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BUMA CASING ROTATOR

BUMA CE CO., LTD.
BUMA Construction Equipment

Casing Rotator Method

Cased Drilled Shafts are required when Ground Conditions are so unstable that drilled holes can not safely be stabilized with drilling slurry or where lose of ground must be controlled. Casing can be temporary or permanent steel pipe which provides a 100% stable excavation for the full length of the drilled shaft.

The Casing Rotator method provides a superior method for drilled shaft construction with high quality ensuring an uninterrupted construction schedule through the elimination of anomalies.

This technology is the only proven method to drill large diameter shafts in caving conditions, such as loose sands and gravelly soil with cobbles and boulders. Boulders several feet in diameter can be removed safely by the use of Hammer Grab or Spherical Grab without major interruption to the excavation process. Since only water is used for drilling, environmental concerns are minimized or totally eliminated using this technique.

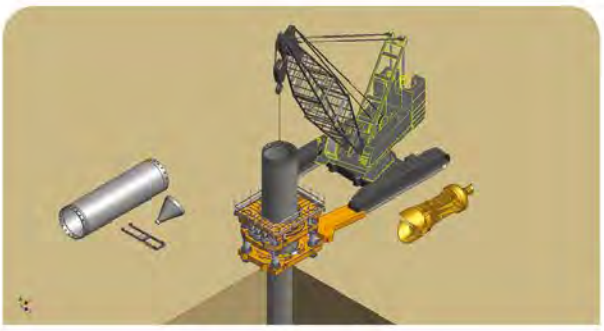
Various Applications

- Removing existing concrete piles

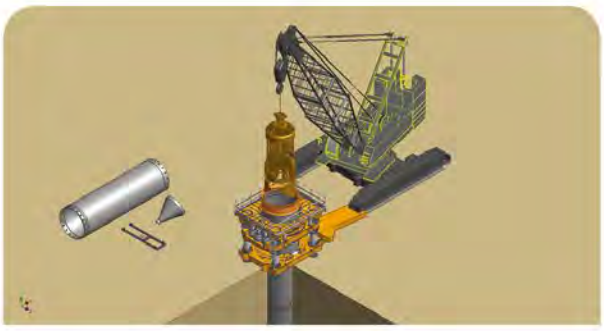
- Cutting through concrete in secant piling

- Penetrating inclined rock layers or large boulders

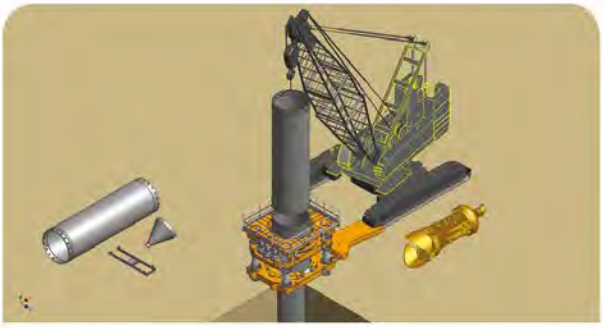
Working Procedure



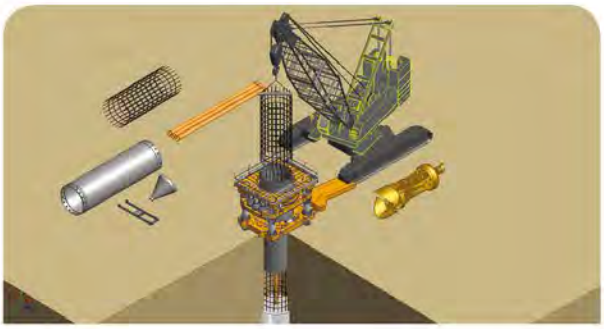
01 Install starter casing equipped with cutting shoe. Add new casing section with bolted connection.



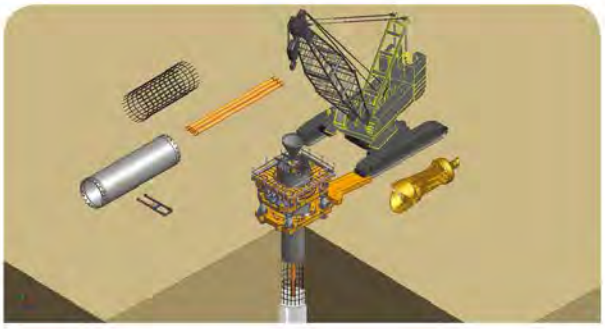
02 Excavate soil continuously during casing installation. Maintain water head inside casing to balance external hydrostatic head at all times.



