

About the active shoulder exoskeleton S700

The most important facts

„Our exoskeleton is like a rucksack with arms that supports you when you are working at chest height or especially overhead. It makes it easier to carry out difficult tasks.“(founder Bernward Otten)

- Exoskeletons are **body-worn support systems**.
- The S700 active shoulder exoskeleton from exoIQ is designed for use in the industrial sector.
- The force support is up to **7,5kg per arm**.
- Activities **at chest/shoulder height or overhead** become noticeably and demonstrably easier.
- The exoskeleton is **easy to use** and the size and power support can be **individually adjusted**.
- In addition, the exoIQ app can be used to **optimise the type of support for certain activities** with the help of presets.
- The use of the exoIQ app also simplifies **ergonomic workplace analyses** using the S700.
- Consistent use of the S700 **reduces physical strain** and can increase the attractiveness of the workplace and send a positive signal to skilled workers.

The S700 shoulder exoskeleton

Exoskeletons are body-worn support systems. They are flexible aids that provide relief for employees. More specifically: The use of an exoskeleton reduces the strain on the human body.

This applies in particular to active (see "How it works" below for an explanation) support systems such as the S700 shoulder exoskeleton from exoIQ. The S700 relieves the arm, neck and shoulder muscles, making it the first active shoulder exoskeleton of its kind in the world for industrial use. Up to 7,5 kg of force support per arm makes activities at chest/shoulder height or overhead

noticeably and demonstrably easier. The strength of the supporting effect can be customised to suit the person and the activity.

The S700 is available for €3,500 and is produced in southern Germany. exoIQ can also draw on the resources of its sister company Festool.

How it works

The S700 is a so-called active exoskeleton. In active systems, power is generated by a motor and without user intervention.

The S700 shoulder exoskeleton is driven electro-pneumatically by a battery-operated compressor. The additional power is transferred to the arms by moving the drive elements on the arm shells using compressed air. An integrated sensor system detects movements accurately. The principle works in a similar way to a hiking rucksack, according to the load redistribution principle. This means that the shoulders are actively supported while loads are redistributed to the hips.



In order to be able to customise the support provided by the S700, the shoulder exoskeleton has a control element that can be used to adjust the level of power support (up to 7,5 kg per arm). The control element also has a pause button for interrupting the support so that secondary activities, such as telephoning or drinking a glass of water, can be carried out at any time without interruption.

If the S700 is linked to the exoIQ app, different presets can be called up and saved. These enable even more targeted support, for example during assembly tasks. The S700 is supplied with four standard presets, with additional modes available in the app's preset library.

For long-lasting operation, the S700 is supplied with two Festool brand batteries (4.0 Ah/"ampere-hours" each) and a quick charger.

Handling

The S700 exoskeleton can be put on and taken off quickly and easily without external assistance in around 30 seconds (once it has been adjusted to the correct size). Thanks to tool-free size adjustment, it can be flexibly adapted to different users. It is fastened like a hiking rucksack with a wide hip belt and a narrow chest strap. The arm shells can be reached independently and are easy to put on thanks to magnetic arm fasteners. Once fitted, wearers only have to remember three numbers: the markings for the back length, shoulder width and arm length. A detailed sizing chart is included for optimum fitting.

The S700 has an interchangeable textile system that enables the company to provide all employees with their own set of textiles, thus ensuring hygienic use. The quick-change system makes it easy to

switch between several employees. The textile set is supplied with a laundry bag and can be washed in a standard washing machine.

Areas of use

The S700 is explicitly designed for use in the industrial sector. It provides support for all activities that require workers to move their upper arms away from their upper body and upwards, i.e. to adopt an unergonomic posture.

In **metalworking**, for example, people are constantly exposed to high loads during movements such as lifting, holding and carrying.

Activities such as **welding** or **assembly** often require a combination of static muscle tension and trying to achieve the greatest possible precision. The support provided by the S700 reduces muscular tension and can have a positive effect on the quality of work.

In addition, the natural freedom of movement is unrestricted when wearing the S700. Work involving dynamic movements, such as in **picking** or **small parts production**, which requires flexible gripping in different directions and heights, but also requires holding, is also made easier.

The consistent use of the S700 reduces physical strain and can increase the attractiveness of the workplace as well as sending a positive signal to skilled workers.

FAQs

Does the S700 shoulder exoskeleton give you superpowers?

No. The S700 is intended to move the same loads and perform the same work activities with the same number of employees as before. The support provided by the exoskeleton is intended to reduce overload. The aim is by no means to give employees superpowers.

Does the use of an exoskeleton make you weak in the long term?

No, on the contrary. As the exoskeleton only removes the permanent overload, the muscles remain actively trained. The supporting power of the exoskeleton can be adjusted in such a way that it maintains positive training effects for the muscles while minimizing negative effects on the joint apparatus.

Are there any side effects from the use of exoskeletons?

On the contrary: short-term effects have already been proven to be positive and this can also be expected for long-term studies. However, such studies are not yet available for this modern technology. In any case, the exoskeleton must be ergonomically adapted to the user in order to unfold its positive effects.

Who controls the exoskeleton?

The users themselves. The exoskeleton supports their movements. However, they have to carry out the movement themselves. The power of the exoskeleton is always less than the muscle strength of its users. This means that individual control is always maintained.

Where is the data from the exoIQ app stored?

The data from the ergonomics analysis, for example, remains locally on the device (e.g. tablet), private data remains private. The S700 can only provide data if the user actively agrees to Bluetooth pairing with the app.

Presence on social media

exoIQ is present on the following social media channels:

LinkedIn, YouTube, Instagram und Facebook

<https://linktr.ee/exoiq>

Press contact

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