Digity

ARTUS **Finger Exoskeleton**

Technical Brochure

Contents

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eXIST Existenzgründungen aus der Wissenschaft
ESF Europäischer Sozialfonds für Deutschland
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Zusammen. Zukunft. Gestalten.

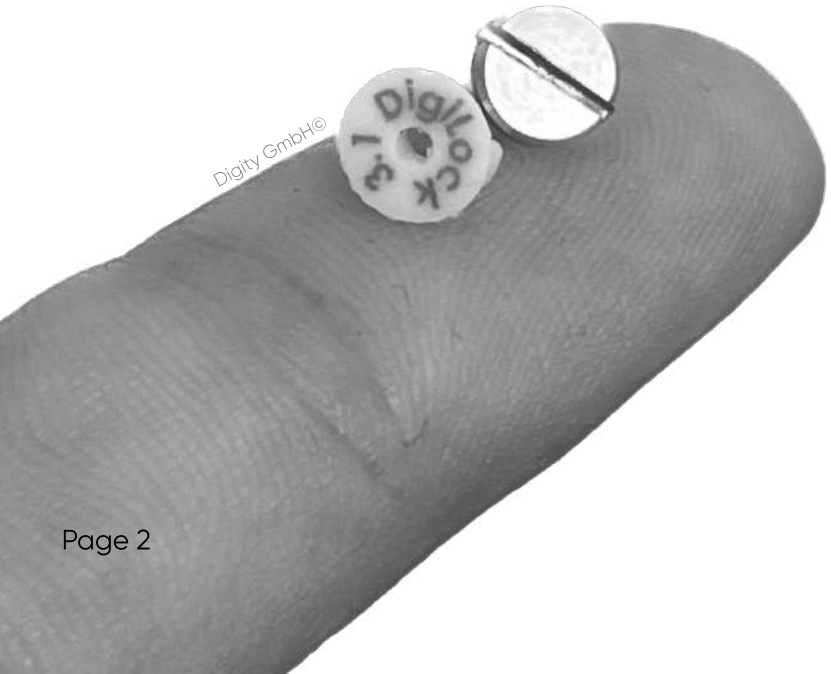
The future of finger protection is at your fingertips

ARTUS is the first generation of passive finger exoskeletons presented by Digity.

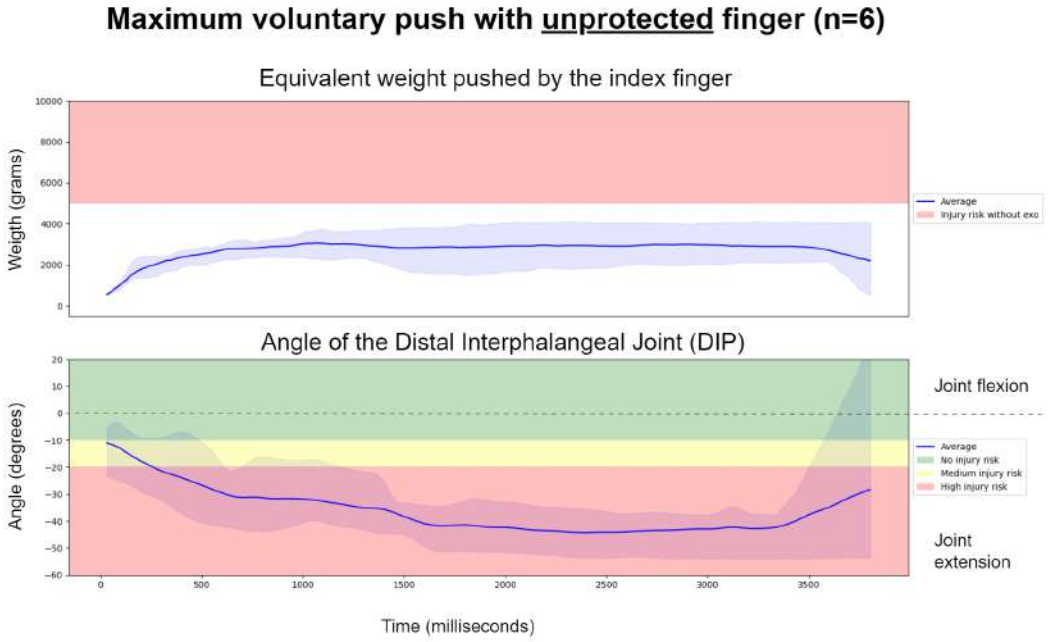
It combines the results of finger-focused R&D: The DigiLock and DigiSkin technologies to protect the finger joints and enable haptic feedback, combined with the Digity Size Wizard, which makes choosing between sizes feel like magic.