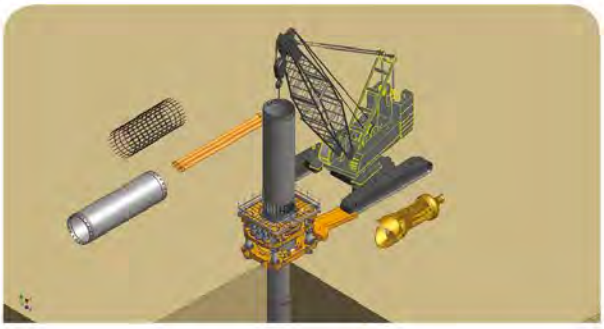
03 Add new casing sections until pile has been excavated to depth. Keep casing tip ahead of excavation at all times.



04 Install reinforcement cage and suspend at proper elevation.

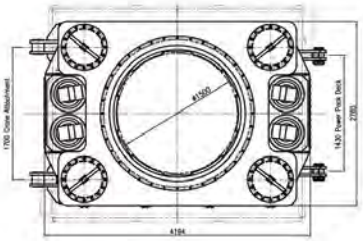


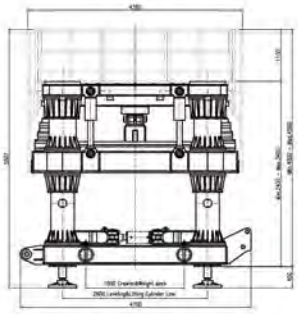
05 Pour concrete using sectional tremie pipe. Maintain concrete head above casing tip at all times.

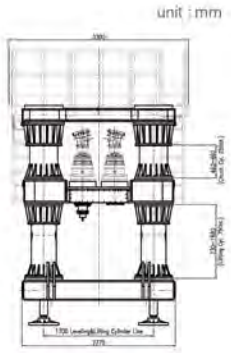


06 Remove casing and tremie pipe sections simultaneously as concrete is poured.

BM-CR1500







Specification

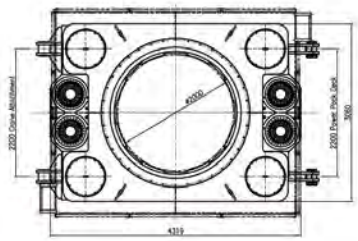
Applicable Casing Diameter	800 ~ 1,500 mm (2'7" ~ 4'11")
Torque	2,125 kN.m (1,567,319 lbf.ft), Boost : 2,720 kN.m (2,006,168 lbf.ft)
Rotation Speed	0 ~ 2.65 rpm
Extracting Force	211 ton at 320 bar, 4 Hyd. Cylinder (Stroke 750 mm / 2'6")
Weight	30 ton Approx. (66,139 lb)
Power Pack	P2616CR / P3816CR (TIER IV) P3616CR (TIER III)

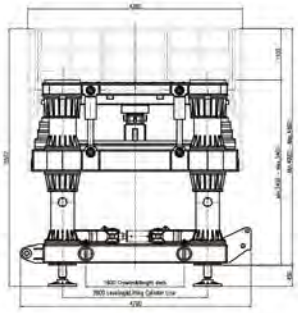
** The specifications are subject to change for improvements or customer's requirement

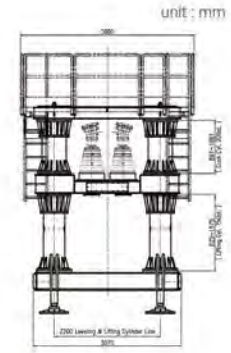
Dimension

Length	4,700 mm (15'5")
Width	3,300 mm (10'10")
Height	2,400 mm (7'10")
Max. Height	3,400 mm (11'2")

