



PES-B

Passive Elastic Suit-Back

Back Support Exoskeleton

Overview

The Passive Elastic Suit-Back (PES-B), developed by ULS Robotics with its original S-shaped mechanical architecture, generates a powerful reactive force effect in real time. Whether for long-term heavy-load work or frequent bending and stretching, the PES-B precisely disperses the pressure on the waist, effectively relieves muscle fatigue, and provides stable support during high-intensity work — significantly reducing the risk of waist strain and making every operation easy, efficient, safe and worry-free.

In a forward-leaning posture

The lower part of the PES-B generates a reactive force effect, supporting the waist and assisting the forward-leaning posture.

In a backward-leaning posture

The PES-B counters the backward tilt of the upper body, preventing the lumbar vertebrae from arching backward while supporting the posture.

Specifications

Applicable weight	45 – 100 kg
Applicable height	150 – 200 cm
Product weight	0.8 kg
Load reduction (helping effect)	≥ 30%
Device dimensions	320 × 240 × 520 mm (L × W × H)
Power source	Mechanical (passive elastic) — no charging
Materials	High-strength PP, aviation aluminium alloy, carbon fibre

How it works

Three coordinated systems guide posture, assist the legs, and protect the lower back.



Posture Guidance Function

Precisely guides the spine and waist, curbs forward lean, eases back and waist stress, and boosts work efficiency.



Muscle Strength Function

A muscle-strength belt from the knees to the waist assists the leg muscles, providing auxiliary force during forward bending and when standing up — reducing the burden on your own muscles.



Lumbar Support Function

A wide belt wraps the spine, abdominal and back muscles to stabilise and protect the waist, maintaining proper abdominal pressure to reduce strain on the waist and spine.