CARRYSUIT SPECIFICATION

The CarrySuit is a passive exoskeleton that relieves the arms and upper body when holding and carrying heavy objects. It consists of a rigid frame around the upper body. This frame connects to the user's hip and torso via a textile user interface. The size of the frame and interface can be adjusted to the user. Loads are connected to the frame via an exchangeable load connection and an adjustable strap. Through the CarrySuit, a large part of the weight is transferred directly to the hips, relieving the arms and upper body.

Maximum payload	50 kg
Maximum payload per side	25 kg
Total system mass	5.6 kg
Dimensions (packed)	59 cm x 31 cm x 39 cm
Size of the system	64 cm x 27 cm x 47 cm
Adjustable lengths textile interface	
Back length	45 - 60 cm
Shoulder straps	0 - 30 cm
Hip circumference	75 - 120 cm
Adjustable lengths frame	
Back length	43.6 – 51.8 cm
Hip width	32.5 – 45.7 cm
Lifetime	2 years
List Price	CHF 1690 without taxes (around € 1550)

Attachment of different payloads possible with an exchangeable load connector. More information available on our website.
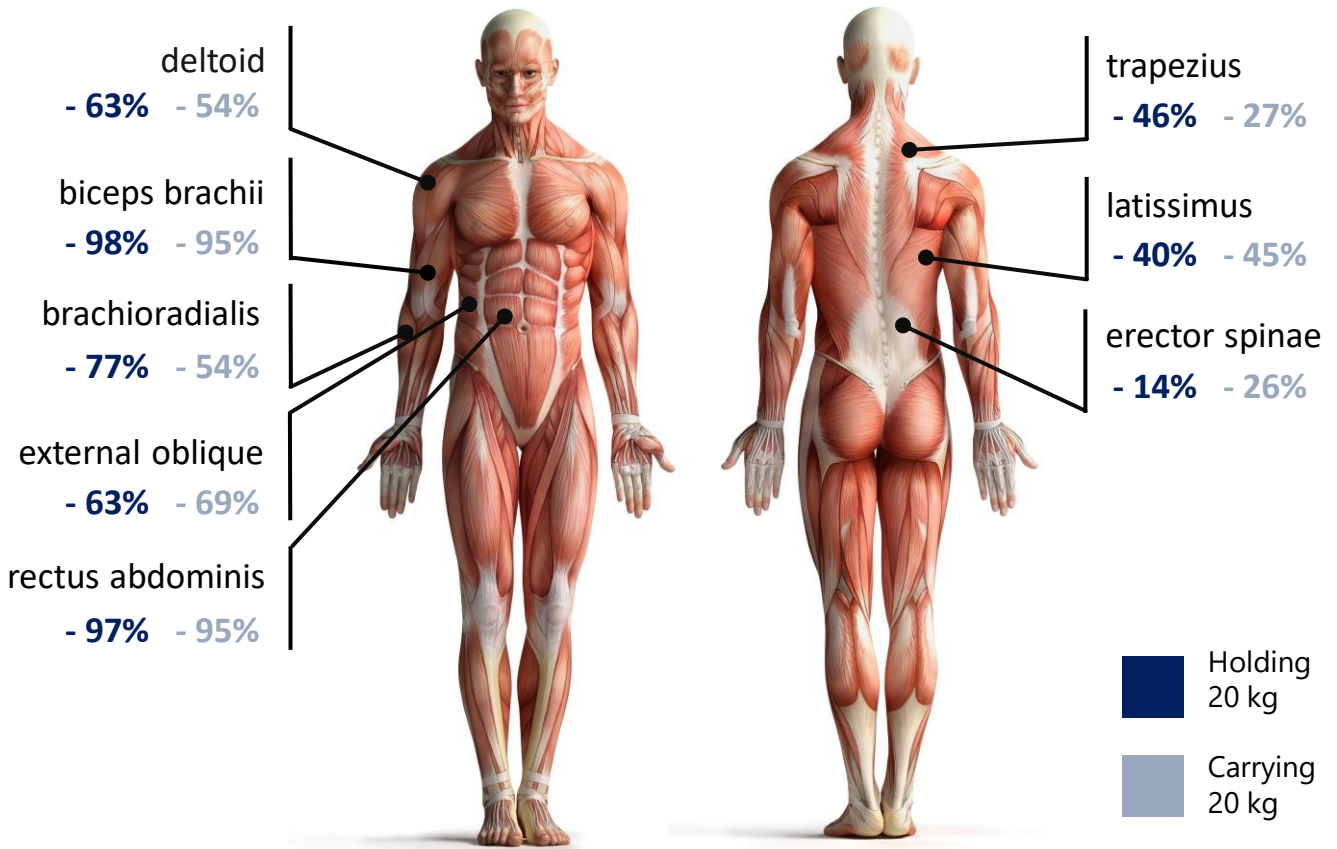
CARRYSUIT APPLICATIONS

The CarrySuit supports all work that requires holding and carrying of heavy loads. Use cases include applications in construction, relocation, warehousing, logistics, and others.

CARRYSUIT BIOMECHANICAL PERFORMANCE

The CarrySuit exoskeleton transfers the weight of the payload to the user's hip, bypassing critical joints like the wrist, elbow, shoulder, and spine and relieving the muscles in the torso and upper extremities. The level of load reduction was quantified through a series of experiments in a biomechanical laboratory.

MUSCLE LOAD REDUCTION

deltoid
- 63% - 54%

biceps brachii
- 98% - 95%

brachioradialis
- 77% - 54%

external oblique
- 63% - 69%

rectus abdominis
- 97% - 95%

trapezius
- 46% - 27%

latissimus
- 40% - 45%

erector spinae
- 14% - 26%

Holding
20 kg

Carrying
20 kg

*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 CarrySuit

HEART RATE REDUCTION

No Exo Carrying 20 kg

Heart rate (HR) = 129 bpm
Working heart rate (WHR) = 59 bpm

CarrySuit Carrying 20 kg

HR = 117 bpm (↓12 bpm)
WHR = 48 bpm (↓19%)

AUXIVO
WEARABLE SUPPORT SYSTEMS