



EXOSKELETON REPORT

VOL 2

**SEPTEMBER 22
2023
ISSUE NO 2**



COMMITTEE F48

**12TH MEETING
ON EXO
STANDARDS**



ORGANIZATIONS

**A LOOK AT EXO
ASSOCIATIONS AND
RELATED ENTITIES**



SEE YOU AT

WearRAcon
EUROPE

25-26 OCTOBER 2023

DURING A+A 

Partner:



CONTENTS NO.2

PAGE 3

EXOSKELETON NEWS

An overview of the most interesting news from the world of exoskeletons, exosuits, and wearable robotics.

PAGE 5

HEADLINE NEWS

Shorter summaries of important events relevant to the exoskeleton industry.

PAGE 6

ON THE HORIZON

Upcoming exoskeleton-related development, shows, conferences, and events.

PAGE 8

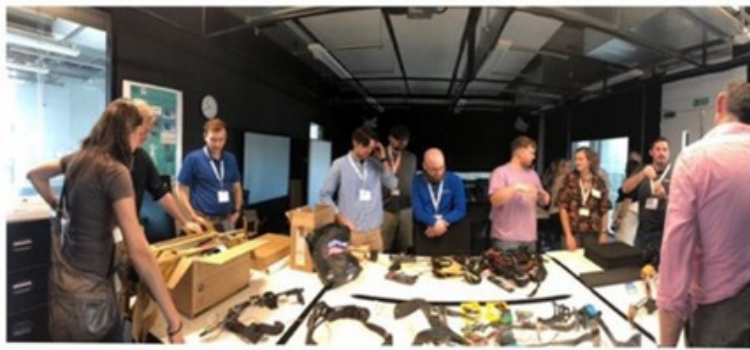
ANALYSIS

An inside closer look at a topic of the week.

Cover Image: Bunnies Wearing Exoskeletons Magnets by Tri Dao

Header Image (above): WearRAcon Europe at A+A Banner Ad

STANDARDS NEWS



Committee F48 Exoskeletons and Exosuits



The 12th ASTM International Committee F48 on Exoskeletons and Exosuits meeting occurred at the University of Central Lancashire, (UCLan) Lancashire, UK. This has been the first time Committee F48 has met outside the United States. Traveling to the UK made sense to be closer to the Exo Games and encourage greater European member participation.

All subcommittees gave updates on work items related to:

- F48.01 Design and Manufacturing
- F48.02 Human Factors and Ergonomics
- F48.03 Task Performance and Environmental Considerations
- F48.04 Maintenance and Disposal
- F48.05 Security and Information Technology
- F48.06 Risk Management
- F48.91 Terminology

F48 currently has 22 approved standards and an additional 24 under development.

Photography: Courtesy of Nora Nimmerichter



ASTM Committee F48 on Exoskeletons and Exosuits was formed in 2017 to develop voluntary consensus standards for the related technology. The Committee meets twice yearly as a single group, with over 2 to 3 days of technical meetings. F48 standards will be published in the Annual Book of ASTM Standards, Volume 15.13. The next F48 meeting is planned for April 2024 at ASTM Committee Week.

Visit the Committee [F48 website](#) for more information.





International trade fair and congress for
safety and health at work.

SEE YOU AT

Wear**RA**con
EUROPE

25-26 OCTOBER 2023
DURING A+A

24 - 27 OCTOBER 2023
DÜSSELDORF, GERMANY

People matter. www.AplusA-online.com

Partner:



Fraunhofer
IPA



University of Stuttgart
Institute of Industrial Manufacturing
and Management IFF



Wear**RA**
WEARABLE ROBOTICS
ASSOCIATION



Messe
Düsseldorf



The Retail Technology Innovation Hub ([link](#)) reports that back-support exoskeleton producer HUNIC has successfully completed a pilot trial with XPO Logistics in the UK and Ireland.



The HUNIC occupational/industrial exosuits will be deployed at XPO Logistics network sites and some dedicated warehouses.

Jonas Mast, founder and CEO of HUNIC, is scheduled to present on the second day of WearRAcon Europe / EXO PARK at the A+A Trade Fair in Düsseldorf on October 26th, 2023. That should be an excellent time to personally try out their exo product line.

ABC7 WXYZ Detroit ran into Hero Wear CEO Mark Harris at this year's Detroit Auto Show. The show attracted more than 150 startups, including the famous exosuit manufacturer.