DigiLock: Seamless Protection, Effortless Use

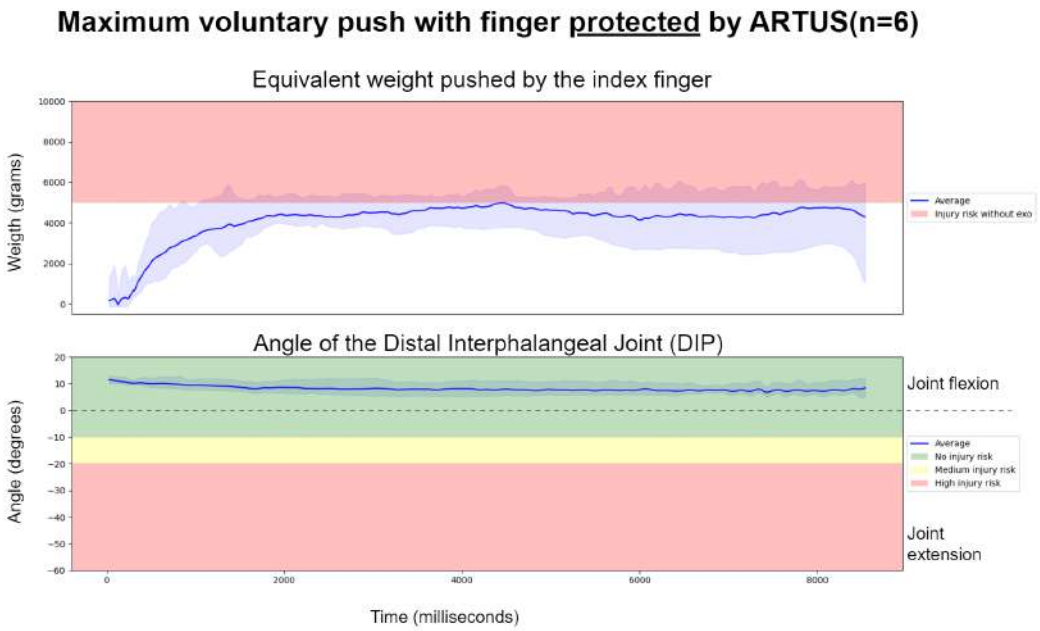
The DigiLock technology provides, for the first time in the market, with a joint protection system that does not sacrifice usability and comfort at the expense of safety.



The overextension of the finger joints lead to both short and long term negative effects. A common trade-off for safety and usability also impacts finger exoskeletons: enough stiffness to protect properly VS. low enough stiffness so that the user movement is not hindered. The consequence of such incompatibility is that the workers fingers joints are still optimally unprotected.



DigiLock blocks the movement when the anatomical joints overextend, providing an increased stability in force-based applications like in assembly lines.
In the rest of the movement range the joint becomes transparent to the movement: DigiLock is a selective stiffness enabled joint so that usability and biomechanical protection are finally compatible



You still don't believe it? We prove it.

The DigiLock technology (patent application pending) is all about optimization.

This novel, hybrid joint has been engineered combining different materials in a innovative, assembly that makes these small assemblies to withstand the torques created by **up to 40 kg loads** on the fingertip.

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DigiSkin: Feel the safety

User acceptance is one of the most decisive factors in the adoption of exoskeletons at the workplace. Making it a simple device was not enough: it had to feel like if it was not there. DigiSkin is our technology for haptic feedback, and it finally decouples safety requirements from usability requirements.

