

Radial Wire Saws

A COST EFFECTIVE WAY OF SAVING NORTHLAND FROM FLOODS

When engineers needed to upgrade a flood control pumping station, they were confronted with the challenge to provide a 1 metre diameter hole through almost 400mm of reinforced concrete. They had received Lowery Supa Cutters technical information bulletin and thought we could help. The job was remote, north of Whangarei in the Hikurangi swamp, and was time critical because of weather constraints. The hole was 3.5 meters up a 7 metre face.



Progress of the Radial wire saw

On arrival the client asked if we could drill 1050mm, 50mm larger than planned. A simple adjustment solved that problem. Setting up took approximately one hour, and cutting commenced. Cutting took 1.5 hours, including 2 mats of D16 bars at 150mm centres horizontally and vertically. Wedges were inserted in the cut to prevent movement, and on completion the machine was dismantled and the core, weighing 800kgs, was removed using 2 chain blocks to lift and draw it out. Using the radial wire saw gave a very accurate opening: as good as a conventional drill bit. There are very good reasons from an operators point of view and especially the clients to drill large holes this way.

The Lowery Supa Cutters developed machine which is unique in New Zealand can cut any diameter hole or part hole.

Typical uses for a part hole would be cutting an arch in a wall or cutting an opening in a floor for a spiral stair case.

We can also cut tapered funnel shapes if required for replacement lids or hoppers. Depth or thickness of the concrete is not a problem, up to 700mm. for the standard machine. Access to both sides is needed. The hole produced required no remedial work for the engineers to fit their pipe work.

Alternative methods include

- Ring drilling using a series of 100mm diameter holes leaves a scalloped face and exposes the reinforcing steel to the elements.
- Sawing would give a square hole with undesirable overcuts on the corners, that would further weaken the structure.
- Conventional wire sawing would give a square opening without the over cuts, but it would be square and with 4 setups the job would take longer to complete.

This job was the ideal match of machine and task that gave the client exactly the job they wanted in the shortest possible time.

Specifications.

Hole Diameter
1050 mm.

Thickness of Concrete.
375 mm.

Concrete
30-40MPa with D16
rebar at 150mm centres
x 2 mats.

Core weight
800 kgs

Cut Area
1.2 square meters

Cutting time
1.5 hours.



1050mm hole completed in 2.5 hours