

**CZM**  
FOUNDATION EQUIPMENT

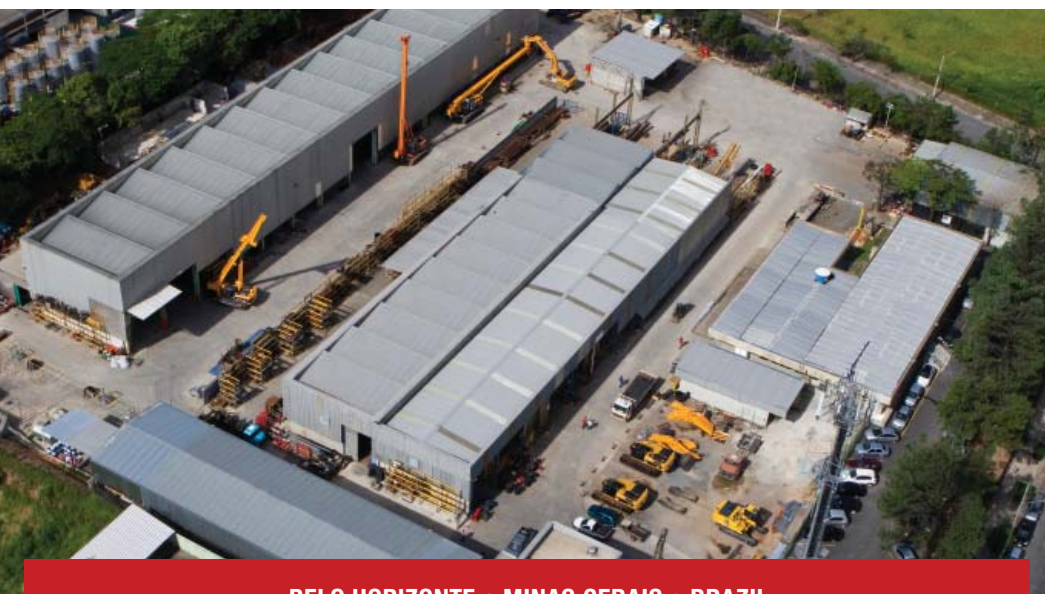


**EK200**

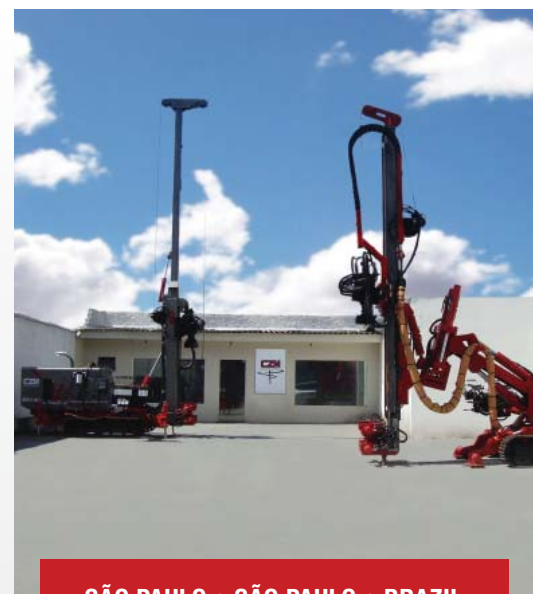




SAVANNAH • GEORGIA • USA



BELO HORIZONTE • MINAS GERAIS • BRAZIL



SÃO PAULO • SÃO PAULO • BRAZIL

## THE COMPANY

- CZM has 40 years of know-how in manufacturing of foundation equipment with a wide range of models for the most different applications: Drilled shafts, CFA, driven piles with hydraulic hammers, secant piles, micro piles, anchoring among others.
- CZM has 2 manufacturing facilities, one in Savannah, in the state of Georgia, USA, and another in Contagem, in the state of Minas

- Gerais, Brazil, from where exports for over 25 countries worldwide.
- CZM machine design's priority is quality and after sales and therefore uses base chassis Caterpillar.
- CZM is the largest world manufacturer of CFA drilling rigs thanks to the revolutionary torque mechanism "Bottom Drive CFA", an international known CZM patent.



