, upright body posture.

DAUPHIN

HumanDesign® Group



Checklist for ergonomic sitting and sit-stand solutions in industrial environments

- Meeting all technical safety requirements
- Promoting a dynamic, upright body posture to relieve strain on the spinal column through custom or automatic adjustment options on the seat and/or back rest
- Freedom of movement in the arm/shoulder area without affecting contact with the back rest
- Feet flat on floor
- Adjustable seat tilt and depth
- Easily accessible, functional and ergonomic controls that are easy to operate
- Minimal trip hazard due to low base circle
- Climbing aids such as foot rings and a gas spring for height adjustment are essential for elevated work benches used in industrial environments. When a seat is being used as a counter model, it is important it will not slip out of place. It is advisable to use load-dependent braking castors or glide elements (and mandatory at seat heights above 65 cm). A separate foot rest is also advisable.
- Standing chairs must give users a surface to lean on in a relaxed standing position, retaining a physiological curvature of the spine, and must also have a revolving seat.
- Robust, easy-to-clean materials

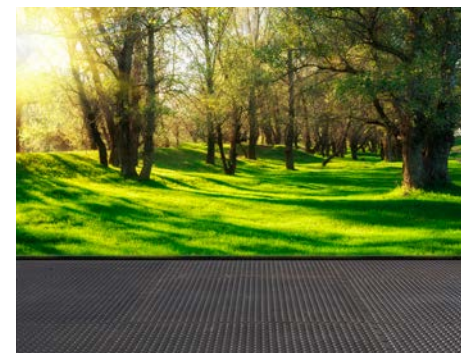
WWW

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Ergonomic, shock-absorbing work bench mats are a great help to many millions of people who have to work standing up. Using mats with the right level of elasticity for human physiology relieves strain on the **feet, knees, hip joints and spine**. Another benefit is that they help users maintain a high level of **concentration and performance for much longer**, thereby **reducing staff downtime**, which ultimately also **increases motivation**.

Standing on a hard surface causes fatigue in the muscles, while low levels of muscle activity can knock the spine out of balance. Blood circulation in the legs drops, strain on the spinal discs increases and painful strain and congestion in blood vessels can develop. Ultimately, the end result could be varicose veins and circulation problems.



Genuine relief – work bench mats look after the joints and enhance performance



Ergonomic work bench mats can help avoid these problems. The **specially designed surfaces intuitively encourage users to keep moving**, which has two beneficial effects. Firstly, it keeps the muscular pump in the legs going, which in turn keeps the blood circulation flowing. Secondly, it ensures strain is more evenly distributed on the muscles surrounding the spine, thus eliminating one-sided pressure on the spinal discs.

When designed with an appropriate surface, ergonomic work bench mats can be used at **dry and damp work benches and workstations where staff have to repeatedly turn around**. To ensure they last, these mats should be able to withstand heavy loads, offer a surface that is good to walk on and easy to turn on, and feature particularly low-profile edges.

The material the mats are made from must be **elastic**, with an appropriate amount of give when under load, which takes strain off the joints. However, it is important that users **feel they have a firm footing – the mats should not be too elastic**. If a mat is too soft, it puts too much stress on the ligaments of the joints, which could become overstretched over long-term use. A mat with an appropriate level of elasticity and a suitable surface **activates the leg muscles**, particularly the calf muscles.

To ensure work bench mats can be used in different environments, their performance must not be affected by damp or dry conditions and they must be resistant to chemicals, oils and greases. Ideally, the manufacturer will give customers the opportunity to test their mats in the area where they are to be used.

Not all places of work are the same, so work bench mats also need to be **suitable for the specific conditions** in the intended area.

This can be achieved using a custom cut and by laying the mats like a jigsaw.

Industrial work bench mats should satisfy the following requirements:

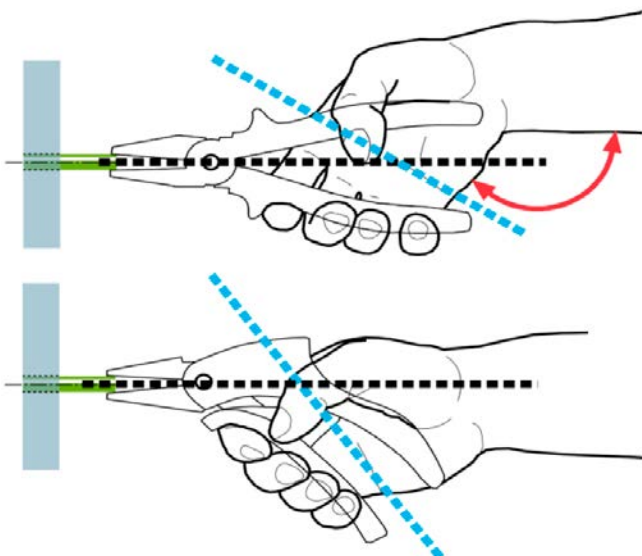
- Shock-absorbing properties to reduce fatigue in the feet, legs and back
- Elastic properties to relieve strain on the joints
- Surface structure designed to promote muscle activity
- Prevention of additional knee strain during turning and walking motions
- Resistance to oils, greases and many chemical
- Low flammability
- Electrically conductive properties
- Customer-specific cut and jigsaw solution