HeroWear was joined by at least one more exosuit company, ExoBraced, which had the opportunity to show off its brand-new ExoBack. ExoBraced is a fresh exosuit company, which was only recently revealed at the WearRAcon US edition previously this year by founder Mohammadmehdi Mortazavi.



There is an increase in interest in gravity-compensation exoskeletons for defense use. These are a unique category of military exoskeletons that attempt to take some of the weight off dismounted infantry's backs, hips, knees, and ankles and reroute it directly into the ground.

There is a real need for such devices, as the weight of the soldiers' kit has dramatically increased over the past decades.



On The Horizon

Exoskeletons to be presented at the International Conference on Intelligent Robots and Systems 2023:



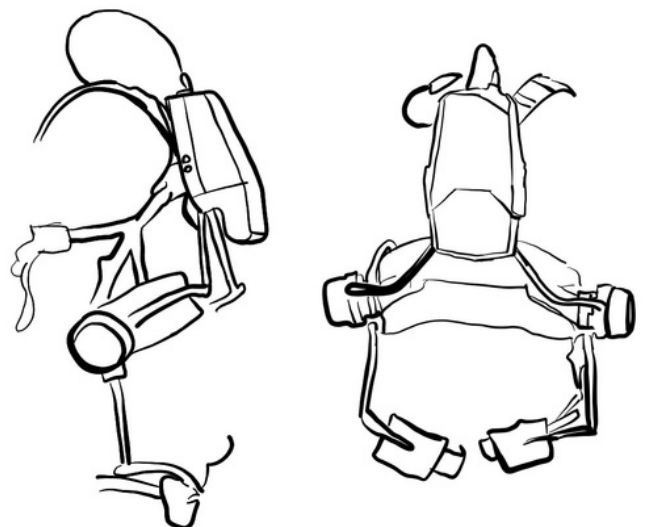
Representatives of the EU Project BEEYONDERS plan to showcase their work on exoskeletons for construction (emphasizing control strategies). BEEYONDERS is an EU-funded project designed to increase the competitiveness of European construction companies. One way to achieve this goal is to utilize new technologies, such as exoskeletons. One such exo is the Back-support exoskeleton (StreamEXO) developed at the Istituto Italiano di Tecnologia (IIT).

Header: Road to Horizon by quickshooting via Getty Images

Above & Right: Drawings based on IIT StreamExo

Assistive technology for the construction sector is envisioned to help with these challenges, primarily seen in countries with a shrinking population, such as the EU and Japan:

- Labor shortage
- Lack of digital skills in some countries
- Lack of motivation on the part of young people to work in the sector
- Issues linked to gender equality
- Need to improve the safety and well-being of construction workers of any age and gender
- Need to achieve greater resource efficiency and reduction of embodied and wasted CO2 based on a circular economy.
- Need to increase productivity while improving quality, cost efficiency, and project delivery



EXOSKELETON EVENTS CALENDAR



OCT 23 All day
ErgoX 2023

WearRAcon
EUROPE



OCT 24 October 24 - October 25
WearRAcon Europe 2023



OCT 24 October 24 - October 25
ExoBerlin 2023



NOV 20 November 20 - November 22
IBERDISCAP 2023 Conference



Find out more about these upcoming events at the [ExoskeletonReport.com](https://www.ExoskeletonReport.com) Events Calendar.