# EK200

Mounted on a CAT336



# APPLICATION

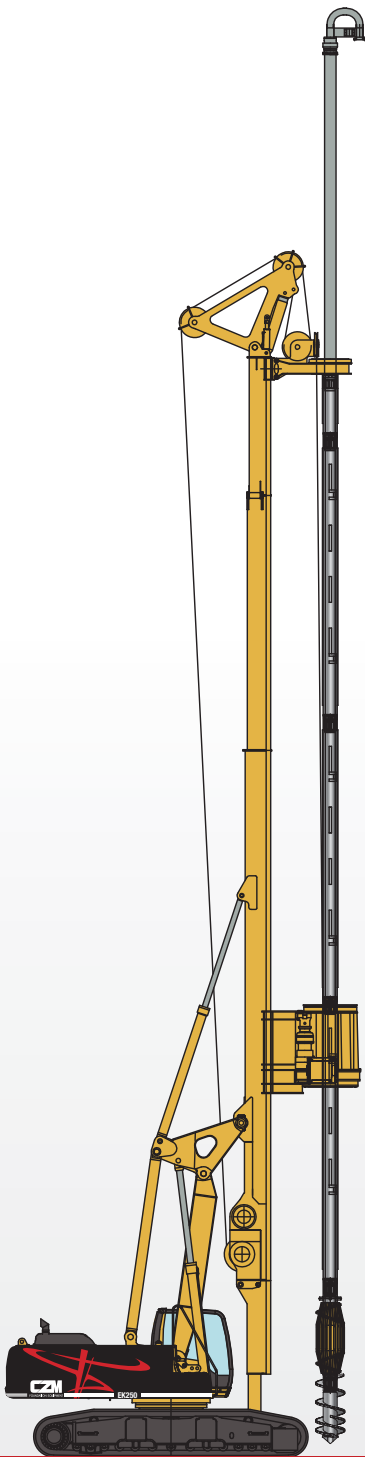
The EK200 from CZM has been designed for high performance and versatility. It is a reliable drilling rig mounted on a CAT base, keeping the operation and maintenance extremely friendly and efficient.

The EK200 rotary head follows the most robust design in the market and has the largest inner passage of its drilling rigs' class. These features allows the EK200 to deliver higher drilling torque, the use of stronger kelly bars and the versatility of different applications such as kelly bar and CFA. There is no need in changing single hydraulic

hose for any of these applications. This is due to unique patented torque mechanism "Bottom Drive CFA" exclusive of CZM.

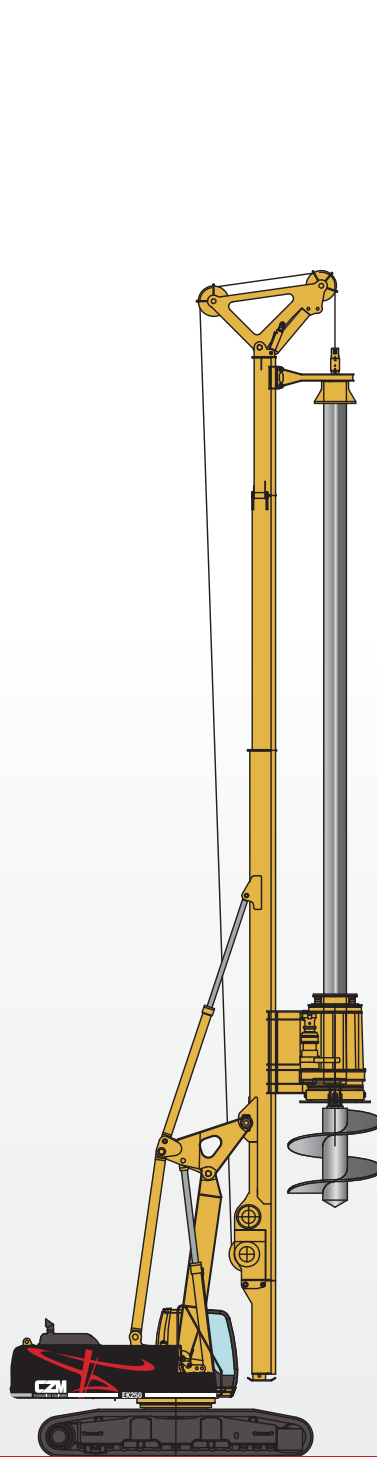
The EK200 short mast version is the most simple conversion in the market. It is not necessary to lower torque because the inner passage of the rotary is big enough to add more element.

With hydraulic extended crawlers and the mast made of a light weight / high yield strength "weldox" steel enables this drilling rig a excellent stability.