Simplicity is the ultimate sophistication

The DigiSkin technology is all about *the beauty of simplicity*. A second skin between you and the outside world, with the sole purpose of transmitting tactile information and while providing superior grip.

Finger exoskeletons must be thin. Also, rigid and sturdy to protect against cuts and smashes, and to support the anatomy. Our accomplishment: we made such a protective shell not to become a wall between the user and the world!

ARTUS is just as good ...

It is irrelevant how inventive a technology is, if it does not fulfill the purpose for which it is meant. Especially regarding safety.

Digity was born from the cradle of the German scientific research in prosthetics and orthopedics, and as such, we take it seriously when it comes to prove our claims.

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The benefits of ARTUS in the day to day of hand workers are easy to identify. The next question that arises is: Is it capable to withstand the forces and challenges that characterize its field of application?

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Technical information

Dimensions	Different sizes for optimal fit
Weight	6 – 12 g
Material	
Rigid structure	PA12
DigiSkin	TPU
Digilock	POM
Screw	Stainless steel
Joints pre-flexion	7°

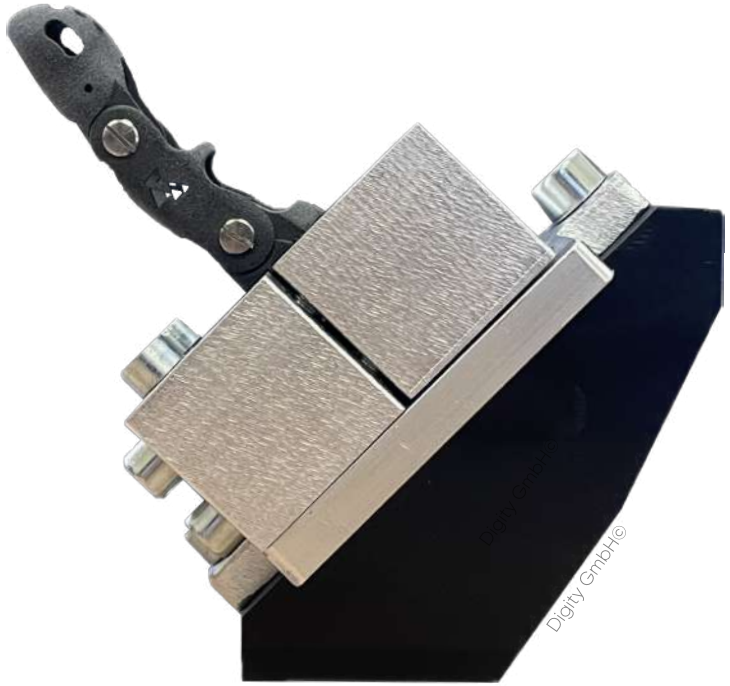
Preliminary Data (October 2023)

Fingertip stress (parallel to the finger)	
Maximum stress	100 N (~ 10 kg static load)
Cycles at Maximum Ergonomic Stress* (50N)	> 200.000
Cycles at 80% of Maximum Ergonomic Stress* (40N)	> 500.000
Maximum compressive load (crush protection)	500N (~50 kg static load)

*Source: *Ergonomic Assessment Worksheet (EAWS) v1.3.6, Fondazione Ergo-MTM Italia*