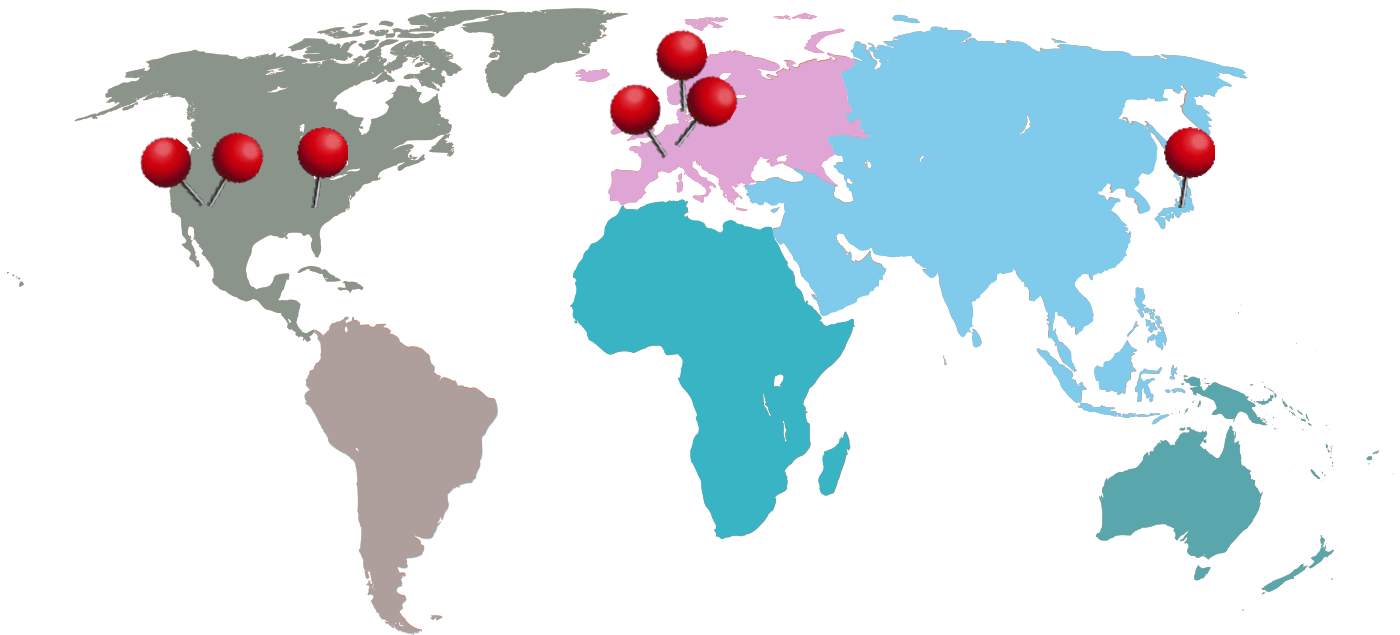
There is a good chance that the Exoskeleton Report team will be in Europe later this year! Nothing will make our team happier than to be able to cover how exoskeletons, exosuits, wearable robotics, and assistive suits are changing people's lives all over the world!

Do you know of any upcoming exo-focused events that are not listed above, let us know by sending an email at: hello@ExoskeletonReport.com



Analysis: Know Your Exoskeleton Organizations

There are about 130 companies producing exoskeleton technology all over the world. However, they and the emerging distributor businesses don't exist in a vacuum. There are (or in some cases, have been) multiple organizations in Japan, North America, and the European Union attempting to shepherd this emerging technology field.



3E - European Exoskeleton Distributors and Retailers - "One cannot know everything but together we know the most!"

Assist Suit Association - Japanese voluntary organization by assist suit-related companies to create a market, and improve awareness and educational activities.

Automotive Exoskeleton Group (AExG) industry-inclusive group that supports the evolution of exoskeletons.

Wearable Robotics Association (WearRA) professional association, best known for the WearRAcon conference series.

International Industry Society in Advanced Rehabilitation Technology (IISART) - dedicated to advancing healthcare technology in Robotics, Virtual Rehabilitation and Therapeutic Electrical Stimulation

Association of the Exoskeleton Industry e.V (VDEI) - represents the exoskeleton suppliers in Germany, Europe and worldwide.

ASTM International Exo Technology Center of Excellence (ET CoE) - accelerate safety and reliability standards for exoskeletons and their systems.



©Exoskeleton Report 2023

The Exoskeleton Report (ExR) e-magazine is written and produced by Borislav (Bobby) Marinov and the Exoskeleton Report.

The material was prepared with the aid and assistance of Daniel Walker, Gus Vogel, and Inna Marinova.

Special thanks to Tri Dao, without whose support this publication wouldn't exist.

Visit us at ExoskeletonReport.com

Reach out:

We welcome all feedback, comments, suggestions, news submissions, or inquiries regarding advertising or consulting! Contact us using our email:

- Borislav.Marinov@ExoskeletonReport.com
- [Hello@ExoskeletonReport.com](mailto>Hello@ExoskeletonReport.com)

Or by utilizing our contact form at:

- <https://exoskeletonreport.com/contact-us/>

Above: About Us... by Rolling Camera via Getty Images