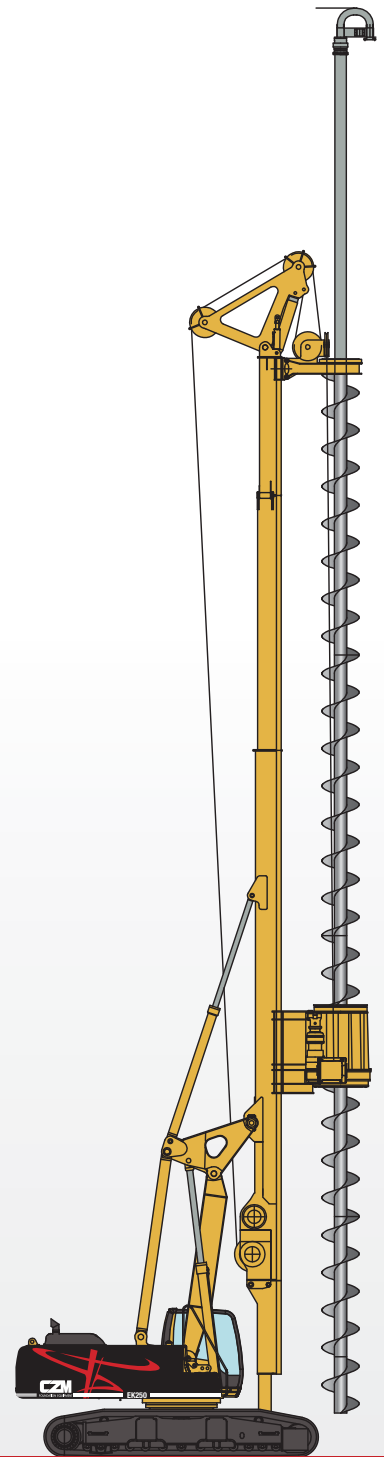
**DRILLED SHAFT PILE**

Depth: 180 ft / 55 m  
Diameter: 70 in / 1.800 mm



**DRILLED SHAFT PILE "SHORT MAST"**

Depth: 90 ft / 28 m  
Diameter: 70 in / 1.800 mm



**BOTTOM DRIVE CONTINUOUS FLIGHT AUGER PILE**

Depth: 78 ft / 24 m  
Diameter: 24 in / 600 mm



# TECHNICAL SPECIFICATIONS

## KELLY BAR STANDARD MAST APPLICATION

Drilling Depth (Standard)	150 ft	45 m
Maximum drilling depth	180 ft	55 m
Maximum Drilling Diameter	70 in	1.800 mm
Maximum Drilling Diameter w/o the mast shoe	85 in	2.200 mm

## KELLY BAR SHORT MAST APPLICATION

Drilling Depth	150 ft	45 m
Maximum drilling depth	180 ft	55 m
Maximum Drilling Diameter	70 in	1.800 mm
Maximum Drilling Diameter w/o the mast shoe	85 in	2.200 mm

## CFA APPLICATION

Maximum drilling depth (Auger + Extension)	(58 + 20) = 78 ft	(18 + 6) = 24 m
Maximum Drilling Diameter	24 in	600 mm

## DIESEL ENGINE (CAT® C9 ACERT™)

Net Power	350 hp	261 kW
Displacement	537 in <sup>3</sup>	8,8 L
Fuel tank	164 gal	620 L

## HYDRAULIC SYSTEM

Main circuit pressure (max.)	5,076 psi	350 bar
Main circuit Flow rate (max.)	132 gal/min	480 L/min
Auxiliary circuit flow rate (max.)	29 gal/min	108 L
Hydraulic oil tank (CAT + additional)	67.4 gal	255 L

## ROTARY HEAD

Maximum torque	234,500 lbf.ft	318 kN
Working Speed (maximum torque)	7 rpm	7 rpm
Working speed	8-23 rpm	8-23 rpm
Spin off speed	35-98 rpm	35-98 rpm
Hydraulic motor	2 x Linde	2 x Linde
Reducer	2 x Brevini	2 x Brevini

## MAIN WINCH

Maximum pull-force (1st layer)	69,049 lbf	307 kN
Maximum pull-force (2nd speed)	49,207 lbf	219 kN
Line speed (1st layer)	176 ft/min	54 m/min
Maximum line speed (2nd speed)	262 ft/min	80 m/min
Cable diameter	1.1/8 in	-
Drum diameter (1st layer)	22.5/16 in	566 mm
Hydraulic motor	1 x Linde	1 x Linde
Reducer	1 x Brevini	1 x Brevini

## AUXILIARY WINCH

Maximum pull-force (1st layer)	23,332 lbf	104 kN
Cable diameter	3/4 in	19 mm
Drum diameter (1st layer)	16.5/8 in	423 mm
Hydraulic motor	1 x Linde	1 x Linde
Reducer	1 x Brevini	1 x Brevini

