FACT SHEET

Tunnel Boring Machine

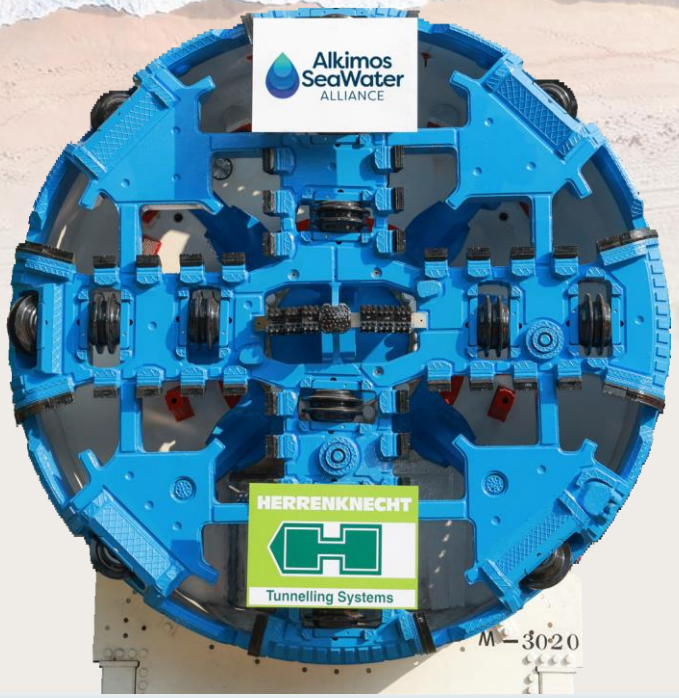
What's a TBM?

A Tunnel Boring Machine or TBM, is a high-tech machine that digs tunnels underground. Instead of blasting, engineers use a super-powerful machine.

The Alkimos Seawater Desalination Plant (ASDP) needs two TBMs. One will dig a 2.5 km tunnel to bring seawater to the plant. The other will dig a 4 km tunnel to return the leftover salty water to the ocean.

Each TBM is 176 m long, which is the same length as 15 buses end to end.

On average, the TBMs will dig about 16 metres per shift. While they aren't lightning fast, no one matches their precision. Using VMT Guidance, which uses lasers, sensors and real-time data to determine the TBMs position relative to the planned tunnel axis. This system helps the TBM stay on the right path while digging.

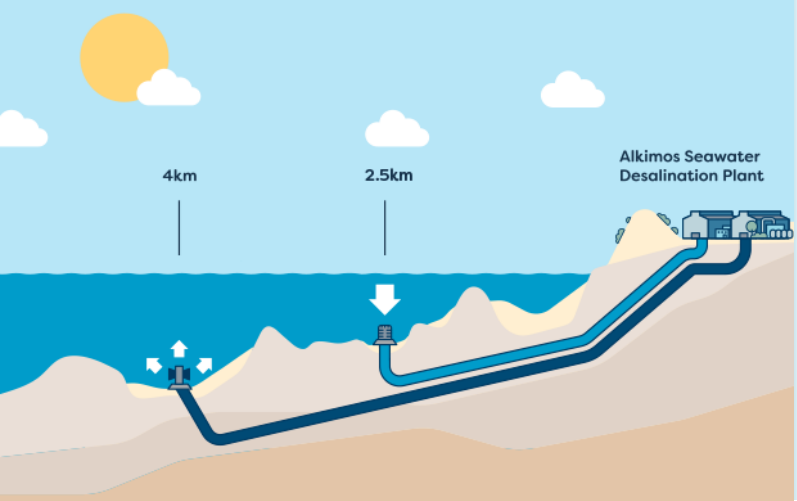


What's happening?

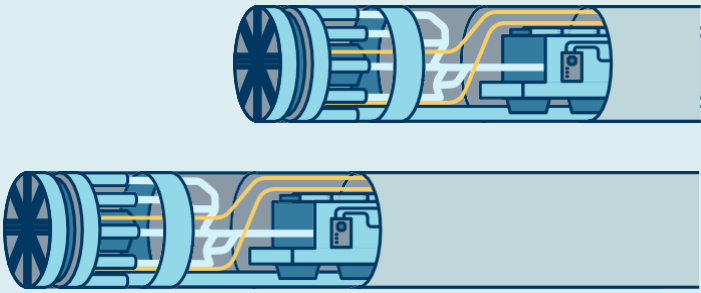
On your marks...
Both TBMs will begin to dig from mid-2025. The 2.5 km tunnel taking around 12 months to dig, and the 4 km tunnel around 18 months.

Better for the ocean
TBMs tunnel deep underground - up to 30m below ground level. This way, they don't disturb the reef system or the sea animals above.

Quiet and efficient
TBMs are quieter than blasting and create fewer vibrations.



How do they work?



How does it dig?
It has sharp tools on its blue face that grind through rock and carve out a smooth tunnel.

Versatile machines
TBMs can drill through sand, soft soil, and even rock six times harder than concrete.

Cleaning up
Everything dug out travels through internal pipes to the surface for reuse or disposal.

Building while digging
The machine places concrete segment pieces to build the tunnel's inner walls as it digs.

TBM work crews

Each TBM has a driver called a TBM operator or pilot. They guide the TBM to dig in the right direction and at the correct depth. They also ensure it works safely and efficiently.

TBMs have air circulation systems, lights for workers, and safety checks for conditions.

The TBMs will be tunnelling nonstop, 24 hours a day, 7 days a week. Two teams will take turns working 12-hour shifts. They will stay underground for the entire shift.

Each TBM has all they need for their shifts. This includes workspaces, meal areas, and toilets! Crews of ten will operate each TBM in the tunnel.

As the TBMs move deeper into the tunnel, a track system will be set up. This train-track-like system will link the TBM to the surface. It will transport workers, supplies, and construction materials to and from the TBMs.

Meet our TBMs

Like ships, its good luck to name a TBM! The names are generally female names, as a nod to Saint Barbara who is the patron saint of miners.

TBM Mary

Will build the 2.5 km tunnel that will bring seawater into the plant.

Named after a pioneer alchemist/scientist between 99-200AD who invented the Tribikos, which purified and distilled water.

TBM Karli

Will build the 4 km tunnel that will take the leftover salty water back to the ocean.

Karli, also known as a Kali/Kylie, was inspired by the Whadjuk Noongar word for boomerang, a hunting tool.

Noise and vibrations

TBMs are big and have strong motors, but they make little noise above ground. They only cause small vibrations in the local area as they dig through soil and rock.

Vibration and noise checks were done before tunnelling started. We don't expect nearby residents to hear or feel the TBMs while they operate.

Monitoring equipment is in place to provide constant updates to the project team.

Need more information?

Please visit our website

watercorporation.com.au/asdp