

SINCE 1992

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# GLOBAL REFERENCE



**BUMA CE CO., LTD.**  
BUMA Construction Equipment





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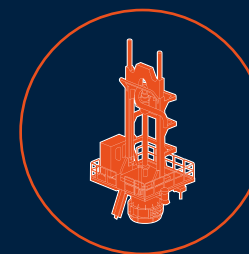
BUMA CE is one of the global leading manufacturer and supplier of foundation equipment in Korea. Since the company was built in 1992, we have been supplying the equipment to around the world with outstanding reputation of not only good quality products but also a lot of knowledge in foundation work.

**Our mission is to provide the best solution to customers based on engineering knowhow of many year's experiences.**

**BUMA Equipment is**

- Shaft drilling for large bored piling
- Strong torque and cylinder force
- Bore piling for large scale steel-frame building and bridge

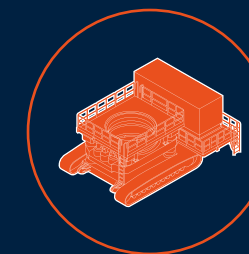
**BUMA + PREMIUM**



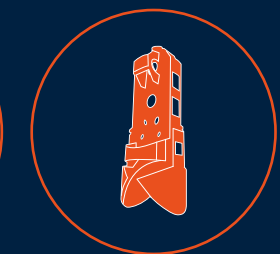
Reverse Circulation  
Drilling Rig



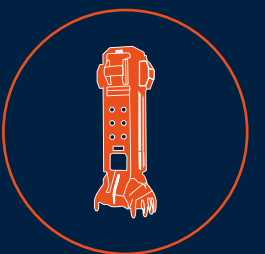
Casing  
Oscillator



Casing  
Rotator



Hammer  
Grab



Spherical  
Grab



# Reverse Circulation Drilling Rig

## Signature Bridge

India's first 'Signature Bridge', constructed across the historical Yamuna River at Wazirabad, promises to be a great attraction of New Delhi. This Signature Bridge dramatically improved access between North and West Delhi for the commuters, who had to pass through the narrow lane on the old bridge.

The rock bed is so much slopped and the rock formation is fractured. Double casing method of RCD operation was applied and successfully completed piling within the scheduled duration

### Delhi, India

Contractor	Gammon India
Casing Diameter	2,000 mm
Shaft Depth	50 m (164')
Rock	Weathered basalt, hard rock 80~120 MPa
Equipment	RCD R1820 × 2set



RCD

CASING OSCILLATOR

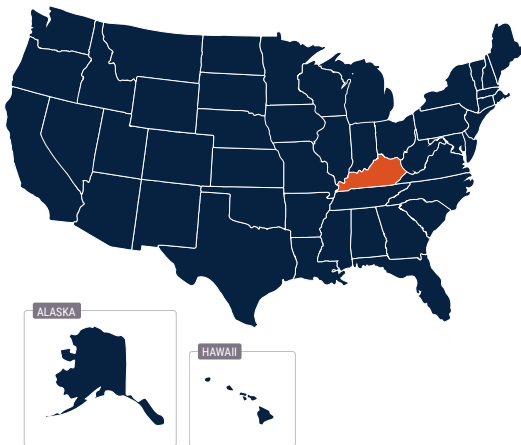
CASING ROTATOR



# KYTC Kennedy Mill Bridge Replacement

Based on numerous safety concerns and closures, a new bridge was needed to replace a 94-year-old, triple-span truss bridge across Herrington Lake, connecting Kentucky's Mercer and Garrard Counties.

Using an RCD (Reverse Circulation Drilling) system, chosen to install the foundation shafts due to deep and sloping river bottom with little to no overburden, helped successfully complete the project 11 months ahead of schedule.



## Harrodsburg, KY, USA

Contractor	Walsh Construction
Casing Diameter	2,677 mm (105")
Rock Sockets	2,438 mm (96")
Casing Driving Depth	57 m (187')
Equipment	RCD R3030



RCD

CASING OSCILLATOR

CASING ROTATOR



# Mumbai Trans Harbour Link

The Mumbai Trans Harbour Link (MTHL), also known as the Sewri-Nhava Sheva Trans Harbour Link, is an under-construction 21.8 km (13.5 miles), freeway grade road bridge connecting the Indian city of Mumbai with Navi Mumbai, its satellite city.