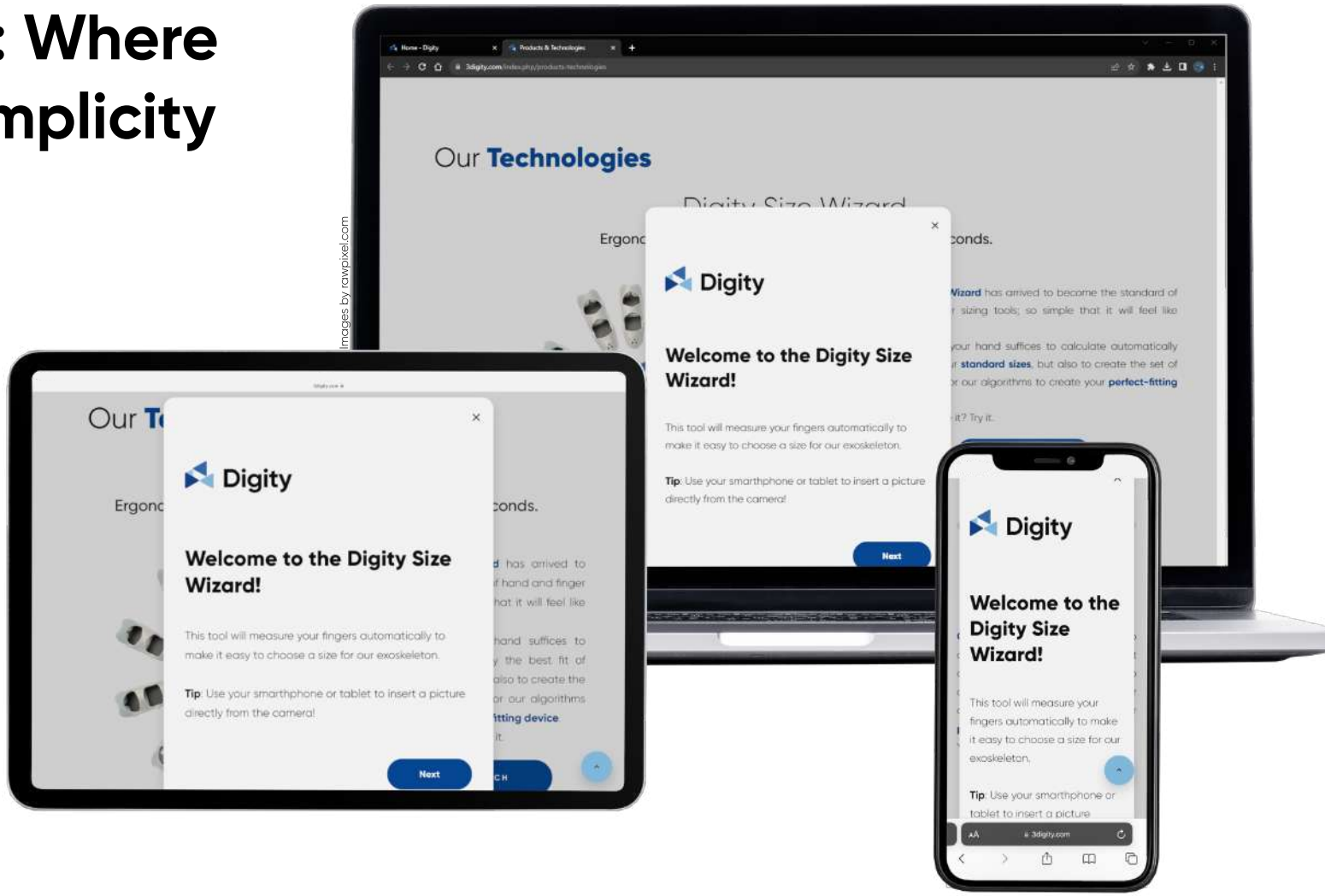
... as the tests it had to pass

Challenge is the driver of innovation, and at Digity we pursue it constantly. Are you interested in more details? Contact us! We are happy to have enlightening conversations with experts and enthusiasts around the world.

