



New Spiders

Spider platforms are getting taller
Patrick Hill reports on some of the latest releases.

Palazzani spiders go nuclear

The high-energy physics laboratory CERN (European Organisation for Nuclear Research) in Switzerland has been using two spiders from Italian company, Palazzani Industrie Spa, to install equipment for an experiment, called Atlas.

Lowered, 100m below ground level, to the Atlas experiment facility floor earlier this year, the 34 m working height Ragno TSJ 34 have been lifting engineers and scientists to 30 m to install components around Atlas. Atlas, the world's largest, general-purpose particle detector, is part of CERN's LHC (Large Hadron Collider) facility.

The Atlas detector, known as Big Wheels, measures 46 m long, 25 m high and 25 m wide; it weighs 7000 t and consists of 100 million sensors to detect and measure particles produced in high-energy, head on proton collisions in the LHC. Atlas is one set of equipment in the 27 km diameter circular tunnel of LHC, itself 50

to 150 m below ground in the Franco-Swiss border near Geneva.

Raphael Vuillermet, the project engineer who leads the Big Wheels assembly project, said they chose Palazzani spiders, "Because they are very precise and smooth [during their] displacement, especially when extended to their maximum stroke. The machines are highly used and people need to feel safe with this type of equipment when they have to work above 30 m high. The commands are also very easy and intuitive.

"This nacelle is very compact at 2 m wide and 2.5 m high. This means that we can move easily



the nacelle [platform] in a narrow environment.

"[The spider] can be manoeuvred easily with its caterpillars and can rotate on itself.

"This nacelle is very stable, especially when working above 30 m high. Thanks to the spider we can work in cantilever, up to 12 m. The basket is equipped with pressurised air, electric power and a proximity sensor [that stops boom movement] to protect our equipment."

Assembly of Atlas is complete and the experiment will start in the autumn. CERN will use the Ragno's in the future for

Big Wheels, part of the Atlas experiment at CERN, is the big octagonal block to the right of the basket of the Ragno TSJ34 spider from Palazzani.

maintenance of the detector and to access difficult areas of the facility.

Atlas, according to a CERN website, will allow scientists to "...learn about the basic forces that have shaped our universe since the beginning of time and that will determine its fate. Among the possible unknowns are the origin of mass, extra dimensions of space, microscopic black holes, and evidence for dark matter candidates in the universe."