When completed, it would be the longest sea bridge in India.



## Mumbai, India

Contractor	DAEWOO-TPL JV
Casing Diameter	2,000 mm, 3,000 mm
Shaft Depth	50 m (164')
Equipment	RCD R1820 × 6set RCD R3030 × 1set



RCD

CASING OSCILLATOR

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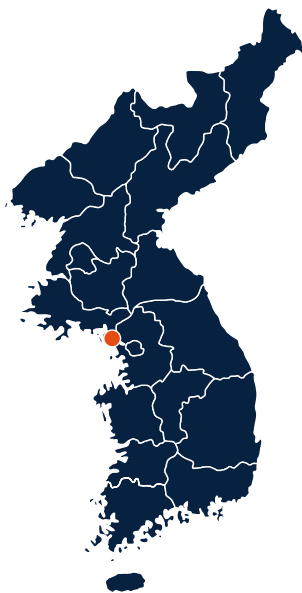


# Incheon Bridge

The Incheon Bridge, which links the Incheon International Airport (based on Yong Jong island) and the international business district of New Songdo City completed in October 2009.

It is 12.3 km long bridge which is longest length and span distance cable-stayed bridge in Korea.

Because of shallow seabed and deep rock bed around 80m below the sea level unique usage of RCD Rigs had been applied and successfully completed the piling in 18months which is incredible short duration.



## Incheon, South Korea

Casing Diameter	3,000 mm, 2,400 mm, 1,800 mm
Shaft Depth	80 m (260')
Equipment	RCD R3030 RCD R3025 RCD R1820



RCD

CASING OSCILLATOR

CASING ROTATOR



# Jaigarh Port

Currently, the port is fully operational with 7 berths having a cargo handling capacity of 55 million tons per annum. Jaigarh aims to become one of the most modern and mechanized ports in India, benchmarked to international standards.

For 19 degree raked piles, platform tiltable BUMA RCD Rigs were adopted and successfully completed all the piles within project duration.

## Jaigad, India

Contractor	ITD Cementation India
Casing Diameter	2,000 mm
Shaft Depth	45 m (147')
Equipment	RCD R1820 (Raked Pile)



Drilling String



Tooth Cutter



TCI Button Cutter



Drill Bit

RCD

CASING OSCILLATOR

CASING ROTATOR



# Casing Oscillator



## Incheon Free Economic Zone

The Incheon Free Economic Zone (IFEZ) was established with the intent of its becoming one of the future top three economic zones in the world.

The time period for the Infrastructure Development stage was from 2003 to 2009. And BUMA Casing oscillator is to drive various size of casings for foundation of building and bridge.



### Incheon, South Korea

Casing Diameter	2,000 mm
Shaft Depth	70 m (196')
Equipment	Casing Oscillator C2500G Casing Oscillator C2000H