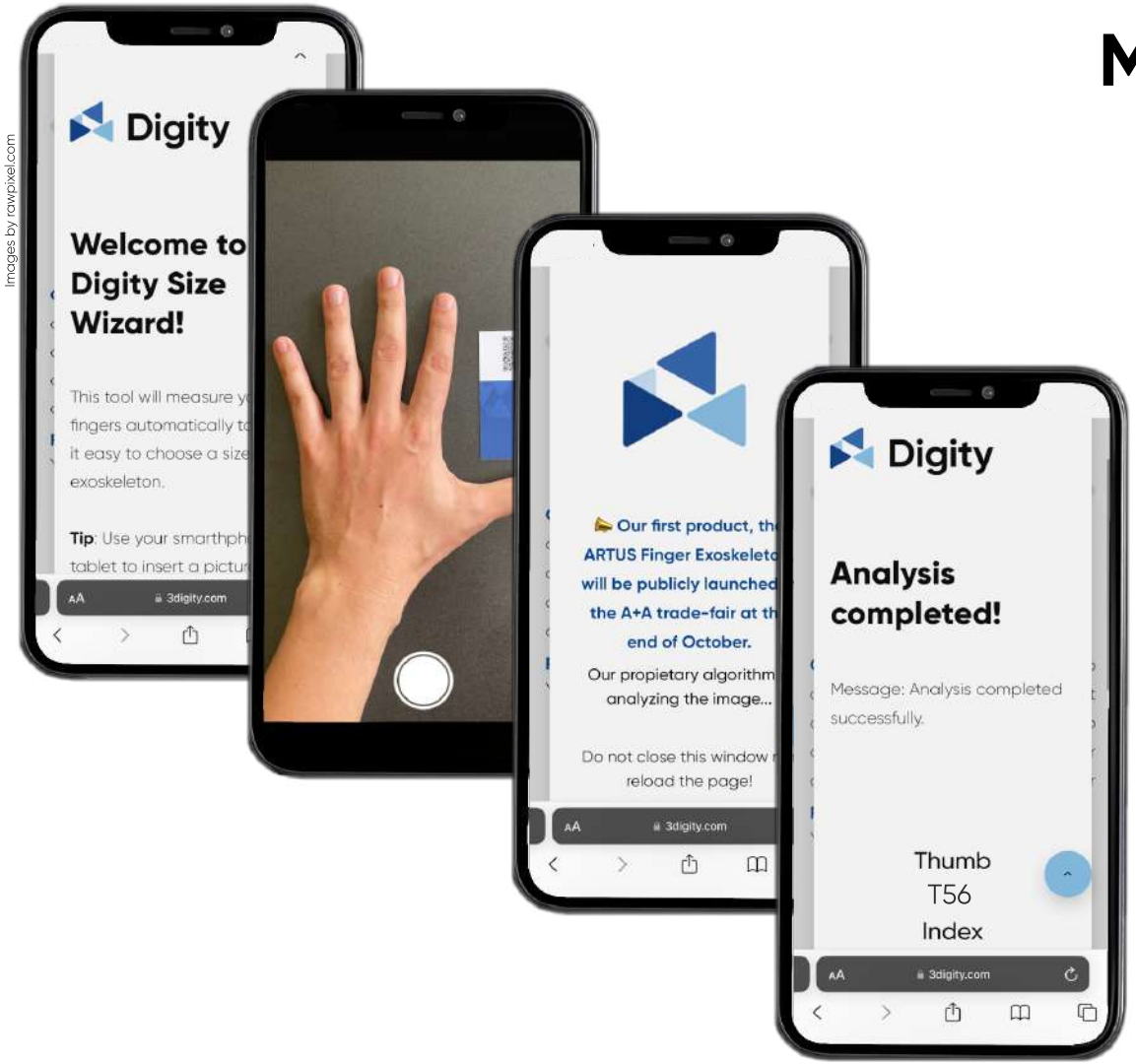


Digity Size Wizard: Where precision meets simplicity

Created as part of our technological workflow to provide customer-specific devices, our online automated sizing tool has been developed to comply with the state of the art of data protection and cybersecurity. All you need is one picture of your hand that includes the sizing token.
So much power presented with such ease that will make the sizing process feel like magic.



Images by rawpixel.com



Images by rawpixel.com

More than 30 measurements in seconds

The human hand showcases a beautiful symphony of size variation – and sizing each unique hand has never been simpler with Digity Size Wizard!

From November 2023, the early access will be open for testing. Get in touch with us if you are interested in using it!

The tool will be widely available by early 2024.

Digity

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