BM-CR2000







Specification

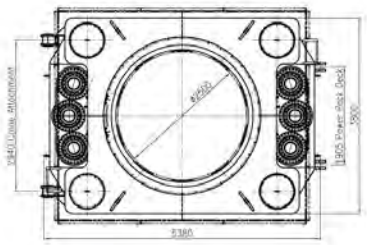
Applicable Casing Diameter	1,000 ~ 2,000 mm (3'3" ~ 6'7")
Torque	3,188 kN.m (2,351,344 lbf.ft), Boost : 4,081 kN.m (3,009,986 lbf.ft)
Rotation Speed	0 ~ 2.25 rpm
Extracting Force	363 ton at 320 bar, 4 Hyd. Cylinder (Stroke 750 mm / 2'6")
Weight	42 ton Approx. (92,294 lb)
Power Pack	P3816CR (TIER IV) / P3616CR (TIER III)

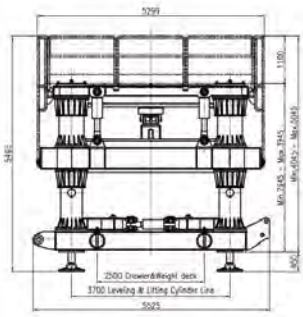
** The specifications are subject to change for improvements or customer's requirement

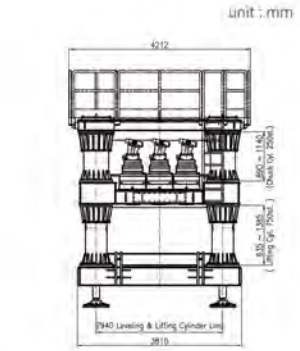
Dimension

Length	4,875 mm (16'0")
Width	3,600 mm (11'10")
Height	2,927 mm (9'7")
Max. Height	3,877 mm (12'9")

BM-CR2500







Specification

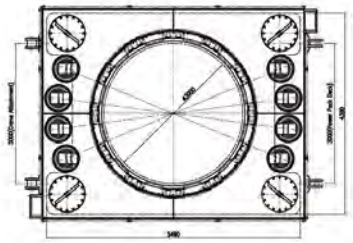
Applicable Casing Diameter	1,500 ~ 2,500 mm (4'11" ~ 8'2")
Torque	5,156 kN.m (3,802,870 lbf.ft), Boost : 6,600 kN.m (4,867,909 lbf.ft)
Rotation Speed	0 ~ 2.34 rpm
Extracting Force	486 ton at 320 bar, 4 Hyd. Cylinder (Stroke 750 mm / 2'6")
Weight	64 ton Approx. (141,096 lb)
Power Pack	P6125VR (TIER IV) / P6025CR (TIER III)

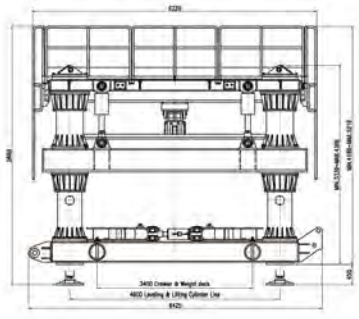
** The specifications are subject to change for improvements or customer's requirement

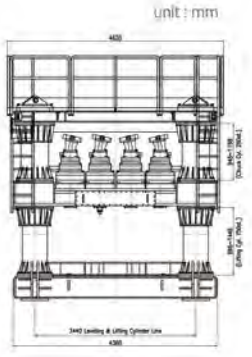
Dimension

Length	5,525 mm (18'2")
Width	4,212 mm (13'10")
Height	2,945 mm (9'8")
Max. Height	3,945 mm (12'11")

BM-CR3000







Specification

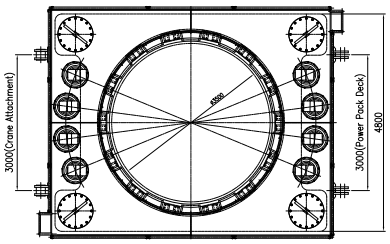
Applicable Casing Diameter	2,000 ~ 3,000 mm (6'7" ~ 9'10")
Torque	7,162 kN.m (5,282,419 lbf.ft), Boost : 9,167 kN.m (6,761,231 lbf.ft)
Rotation Speed	0 ~ 1.8 rpm
Extracting Force	532 ton at 320 bar, 4 Hyd. Cylinder (Stroke 750 mm / 2'6")
Weight	82 ton Approx. (180,779 lb)
Power Pack	P6125VR (TIER IV) / P6025CR (TIER III)

