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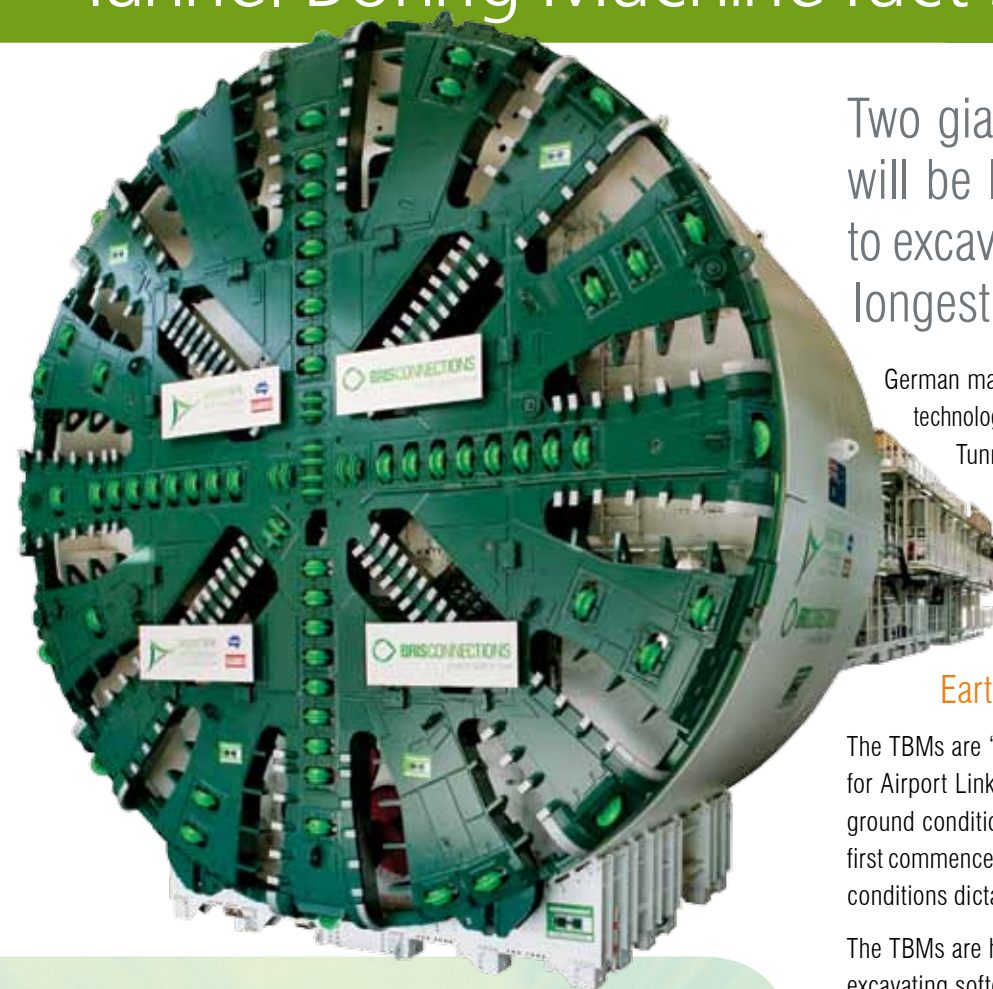
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Tunnel Boring Machine Fact Sheet



Two giant Tunnel Boring Machines will be launched from Kalinga Park to excavate Airport Link – Australia's longest road tunnel.

German manufacturer Herrenknecht, a world leader in tunnelling technology, spent nearly twelve months building the two \$45 million Tunnel Boring Machines that will excavate the Airport Link road tunnel.

The massive machines with a cutterhead diameter of 12.48 metres are 195 metres long and weigh a huge 3,600 tonnes each—the equivalent of 75 semi-trailers.

Earth Pressure Balance Machines

The TBMs are 'Earth Pressure Balance' machines specially designed for Airport Link tunnelling conditions. The TBMs will encounter soft ground conditions with a mixture of rock, sand and gravel when they first commence tunnelling from Kalinga Park in Clayfield. These ground conditions dictated the need for this type of sophisticated machine.

The TBMs are highly versatile—they are extremely safe to use when excavating softer ground but also have the ability to cut through rock that is 6-8 times harder than concrete.

TBM Fast Facts

- \$45 million each
- 12.48 metres in diameter - largest to ever operate in Australia
- 195 metres long
- 3,600 tonnes
- 12 months to manufacture
- 3 months to assemble
- 22 people to operate each machine



Operation of TBM



Arrival of TBM to Port of Brisbane

Assembly of the TBMs

Each TBM takes approximately 3 months to assemble on site and inside the custom-built TBM launch box at Kalinga Park, which measures 105m long x 35m wide x 22m deep. The various 250 separate TBM components are lowered into the launch box by two 160 tonne cranes and three 40 tonne cranes.

The 12.48 metre cutterheads fixed to the front of each TBM, are the largest to ever operate in Australia. Weighing 220 tonnes each, the cutterheads feature 73, 17-inch cutter wheels made of hardened steel.



TBM launch box construction

Tunnelling operations

Once assembled in the launch box the TBMs will commence their 12 month journey from Kalinga Park and travel west towards Lutwyche, excavating a 2.5km section of the twin 5.1km mainline tunnels for Airport Link. The first machine to commence excavation will carve out the eastbound mainline tunnel, with the second machine commencing excavation one month later in the westbound tunnel.

Each TBM machine requires a team of 22 operators at all times. The TBMs will operate 7 days a week, 24 hours a day. The TBMs will travel up to 55 metres below the surface at the deepest section of tunnel, progressing at a rate of approximately 85 metres per week.

What makes these machines particularly unique is their ability to continuously support the ground as they progress by installing a full circle of concrete segments, providing lining and support for the tunnel.

Spoil Removal

1.1 million tonnes of spoil is expected to be generated during TBM tunnelling operations. A custom-built covered conveyor system will operate 24/7 to transport the TBM spoil from Kalinga Park directly to the project's spoil handling facility on Nudgee Road.

This two kilometre conveyor system will transport up to 2,600 tonnes of spoil per hour, significantly reducing truck movements on local streets.



Construction of TBM spoil conveyor

For further information about the projects:

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