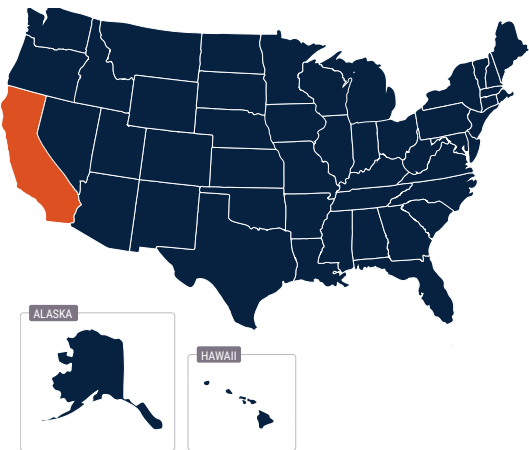




# LAX International Airport Automated People Mover Project

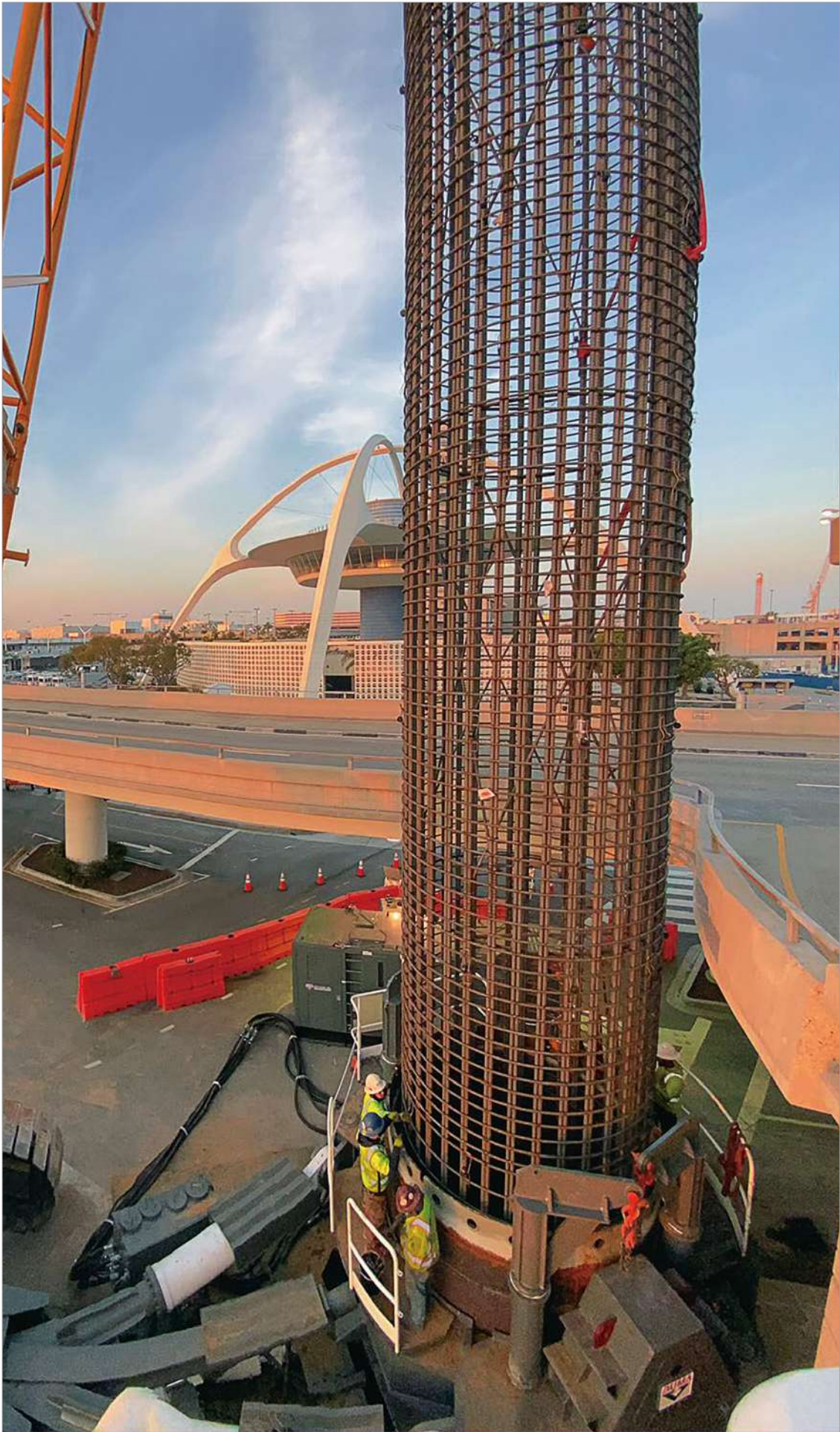
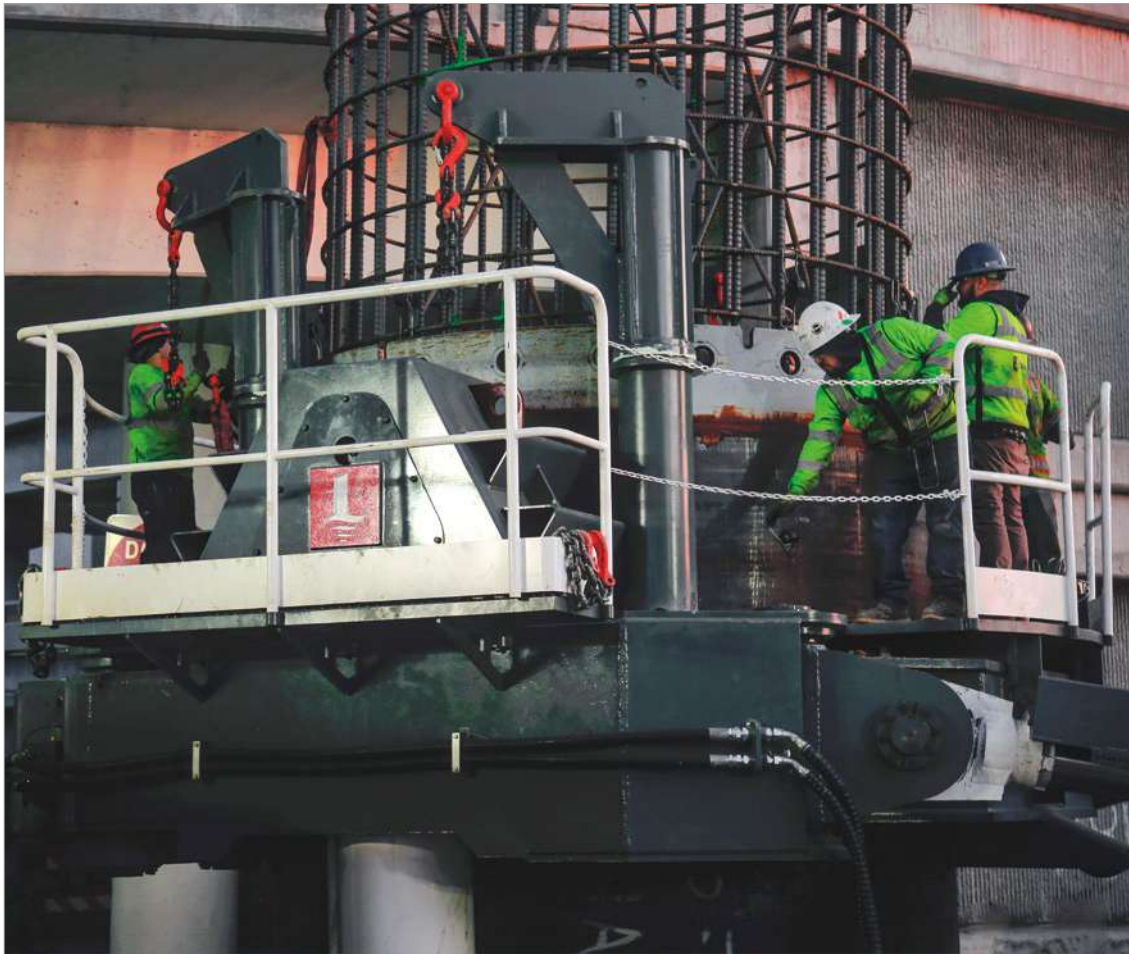
Once completed, the automated people mover at LAX will run every two minutes and serve a total of six stations above ground, with three stations being at the LAX's central terminal area. The other three will be at a future ground transportation hub for shuttles and taxis, a future consolidated rental car facility, and a future light rail station on the Metro Crenshaw Line.

