LIFTSUIT SPECIFICATION

The LiftSuit® is a lightweight textile exoskeleton that supports the back and hip muscles when lifting objects or working in a forward-leaning position. It features integrated elastic elements that store energy to support the user and reduce the workload.

| **Mass overall** | 0.9 kg |
| **Dimensions (packed)** | Around 25 cm x 50 cm x 10 cm |
| **Dimension on a coat rack** | Around 110 cm x 30 cm x 15 cm |
| **Size** | One size (M-L) |
| **Back height** | 45-60 cm |
| **Chest circumference** | 88-120 cm |
| **Hip circumference** | 75-105 cm |
| **Thigh circumference** | 49-67 cm |
| **List Price** | CHF 850 without taxes (around € 800) |

LIFTSUIT APPLICATIONS

The LiftSuit supports all work that requires frequent lifting of objects from below hip level or working in a forward-leaning position. Use cases include applications in logistics, construction, warehousing, healthcare, agriculture, and others.

LIFTSUIT BIOMECHANICAL PERFORMANCE

The LiftSuit supports back- and hip muscles when lifting objects from below hip level or while remaining in a forward-leaning position. It functions as a layer of artificial muscles outside the body. This way, it reduces the load on its users’ muscles. The level of load reduction has been quantified through a series of experiments in a biomechanical laboratory. The results are summarized here.
WORKING IN FORWARD LEANING POSITIONS

- rectus abdominis: -21% - 2%
- iliocostalis: -43% - 33%
- longissimus: -28% - 34%
- quadratus lumborum: -15% - 26%
- gluteus maximus: -7% - 19%
- biceps femoris: -10% + 15%
- semitendinosus: -8% - 6%

*Results represent the average reduction for 8 participants. Individual reductions may vary and depend on the particular person and the task performed while using the LiftSuit.

REPETITIVE LIFTING OF LOADS

**No Exo** Repetitive lifting of 6 kg
Heart rate (HR) = 122 bpm
Working heart rate (WHR) = 58 bpm

**LiftSuit** Repetitive lifting of 6 kg
HR = 117 bpm (↓4 bpm)
WHR = 54 bpm (↓7%)