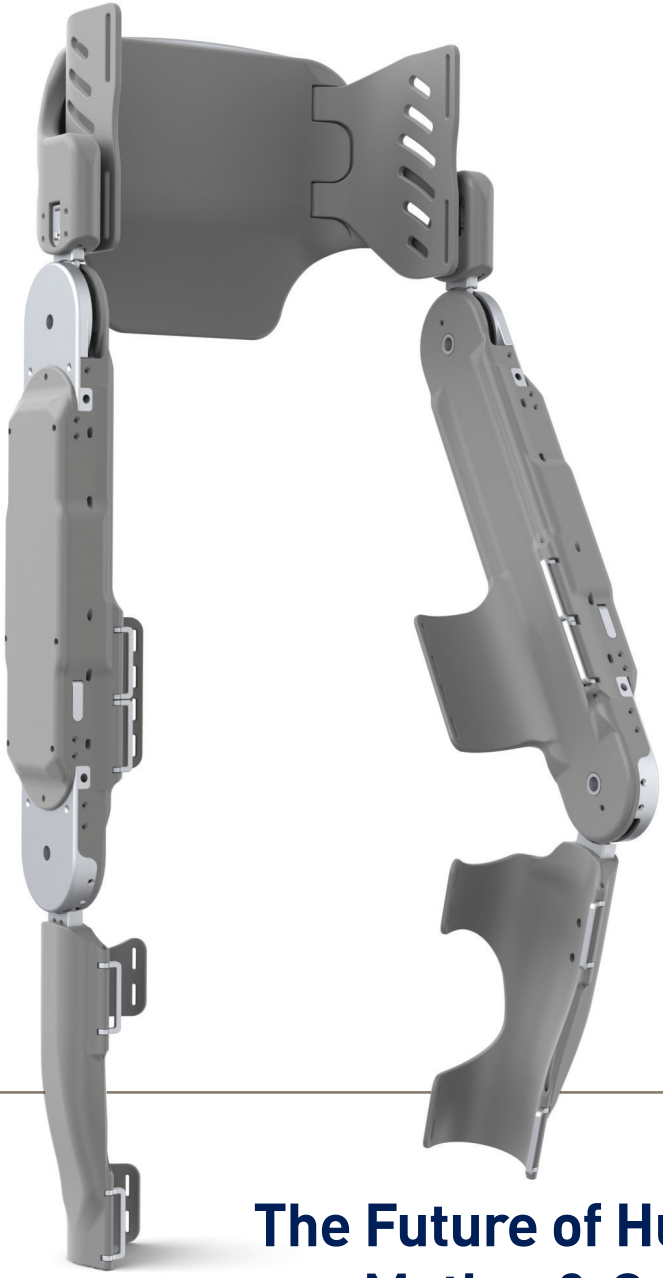

The Future of Human Motion & Control

Parker

ENGINEERING YOUR SUCCESS.

Offering People with Paralysis the Opportunity to Stand Up and Walk

Parker Hannifin Corporation, the global leader in motion and control technologies, is developing a new powered exoskeleton that holds great promise for affording people with paraplegia a new level of independence. This device allows users to stand and walk on all surfaces including stairs and gain access to areas not accessible via a wheelchair. Originally developed by a team of engineers at ***Vanderbilt University***, the device is being evaluated at the ***Shepherd Center*** in Atlanta, one of the leading hospitals for spinal cord and brain injury rehabilitation in the United States. Early feedback on the new device has been overwhelmingly positive.

Michael Gore, T10 complete paraplegic, during clinical evaluations at the Shepherd Center in Atlanta, GA.

The Parker Exoskeleton

A Breakthrough in Form and Function

Two other companies are already marketing exoskeletons for clinical use. The ***Shepherd Center*** is the only clinic to have tested these devices and the Parker exoskeleton. Based on their evaluation, they have noted some distinct advantages of the Parker device. One is the degree to which the device promotes independence because it is lighter, smaller and incorporates a modular design for easy transport. From a rehabilitation perspective, the Parker design has two potential advantages: the amount of robotic assistance adjusts automatically for users who have some muscle control in their legs and it is the only wearable exoskeleton that incorporates functional electrical stimulation, a proven rehabilitation technology.

Minimum size, maximum functionality.

Promoting Independence

A Device that is Smaller, Lighter and Modular

The Parker exoskeleton weighs just 27lbs which is nearly 50% lighter than other exoskeletons. The device also has a slim profile and no footplates or bulky backpack components, enabling a user to wear the device even while sitting in their own wheelchair. The exoskeleton is designed to be worn with an off-the-shelf lightweight ankle-foot-orthosis (AFO) to stabilize the foot. Its modular design allows it to be assembled and dis-assembled easily allowing for ease of transportation. These advantages provide an unprecedented degree of independence.

The exoskeleton is modular for easy transport and easy donning and doffing.

The exoskeleton is small to accommodate low-profile wheelchairs.

Brian Shaffer, T10 complete paraplegic, during clinical evaluations at Shepherd Center Beyond Therapy in Franklin, TN.

An Exciting New Technology with Rehabilitation Advantages

The Parker exoskeleton provides a remarkably intuitive, smooth operation, which better replicates a natural gait for maximum effectiveness as a therapeutic tool. The exoskeleton can provide 100% of the power and support required to walk and can also adjust the amount of robotic assistance (power) it provides for users who have some muscle control in their legs. This technology makes it not only ideal for persons with complete spinal cord injuries, but also incomplete spinal cord injuries, stroke, multiple sclerosis, traumatic brain injury, and other neurological conditions.

The Parker exoskeleton is the only wearable robot that incorporates a proven rehabilitation technology called functional electrical stimulation. FES applies small electrical pulses to muscles, causing them to contract and relax. FES can improve strength in the legs of people with incomplete paraplegia. For complete paraplegics, FES can improve circulation, prevent loss of bone density and reduce muscle atrophy.

"It gives me freedom from my chair."

Michael Gore, T10 Complete Paraplegic

The Parker Exoskeleton can provide a number of potential physiological and psychological benefits. Understanding how the device can impact issues such as skin care, blood pressure, spasticity and functional progression are important to the future refinement of the Parker exoskeleton as the company targets a commercial launch in 2014. "This is an extremely exciting new technology," says Clare Hartigan, a physical therapist at the ***Shepherd Center***.

The breadth and scope of Parker's technological expertise allows us to have a meaningful, and positive, impact on the world around us. It's not only a challenge we help our customers address everyday but one that sparks our passion for innovation and secures our future growth. With annual sales exceeding $13 billion in fiscal year 2012, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies. The company employs approximately 60,000 people in 48 countries around the world.

To learn more about the future of human motion and control, visit: http://**exoskeleton.parker.com**

Disclaimer: Parker Hannifin Corporation is currently engaged with Shepherd Center in the development of the technology described herein. This technology has not been submitted for FDA approval and is not currently available for sale. Continued development and testing of this device is anticipated to lead to FDA approval to market and sell this device for clinical rehabilitation and also for personal mobility, at which time indications for use and benefits of use will be announced. The information provided herein is indicative of the current research findings from clinical experiments performed with this device and should not be considered to provide approved indications for use or benefits of use.

Parker Hannifin Corporation
6035 Parkland Boulevard
Cleveland, Ohio
1.800.C.PARKER
www.parker.com