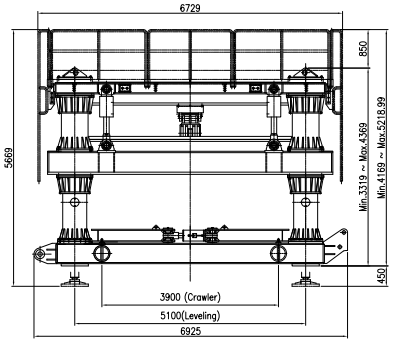
** The specifications are subject to change for improvements or customer's requirement

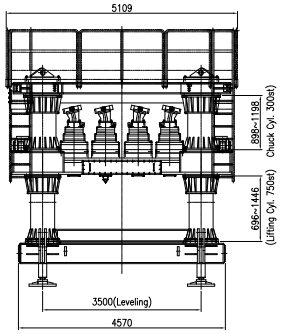
Dimension

Length	6,425 mm (21'1")
Width	4,620 mm (15'2")
Height	3,339 mm (10'11")
Max. Height	4,369 mm (14'44")

BM-CR3500







Specification

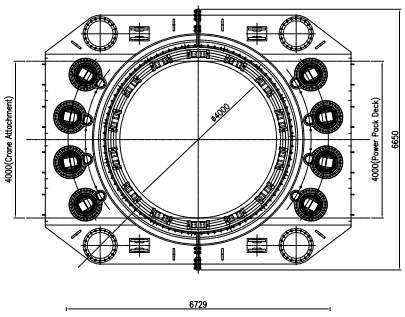
Applicable Casing Diameter	3,000 ~ 3,500 mm (9'10" ~ 11'5")
Torque	8,000 kN.m (5,900,496 lbf.ft), Boost : 10,200 kN.m (7,523,133 lbf.ft)
Rotation Speed	0 ~ 0.9 rpm
Extracting Force	788 ton at 320 bar, 4 Hyd. Cylinder (Stroke 750 mm / 2'6")
Weight	100 ton Approx. (264,554 lb)
Power Pack	P6125VR (TIER IV) / P6025CR (TIER III)

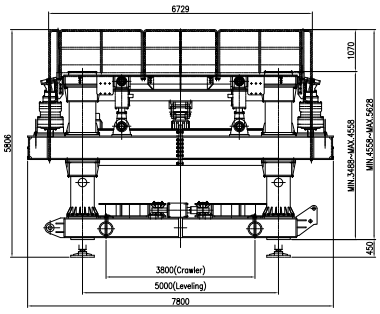
** The specifications are subject to change for improvements or customer's requirement

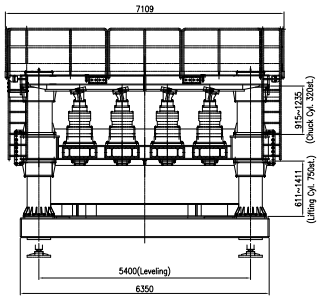
Dimension

Length	6,925 mm (22'8")
Width	5,109 mm (16'9")
Height	3,319 mm (10'10")
Max. Height	4,369 mm (14'4")

BM-CR4000







Specification

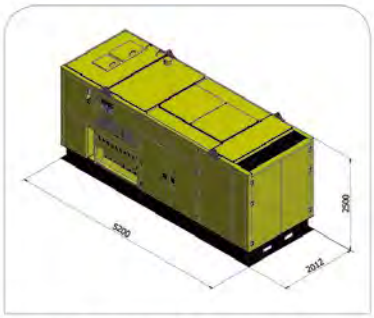
Applicable Casing Diameter	3,500 ~ 4,000 mm (11'5" ~ 13'1")
Torque	8,250 kN.m (6,084,887 lbf.ft), Boost : 10,560 kN.m (7,788,655 lbf.ft)
Rotation Speed	0 ~ 1.5 rpm
Extracting Force	905 ton at 320 bar, 4 Hyd. Cylinder (Stroke 750 mm / 2'6")
Weight	120 ton Approx. (264,554 lb)
Power Pack	P7625CR (TIER T3)

