

Rolls Royce, Derby

Climbing systems support unique construction sequences on Rolls Royce testbed facility

Key Benefits:

Custom platforms provided access in narrow areas

RCS reduced crane operation

CB 240 climbing system facilitated horizontal construction

The project at a glance

Rolls Royce's new facility in Derby will be the largest of its kind in the world, occupying a 7,500 sq. m footprint for the testbed alone. The facility forms part of the wider £150m investment in UK aerospace facilities in a bid to uphold engineering capability and engine production in the UK. Construction of the new testbed facility started in 2018 and is expected to be commissioned in 2020.



PERI[®]

Customer: Northfield Construction

Developer: Rolls Royce

Project type: Infrastructure

Products and Services:

VARIO GT 24 formwork, Light Climbing System (RCS-L), CB 240 Climbing System, PERI UP Access

What did the customer need?

On completion, the main testbed facility will comprise four sections: the Inlet, Test Cell, Augmentor and Exhaust. We were appointed to supply formwork, climbing systems and access across three of the four sections, each involving different applications.

What was the challenge?

Different construction sequences, dictated by the building's design and construction time, were used on each building. This involved both a horizontal and hit and miss construction sequence. Speed and efficiency were key requirements when designing the optimal temporary works solution.



How did we help?

To construct the inner and outer walls of the testbed building, we used single skin VARIO in conjunction with RCS-L. These walls varied from 1m to 1.7m in thickness and presented a narrow 2.5m gap in the middle.

The customer wanted to use a hit and miss construction sequence to form these walls and speed up construction. To achieve this, our VARIO shutters formed alternate 10m-long segments, deliberately leaving 10m-long intermediate sections that were later infilled with concrete.

We designed a custom RCS platform to fit the narrow 2.5m gap, enabling hydraulic climbing and access on both sides. A single RCS pump lifted two working platforms, helping to reduce crane time for these operations and save time on the project.

VARIO was also used for the construction of 16m-high walls surrounding the exhaust outer, a building attached to the exhaust and built to discharge fumes after engine tests. The formwork was paired with our CB 240 climbing system, which manoeuvred in horizontal segments to cast all adjacent walls first before jumping to construct the next level. This sequence accelerated construction and provided the required support as the pours grew in height, eliminating the need to tie the structure into the inner walls of the exhaust building.

A combination of our PERI UP Access towers enabled the site team to operate across various levels during construction. For access up to the slipform rig, we provided a 1m-wide industrial stair tower from the ground to the full height of the wall. A second industrial stair tower was installed to follow the height of the RCS platform, varying in height from 6m to 16m.



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