

Update on the InSight rover on Mars

maxon DC motors are currently on Mars, helping collect vital information on the Red Planet .

On November 26, 2018 NASA's InSight rover touched down on Mars. maxon DC motors went straight into action to unfold the two solar panels, securing the energy supply that operates the all-important probe. There are two main instruments onboard InSight, a seismometer to measure potential quakes on Mars and a heat sensor designed to drill down five meters into the ground. The sensor was developed by German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR). Its rod digs into the hard soil using a hammer mechanism, driven by a DCX motor from maxon. The rate of boring down strongly depends on the composition of the soil, which hasn't been ideal, the rod hit an obstruction in the very first hammering cycle. However, the engineers at DLR are confident these complexities can be overcome and that the sensor will reach the projected depth.

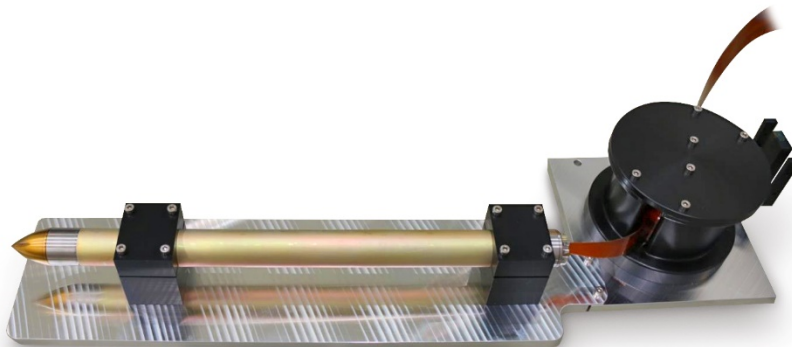
To efficiently drive the penetrometer into the ground, the DC motor needed to withstand forces in excess of 400 g – and more than 100,000 times. It took a number of variations and failed tests to find the right solution. The result is a standard DCX 22 motor, greatly modified with additional welding rings, bearing welds and specially shortened brushes. The GP 22 HD gearhead, on the other hand, only needed Mars-specific lubrication.

InSight's mission is to carry out several measurements over a period of two years and provide insights into Mars and the formation of Earth. The mission is being conducted by the Jet Propulsion Laboratory (JPL) for NASA.

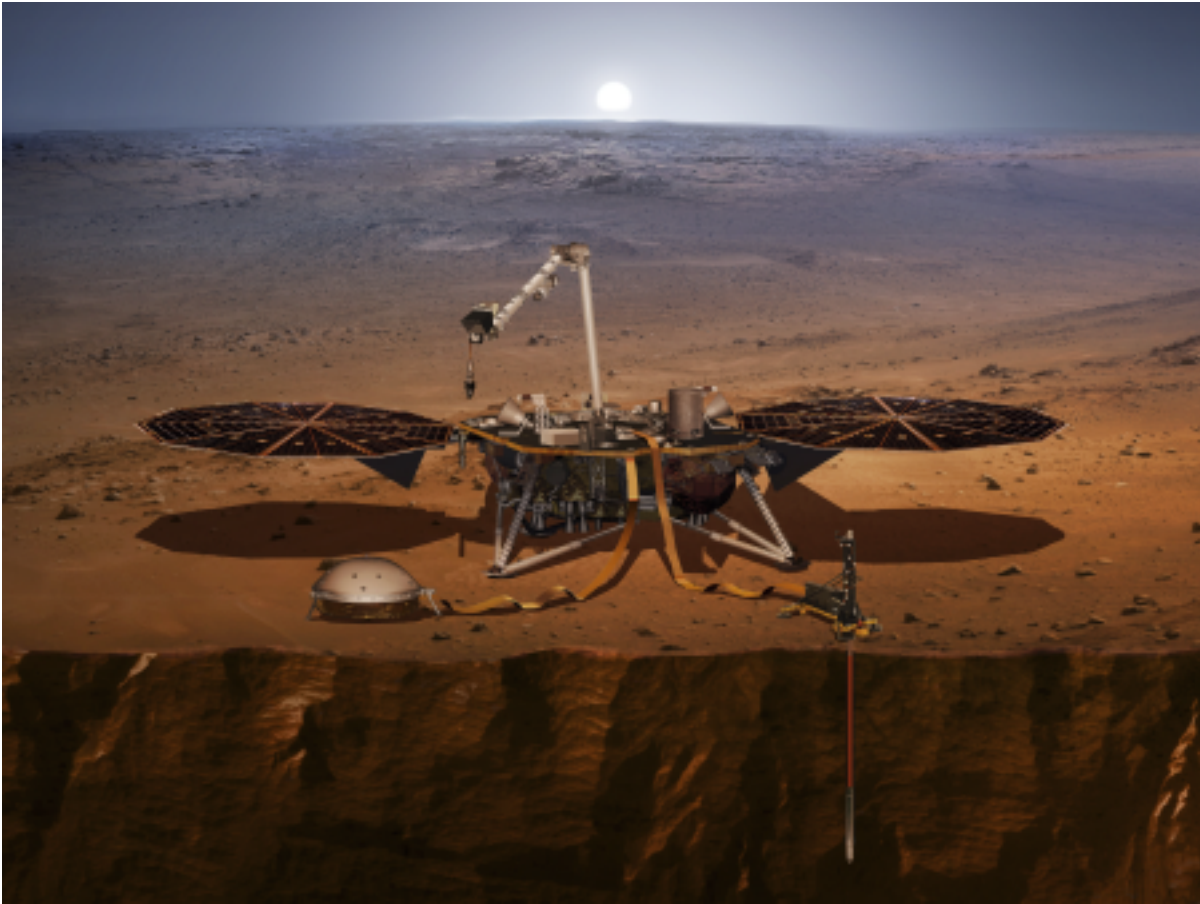
For more information on DC motors and gearheads that withstand exceptionally harsh environments, strong vibrations and extreme temperatures contact maxon motor Australia tel. +61 2 9457 7477.

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The media release is available on the internet at: www.maxonmotor.com.au



The HP3 probe. Image © DLR



Maxon DC motors are onboard NASA's InSight rover © maxon motor

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