** The specifications are subject to change for improvements or customer's requirement

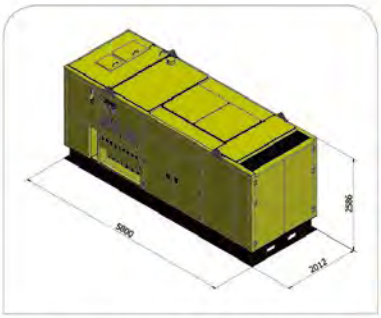
Dimension

Length	7,800 mm (25'7")
Width	7,100 mm (23'3")
Height	3,488 mm (11'5")
Max. Height	4,558 mm (14'11")

Power Pack



BM-P2616CR & BM-P3816CR
& BM-P3616CR



BM-P6025CR & BM-P6125VR
& BM-P7625CR

Specification

Model	BM-P2616CR	BM-P2616CR	BM-P3616CR	BM-P6125VR	BM-P6025CR	BM-P7625CR
Engine	CU mmINS QSB 6.7 (TIER 4)	CU mmINS QSL9 (TIER 4)	CU mmINS QSM 11 (TIER 3)	VOLVO TAD1671VE (TIER 4)	CU mmINS QSX-15 600 (TIER 3)	CU mmINS QSK-23 (TIER 3)
	210 kW / 260 HP / 2,100 rpm	283 kW / 380 HP / 2,100 rpm	268 kW / 360 HP / 2,100 rpm	450 kW / 612 HP / 1,900 rpm	447 kW / 600 HP / 2,100 rpm	567 kW / 760 HP / 2,100 rpm
Hyd. Pump	Max. Flow 330 ℓ/min x 2ea	Max. Flow 330 ℓ/min x 2ea	Max. Flow 330 ℓ/min x 2ea	Max Flow 450 ℓ/min x 2ea	Max. Flow 450 ℓ/min x 2ea	Max. Flow 525 ℓ/min x 2ea
	Operating 250 bar / Max. 320 bar	Operating 250 bar / Max. 320 bar	Operating 250 bar / Max. 320 bar	Operating 250 bar / Max. 320 bar	Operating 250 bar / Max. 320 bar	Operating 250 bar / Max. 320 bar
Weight	8 ton	9 ton	9.5 ton	11 ton	11 ton	13.5 ton

** The specifications are subject to change for improvements or customer's requirement

Special Accessories

Main Control in Power Pack

Wireless Main Remote Control

Wireless Traveling Remote Control

Operating conditions such as leveling, rotation speed, torque, and hydraulic pressure can be checked in real time and control parameters can be set on main remote control's touch screen.

Casing Clamping Chuck

Retaining Clamp

Special Features

Counter Balance Function is that Rotator is holding the total load weight of the casing and provides the stable casing drilling condition. By controlling the weight of the casing and thrust force and rotating speed, the rotator is able to drive the casing. This function is necessary for drilling into inclined rock layer and overlap cutting in secant pile.

Counter Balance Function

It prevents dropping the casing when Rotator is in procedure of lifting up the casing.
This programed system prevents retaining (lower) clamp from releasing until the upper clamp (chuck) is securely engaged, and the upper clamp from releasing until the retaining clamp is securely engaged

Automatic Clamping Function

Automatic Oscillating Function

Like Casing Oscillator as one of BUMA's rotators have a similar oscillating function. When facing an interruption, the automatic oscillator function helps loosen the casing by releasing the friction between the casing and surrounding soil.

Self Traveling

Optional crawler tracks and power pack deck can eliminate the need for a crane to lift the heavy rotator and reduce mobilization time when moving from shaft to shaft

Automatic driving Function is a program that programs the sequence of operations performed by the operator and allows the machine to perform smart walking on its own.

Automatic Driving Function

The automatic pull-down control Function allows the casing to calculate the pressure applied to the ground, and then control it to follow the pressure set by the operator.

Automatic Pull-Down Force Control Function

Torque Booster Function

The torque booster function momentarily increases the system pressure to the maximum permissible level when a high rotational torque and lifting force are required during operation to output the maximum power.

