

## Reficar Refinery

Cartagena, Colombia

Helical piles were initially a small scope of the project's overall piling program. As the client became more informed of the schedule and cost savings that helical piles presented over CIP/CFA piles, they engaged Cyntech Group to value-engineer the foundations for helical piles.



## The project

Design, fabricate, and ship 3,101 large diameter helical piles with all supporting parts to Colombia.

## The challenge

Logistics, schedule, high loads, and varying soils across the site.

## The solution

Large diameter helical piles.

- 3,101 large diameter helical piles manufactured in USA and shipped to Cartagena
- Total individual fabricated parts = 10,941 (not including fasteners)
- Total duration = 34 months
- Load tests successfully performed = 15
- 792-kip ultimate capacity of the largest helical pile designed for
- Over 6.9 million pounds of finished product were shipped to Cartagena
- Coal Tar Epoxy coating was utilized

## Project facts

### Owner(s)

Reficar

### Keller business unit(s)

Cyntech Group

### Main contractor(s)

CB&I

### Applications

Helical pile foundations

### Markets

Oil, gas and chemical

### Techniques

Helical piles

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