## CROWD SYSTEM

Cylinder Pull-down force (nominal)	73,326 lbf	326 kN
Cylinder Pull-up force (nominal)	81,814 lbf	364 kN
Cylinder stroke	19 ft 8 in	6.000 mm

## UNDERCARRIAGE

Track length	19 ft 3 in	5.880 mm
Length to center of rollers	16 ft 5 in	5.000 mm
Transport position width (retracted)	9 ft 10 in	3.000 mm
Operation position width (extended)	14 ft 1 in	4.300 mm
Track shoes width	31.1/2 in	800 mm
Maximum drawbar pull (effective)	51,930 lbf	231 kN
Maximum travel speed	3.1 mph	5 km/h

## MAST INCLINATION

Backward	15°	15°
Forward	5°	5°
Sideways	7,5° / 7,5°	7,5° / 7,5°

## TRANSPORT

Overall Height	10 ft 10 in	3.295 mm
Transport Length	64 ft 6 in	19.670 mm
Transport Width	9 ft 10 in	3.000 mm
Transport Weight	159,174 lb	72.200 kg

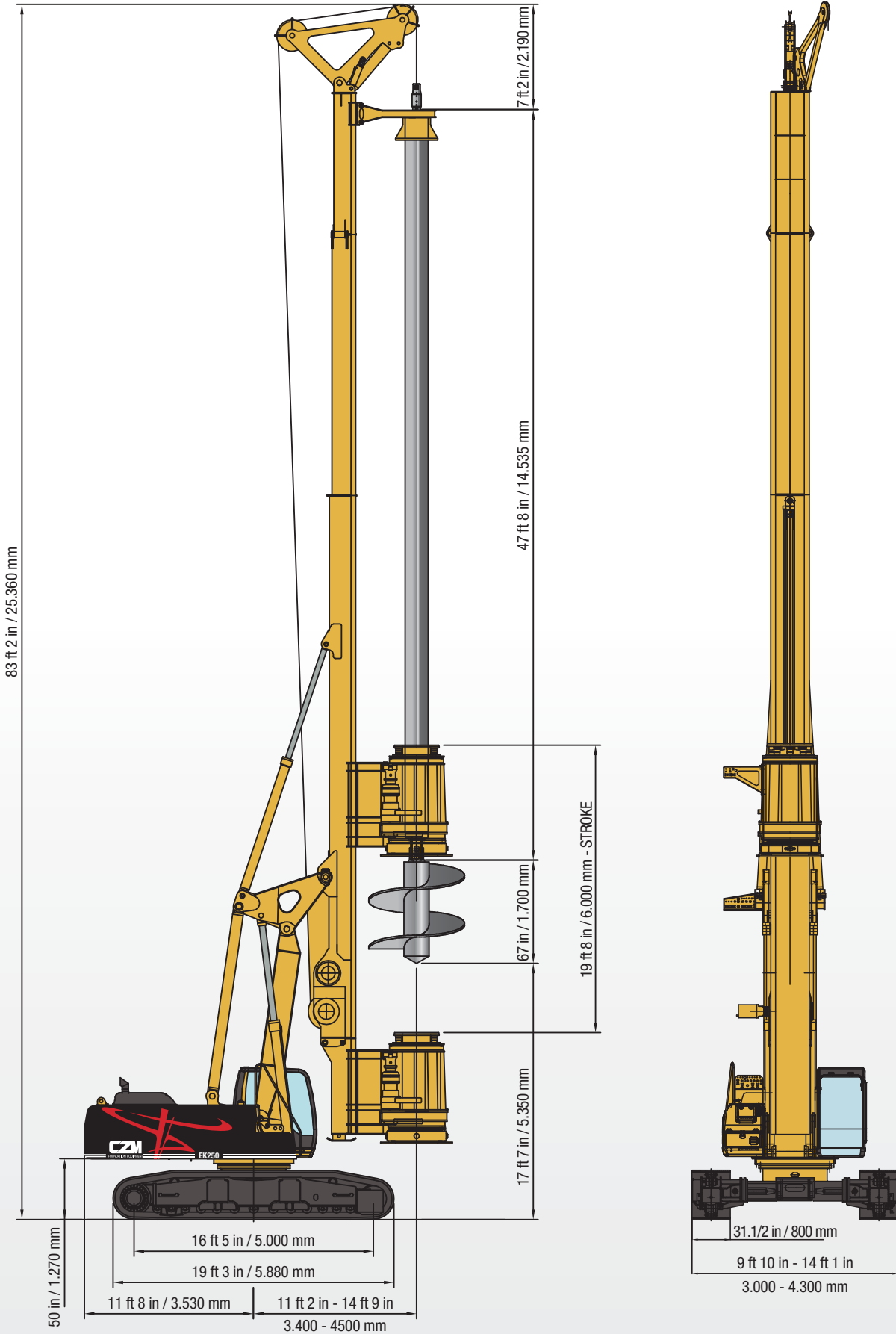
## GENERAL DATA

Overall height	83 ft 2 in	25.360 mm
Operation weight	176,350 lb	80.000 kg
Ground pressure	14,2 psi	1 kg/cm <sup>2</sup>