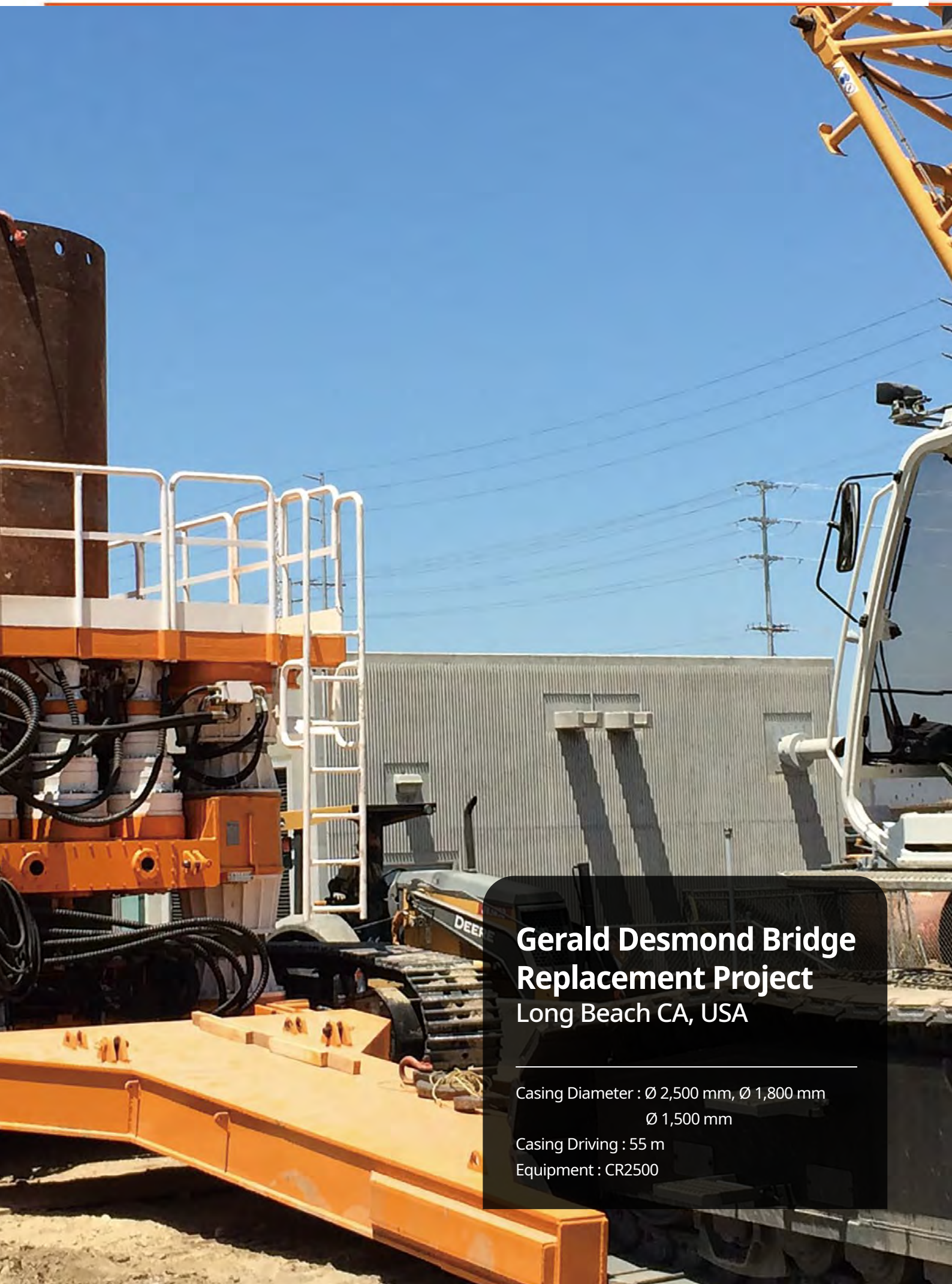
Wireless Communication System

Wireless communication system allows the rotor to check field work information in real time in the field office when working within a certain range.

Honolulu RAIL Transit Project

Honolulu HI, USA

Casing Diameter : Ø 3,000 mm, Ø 2,200 mm
Casing Driving : 57 m
Equipment : CR3000



Gerald Desmond Bridge Replacement Project

Long Beach CA, USA

Casing Diameter : Ø 2,500 mm, Ø 1,800 mm
Ø 1,500 mm
Casing Driving : 55 m
Equipment : CR2500

Thomsoon Line Project

Singapore, Singapore

Casing Diameter : Ø 1,300 mm, Ø 1,400 mm
Casing Driving : 25 m
Equipment : CR2500

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