Foundations are currently in the process of construction using both temporary and permanent casing ranging from 6' to 11', being installed by multiple casing oscillators.



## Los Angeles, CA, USA

Contractor	Legacy Foundations
Casing Diameter	2,000 mm ~ 3,352 mm
Casing Driving Depth	30 m (100')
Equipment	Casing Oscillator C2000T
	Casing Oscillator C2500H
	Casing Oscillator C3000G
	Casing Oscillator C3352G



RCD

CASING OSCILLATOR

CASING ROTATOR



# The Curse of Oak Island

The Curse of Oak Island is an active reality television series that first premiered in Canada on the History Channel. The show features what is known as the Oak Island mystery, showing efforts to search for historical artifacts and treasure.

By using an oscillator to install temporary casing and a grab excavate exploration shafts, damage to potential finds could be minimized and the resulting shafts could be safely explored.



## Oak Island, NS, Canada

Contractor	Irving Equipment Ltd.
Casing Diameter	1,500 mm and 2,500 mm
Shaft Depth	67 m (220')
Equipment	Casing Oscillator C1500T Casing Oscillator C2200T Casing Oscillator C2500G



ROC

CASING OSCILLATOR

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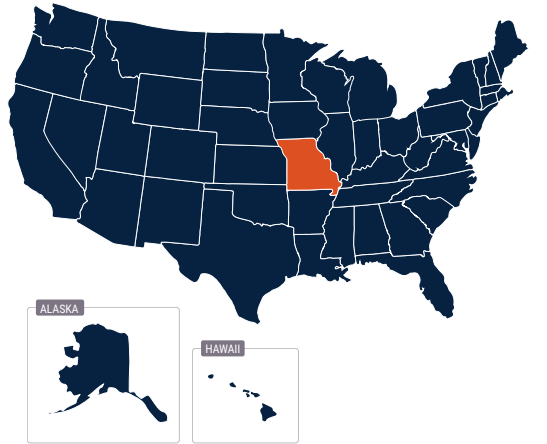
# BNSF Railroad BR 482.1 West Approach Replacement

Replacement was needed of an old BNSF railroad bridge over the Grand River in Bosworth, MO. The new bridge foundations, built from a specially designed trestle and reaction frame, were installed slightly outside and under the foundations of the existing bridge while the old bridge was still being used. The extremely tight access and frequent flooding made this a challenging project.

Once new foundations and falsework were complete, the contractor only had a 16-hour window to remove the existing span and place the new span before new bridge would see its first traffic.

## Bosworth, MO, USA

Contractor	OCCI, Inc.
Casing Diameter	2,200 mm and 3,352 mm
Shaft Depth	37 m (120')
Equipment	Casing Oscillator C2500G Casing Oscillator C3352G

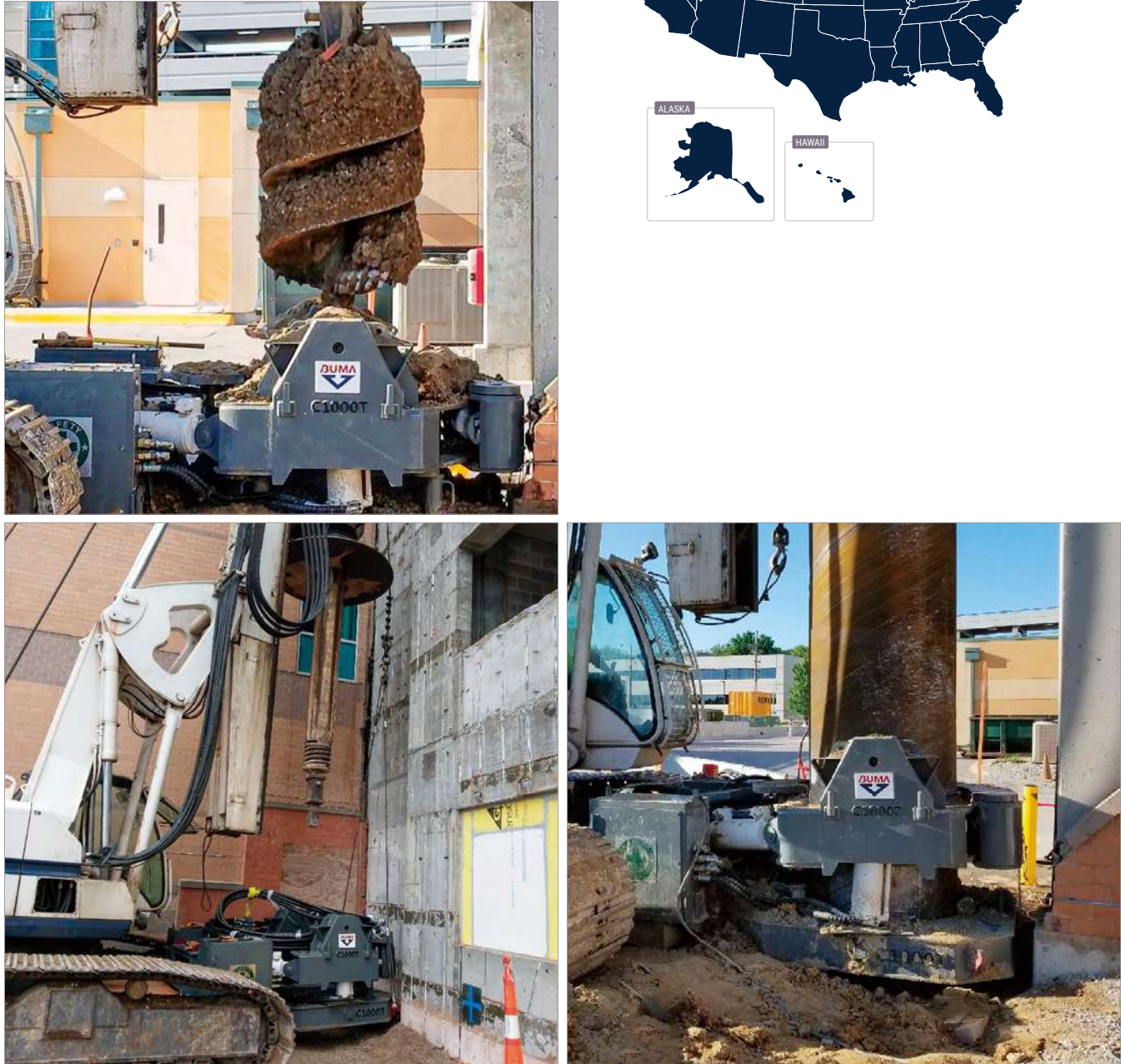
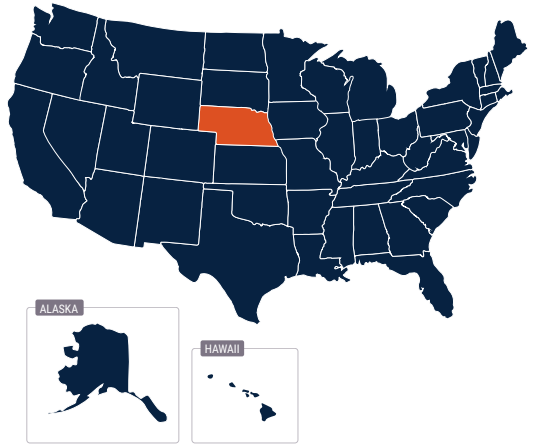


