



> Case study

# One Small Step for Robots...

COMPANY

NASA

DATE

2019

LOCATION

Johnson Space Center,  
Houston

PRODUCT

**PORTAGANTRY**



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NASA's Valkyrie Robot needed an extra level of support during walking trials exploring how humanoid robotics could be use in future space trips to Mars and beyond.

**The background**

Valkyrie is a robust, electric humanoid robot capable of operating in degraded or damaged human-engineered environments. Only four were ever produced by the Johnson Space Center (JSC) Engineering Directorate and just one remains there, with the other three now being used for additional research at universities in the US and Scotland. This Valkyrie is specifically used in the Software, Robotics and Simulation Division.

**The challenge**

The Valkyrie robot at NASA is a precious, 6'2", 136kg state-of-the-art machine which represents a \$2m+ investment. Designed to mimic the motion of an astronaut in a capsule or on a spacewalk, it can be powered by a large battery attached to the rear, with input wiring monitoring its every move.

While Valkyrie is perfectly capable of walking unsupported, the size of the investment and the vast amount of data it contains means that NASA can never risk allowing the robot to fall over. It is routinely attached to a steel A-frame structure via a loose tether line, but NASA needed a back-up support system for when the robot was 'on walkabout'.

**The solution**

NASA approached REID Lifting's Canadian distributor, Equipment Corps for a portable gantry solution which would effectively move with Valkyrie while it was walking around. With a substantial inventory of REID products in stock, Equipment Corps could supply a REID **PORTAGANTRY** immediately from stock, which is now helping to keep the robot safe and secure.

The REID **PORTAGANTRY** supplied was our 2000kg capacity model with a 4.5m beam. A close coupled trolley fed onto the beam during assembly maximises the headroom for both the hoist and the robot. It gives the robot plenty of freedom to move around, sometimes on difficult to navigate and uneven surfaces, and space to accomplish fairly complex tasks.

A key benefit of the **PORTAGANTRY** is that it is engineered from durable, lightweight aluminium, making it a perfect option when Valkyrie is out at trade shows and exhibitions, as well as in the research lab. NASA's choice of trusting a REID lifting product to protect such a high value asset proves the high-quality and resilience of REID's products.

**The feedback**

Dave Kisel, Equipment Corps: "The **PORTAGANTRY** provided exactly the kind of lightweight, portable solution that NASA were looking for. We impressed them with the speed of the delivery and with the fact that we could tailor the REID **PORTAGANTRY** so precisely to suit their needs."