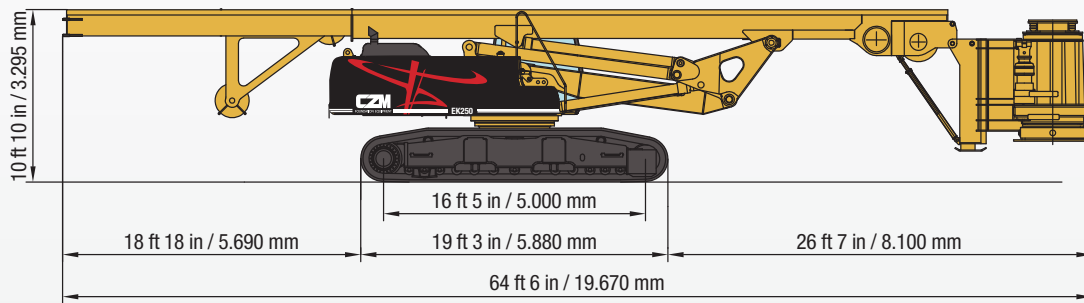
Specifications based on Caterpillar base.  
Specifications are subject to change without notice.



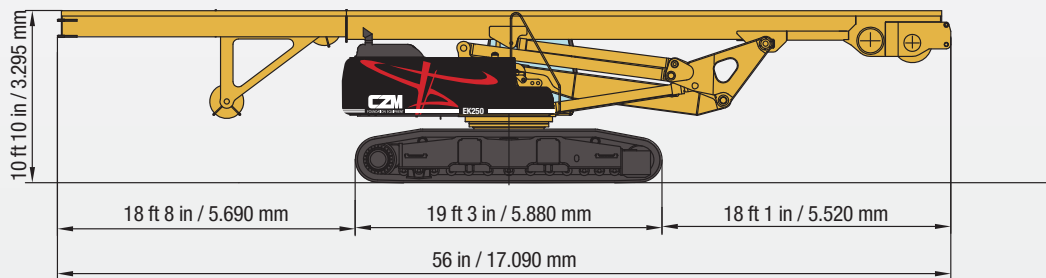
# GENERAL DIMENSIONS



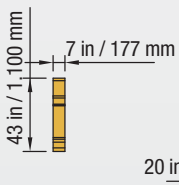
# TRANSPORT POSITION



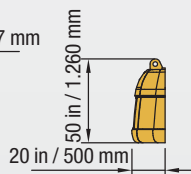
Weight: 159,174 lb / 72,200 kg



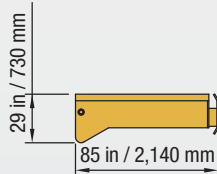
Weight: 112,500 lb / 51,000 kg



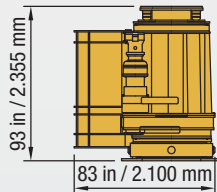