# Omaha Children's Hospital Expansion Project

A large expansion to the Omaha Children's Hospital called for specialized equipment to install the foundations due to potential caving, limited access, and placement right outside existing hospital walls where services and surgery was still being performed during construction .

## Omaha, NE, USA

Contractor	Hayes Drilling
Casing Diameter	1,000 mm and 1,300 mm
Shaft Depth	28 m (90')
Equipment	Casing Oscillator C1000T Casing Oscillator C1300T





# West Kowloon Terminus

West Kowloon Terminus (WKT) is a new railway station constructed on the Guangzhou-Shenzhen-Hong Kong Express Rail Link in Hong Kong. It is the only station in Hong Kong on the XRL.

The station is situated at Jordan, Kowloon, and will extend underground to the future West Kowloon Cultural District. It will also be connected to Mainland China by a tunnel.

## Hong Kong

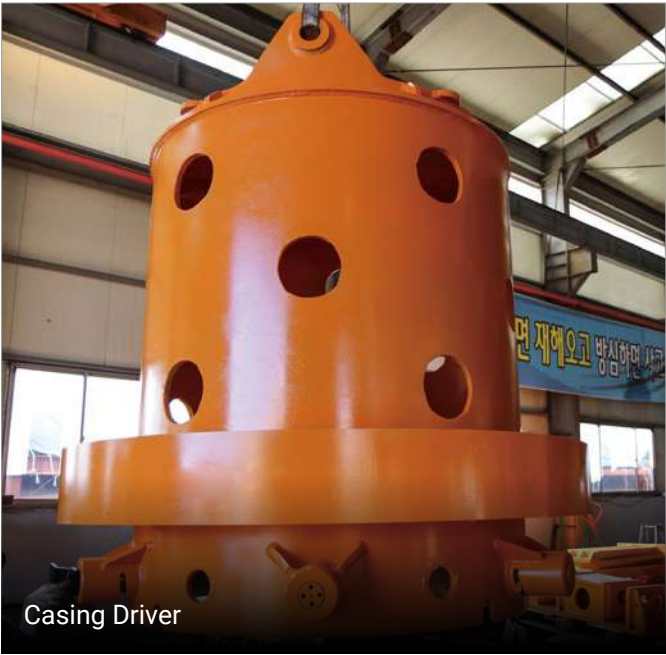
Casing Diameter	2,500 mm
Shaft Depth	60 m (196')
Rock	Granite (130~170 MPa)
Equipment	RCD R3025 × 3 set Casing Oscillator C2500G × 3 set