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Ergonomics you can touch – manual tools that support your health



Tool manufacturer Wiha Werkzeuge offers the ideal tools for ergonomic working practices at the industrial work bench. Taking into account the highest ergonomic standards, Wiha has developed a special screwdriver grip concept and the Inomic® pliers design, both of which promise to be healthier for users based on a formula of “less force + more correct stimulus of the motion system as a whole thanks to the use of the right hand tools = more health”.



Less force – same result

Health experts agree, that when it comes to back health, the entire musculoskeletal system has to be taken into account. Every muscle, bone and joint affects the system as a whole. The ergonomic SoftFinish® screwdriver concept from Wiha is geared toward the “perfect turn”. The grip sizes that have been developed feature the perfect balance of length and diameter, thus ensuring completely ergonomic handling. Each of the four grip sizes has been specially developed for the relevant torque ranges. Thanks to the perfect combination of material and design, the Wiha SoftFinish® screwdrivers fit beautifully in the hand. The designs cater to the needs of muscles, tendons and joints so that users can work efficiently over long periods. The formula for SoftFinish® screwdrivers is less force for the same result.

Comfortable hand and arm posture

The ergonomic grip of the Inomic® pliers is specially angled to relieve strain on the user’s hand and arm when operated. What makes it really special is the parallel movement of the pliers’ arms, which enables the user to grip the handle with all five fingers over the entire range of movement of the arms. This results in a relaxed hand and arm posture, thereby enabling the user to apply more force. The closing force from the user’s hand is evenly spread over the middle joints of the fingers (70%), while force is transmitted unevenly when using conventional pliers. For example, with a conventional tool, the force applied by the little finger can only be transmitted through the tip (15% force application). By significantly increasing the application of clamping force across the entire

movement range, the Inomic® pliers are much more comfortable to use. The end result of the concept is that users can work for longer with less strain, less fatigue and applying less force.

The Wiha grip concepts help users

- Reduce or even prevent musculoskeletal complaints and muscle and joint pain.
- Find the perfect balance between force and control and work more efficiently.
- Work in a lighter and more economical manner.

Healthy working practices are now easier to achieve at industrial work benches thanks to:

- The SoftFinish® screwdrivers, which come in four grip sizes and lengths that are optimally tailored to screw sizes and fastening tasks.
- The Inomic® pliers and their angled pistol-style grip that takes the strain off the wrist during use.

WWW

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Products related to industrial work benches that carry the AGR seal of approval





Industrial work chairs

- Tec Profile (IS 20270, IS 20260, IS 20230/20231)
- Tec Dolphin (IS 19770, IS 19970)
- Tec allround (IS 21435)

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Work bench systems

- Work bench systems F, 2F, F2F, Trigo F, E, 4E, 4E FIFO

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Industrial work bench mats

- ERGOLASTEC® Ergonomic industrial rubber mats

KRAIBURG Austria GmbH & Co. KG

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Lighting

- Taneo arm-mounted and system lights
- TEVISIO illuminated magnifier

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Tools

- Wiha Inomic pliers
- Wiha screwdrivers with grip concept

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The AGR seal of approval is awarded exclusively to products and concepts that have demonstrated their back-friendly design and concept development to an independent committee of experts with various medical specialisms. The products listed have satisfied* the strict medical test criteria of the Campaign for Healthy Backs (AGR e.V.) and are therefore verifiably helping to prevent potential health complaints. The AGR seal of approval has received the accolade „very good“ from ÖKO-TEST, a German consumer magazine, and has been given the best grade „highly recommendable“ by „Label-online“, a portal run by the federal consumer initiative association „Die Verbraucher Initiative e. V.“. „Label-online“ is being constantly expanded, modified and upgraded with support from the German Federal Ministry for the Environment, the Federal Environment Agency and currently also from the Federal Ministry of Food and Agriculture (BMEL).

It is further evidence of the trustworthiness of this quality seal, which can be used only on proven ergonomic quality!

*Certified and recommended by Germany's Forum for Back Health – live better (Forum Gesunder Rücken besser leben e.V.) and the Association of German Back Schools (Bundesverband der deutschen Rückenschulen (BdR) e.V.).

Further information is available from:

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