

Complex42™ Trial

CHEMFORCE

Pilings Drilling - Access Excavations



PROJECT	8 x 5m deep 600mm Cores hole in rock- Rossiter Piling Contract Epping
SUBSTRATE	250mpa Basalt
PLACE	121 Yale Drive, Epping, VIC, AUSTRALIA
DATE	4 th July 2023
COMPANY	Access Excavations.
ENGINEERS	Russell, Joel, Kyle & Logan
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DRILL RIG	HPM 100J 30 Ton Excavator
DRILL BIT	600mm Core Drill, Betek TCT Segments

SUMMARY OF RESULTS

WITHOUT COMPLEX42™	WITH COMPLEX42™
Average Rate of Penetration (ROP)	
18.5 mm / minute	23.8mm / minute
Torque	
30-45 KPa	18-25 KPa
Gearbox range	
1 to 7	7 to 10
Additional Advantages	
	<ul style="list-style-type: none"> • Less vibration of the whole machine • Reduced fuel consumption from reduced load • Significantly less wear on teeth • Less wear on hard facing of core drill

Parameters

Potable water bucketed into the hole as required



TRIAL PART 1: CONTROL – POTABLE WATER ONLY

3 x 600mm diameter holes, 5m Depth:

- Average rate of penetration (ROP) - 4.5 hours / 5m hole.
- Torque range - 30 to 45kn.
- HPM drill rig running in 1st to 7th gear with significant fluctuations in RPM due to friction load on core drill.

TRIAL PART 2: 0.8% Complex42™ ADDED TO POTABLE WATER

3 x 600mm diameter holes, 5m Depth:

- Average rate of penetration (ROP) - 3 hours / 5m hole.
- Torque range - 18 to 25kn.
- HPM drill rig smoothly running through to 10th gear (top gear) and maintaining constant RPM.

LARGE REDUCTION IN “ALL-IN” RUNNING COSTS

Improvement in performance and reduction in load on the rig is instantaneous and very obvious. You **hear** a large drop in machine noise (effort), vibration and chattering, and also **hear** it smoothly move through all 10 gears and you **see** an instant large drop in torque.

- ~20 to 30% increase in ROP (even in variable ground)
- ~12.5 to 25% lower fuel consumption due to lower torque load.
- ~30 to 50% increase in life of tungsten carbide teeth = less down time AND reduced tooling costs.
- Significantly less wear on hard facings = less down time and reduced tooling costs.
- Reduced load, more consistent RPMS, less vibration and chattering = less wear and tear on the rig, lower maintenance costs per metre of drilling and less machine down time.