Weight: 7,000 lb  
3,200 kg



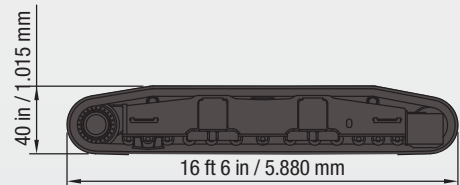
Weight: 18,700 lb  
8,500 kg



Weight: 3,700 lb  
1,700 kg



Weight: 17,600 lb  
8,000 kg



Weight: 2 x 15,400 lb  
2 x 7,000 kg



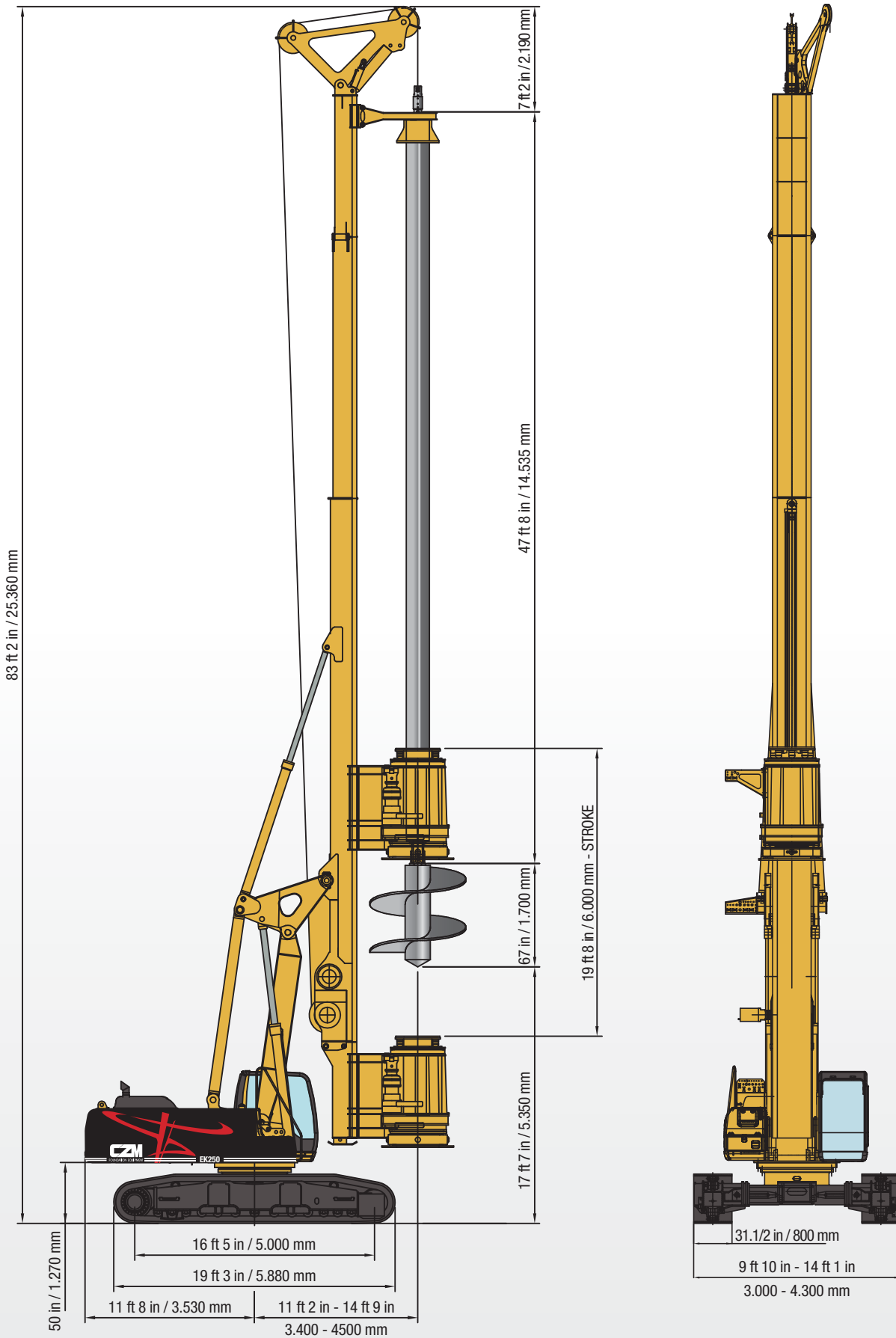


EK200 SHORT MAST





# GENERAL DIMENSIONS SHORT MAST



The most robust rotary head in the market

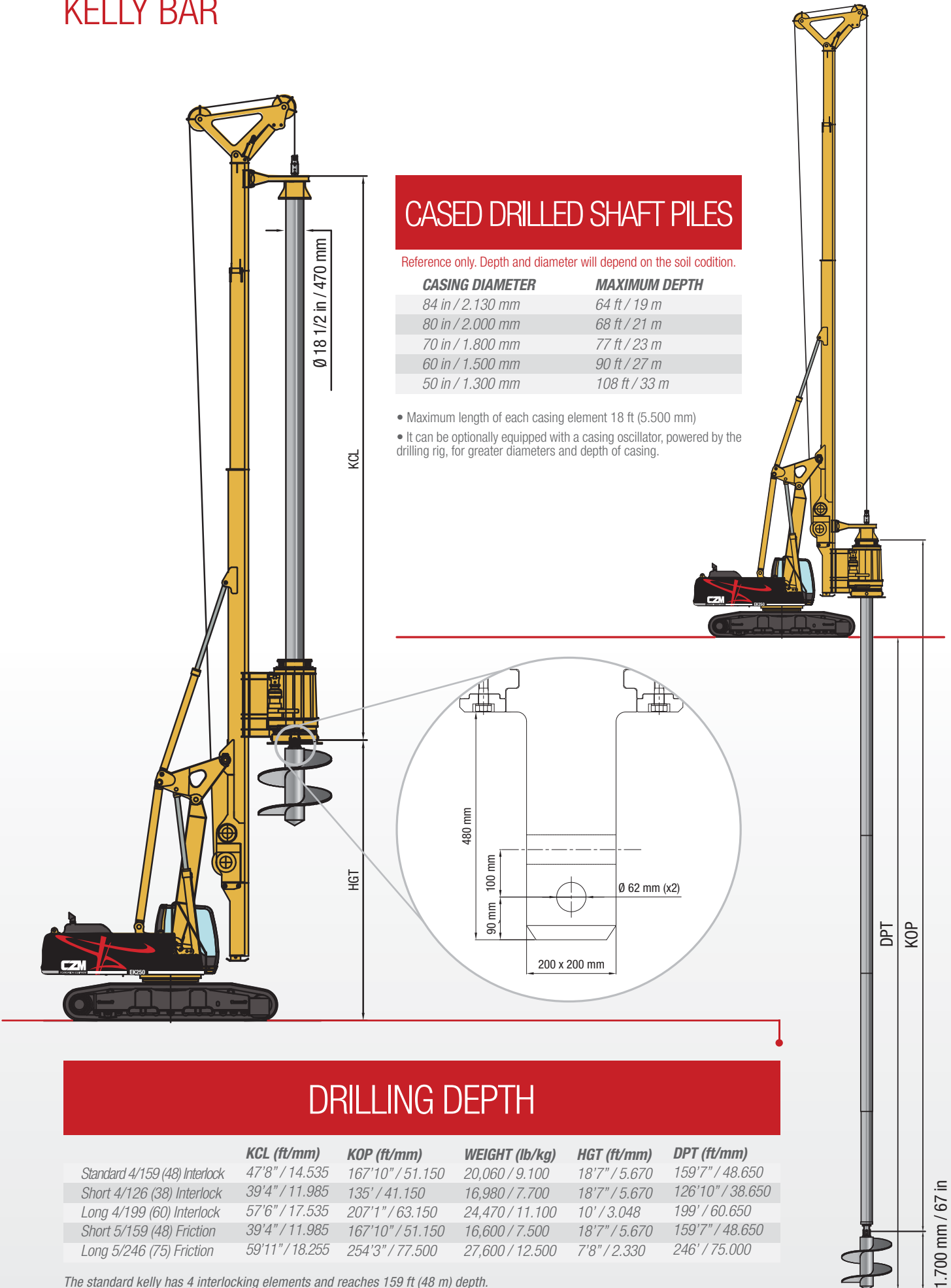
# KELLY BAR

## CASED DRILLED SHAFT PILES

Reference only. Depth and diameter will depend on the soil condition.

CASING DIAMETER	MAXIMUM DEPTH
84 in / 2.130 mm	64 ft / 19 m
80 in / 2.000 mm	68 ft / 21 m
70 in / 1.800 mm	77 ft / 23 m
60 in / 1.500 mm	90 ft / 27 m
50 in / 1.300 mm	108 ft / 33 m

- Maximum length of each casing element 18 ft (5.500 mm)
- It can be optionally equipped with a casing oscillator, powered by the drilling rig, for greater diameters and depth of casing.