Hammer Grab



Casing Extractor



Casing Driver

RCD

CASING OSCILLATOR

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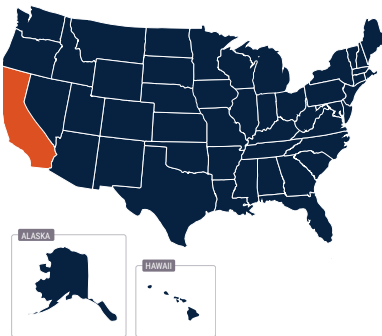


# Casing Rotator

## Gerald Desmond Bridge Replacement

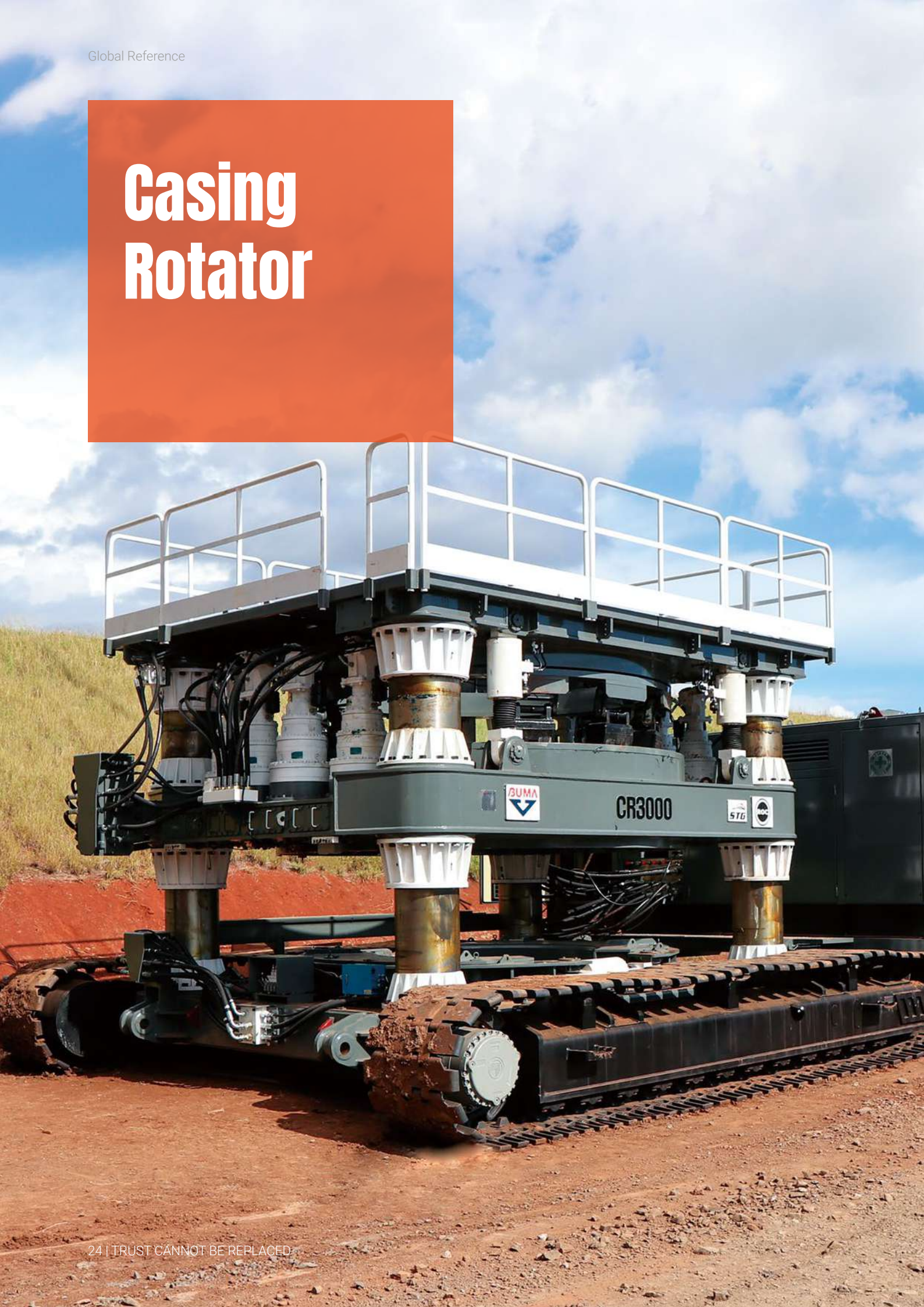
### Long Beach CA, USA

Contractor	SFI JV
Casing Diameter	1,500 mm, 1,800 mm, 2,500 mm
Equipment	Casing Rotator CR2500 Casing Oscillator C2500H Casing Oscillator C3000H



Replacement of the bridge connecting downtown Long Beach to Terminal Island was needed to accommodate increased traffic and provide clearance for larger vessels since it was first build in the 1960s.