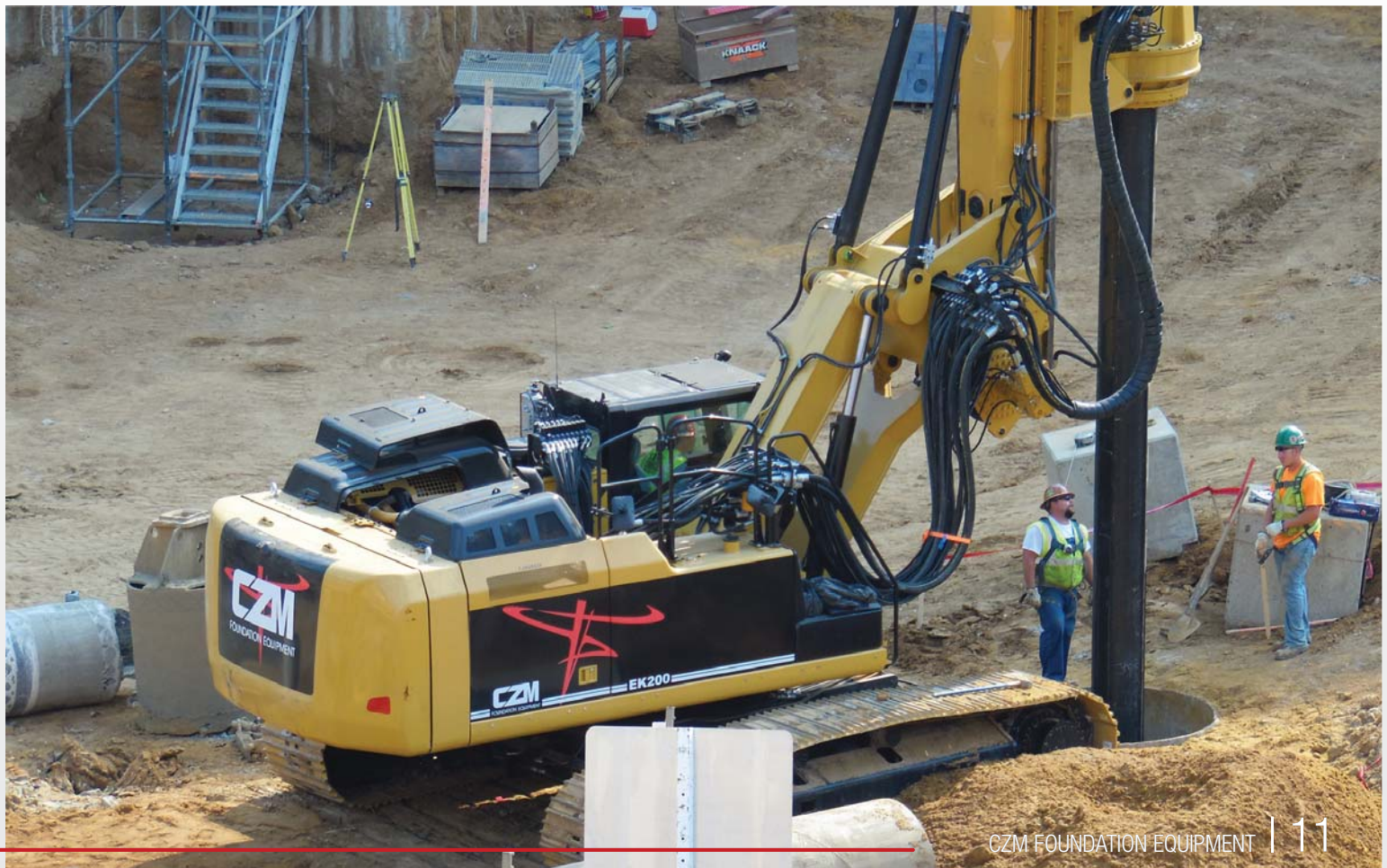


## DRILLING DEPTH

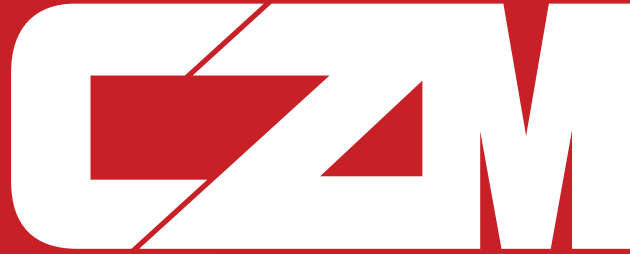
	KCL (ft/mm)	KOP (ft/mm)	WEIGHT (lb/kg)	HGT (ft/mm)	DPT (ft/mm)
Standard 4/159 (48) Interlock	47'8" / 14.535	167'10" / 51.150	20,060 / 9.100	18'7" / 5.670	159'7" / 48.650
Short 4/126 (38) Interlock	39'4" / 11.985	135' / 41.150	16,980 / 7.700	18'7" / 5.670	126'10" / 38.650
Long 4/199 (60) Interlock	57'6" / 17.535	207'1" / 63.150	24,470 / 11.100	10' / 3.048	199' / 60.650
Short 5/159 (48) Friction	39'4" / 11.985	167'10" / 51.150	16,600 / 7.500	18'7" / 5.670	159'7" / 48.650
Long 5/246 (75) Friction	59'11" / 18.255	254'3" / 77.500	27,600 / 12.500	7'8" / 2.330	246' / 75.000

The standard kelly has 4 interlocking elements and reaches 159 ft (48 m) depth.









FOUNDATION EQUIPMENT



**USA**

[WWW.CZM-US.COM](http://WWW.CZM-US.COM)

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