The new cable-stayed design required 351 CIDH piles, ranging from 1.5-2.5 m in diameter and reaching depths of 31-56 m. To drill the CIDH piles, the foundation team used casing oscillators and rotators to advance temporary steel casing through many soil types found at the site.

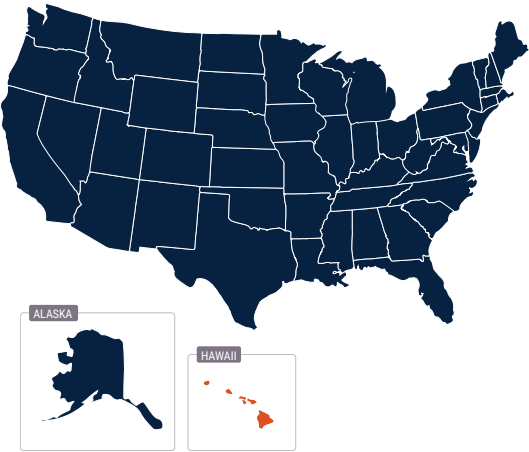




# HART Airport Guideways and Stations Project

The second phase of the Honolulu Rail Transit Project is currently in the process of construction in Honolulu. Designed as a mostly-elevated system, featuring elements from both heavy rail systems and light metros, this urban rail system is being built to mitigate traffic congestion issues on the island.

The current phase includes over 5 miles of rail between the Middle Street Transit Center Station and Aloha Stadium. The urban location and soil conditions ranging from extremely hard rock to very poor soils have made for challenging foundation installation.



## Honolulu HI, USA

Contractor	STG JV
Casing Diameter	2,200 mm, 3,000 mm, 3,600 mm
Casing Driving Depth	57m (187')
Equipment	Casing Rotator CR3000 Casing Oscillator C2200T Casing Oscillator C3600H



RCO

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# Thomson Line

Penta Ocean are using BUMA Casing Rotator to drive 25m depth casing for the T221 project at Sin Ming Ave.

Rotator are being used because of the depth of the retaining wall and the strict requirement that the bored pile must be driven as straight as possible into the ground.

## Singapore

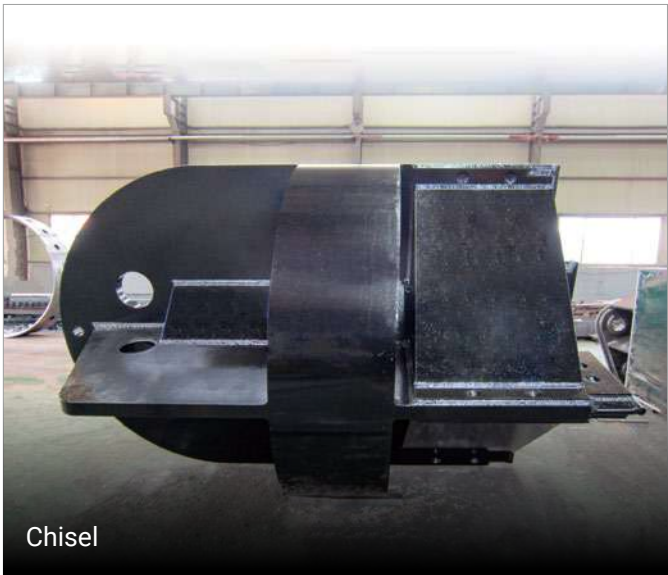
Contractor	Penta Ocean
Casing Diameter	1300 mm, 1400 mm
Casing Driving Depth	25 m (82')
Equipment	Casing Rotator CR2000 × 2set



Spherical Grab



Sectional Casing



Chisel



Sectional Casing

RCD

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