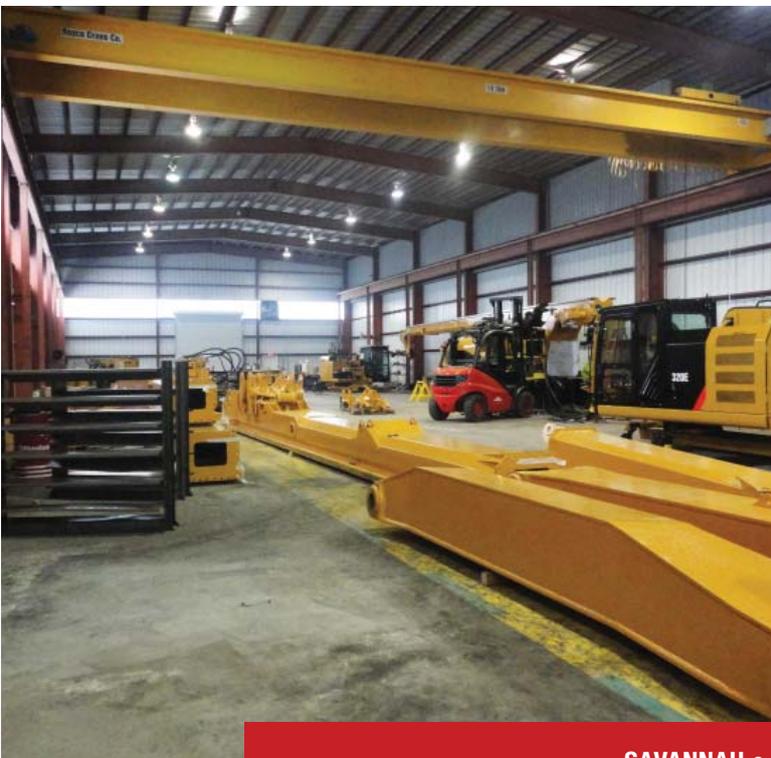


**CZM**  
FOUNDATION EQUIPMENT



**EK200**



SAVANNAH • GEORGIA • USA

## THE COMPANY

- C/M 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.
- C/M USA manufacturing facility is located in Savannah, in the state of Georgia
- C/M machine design's priority is quality and after sales and therefore uses base chassis Caterpillar.
- C/M is the largest world manufacturer of CFA drilling rigs thanks to the revolutionary torque mechanism "Bottom Drive CFA", an international known C/M patent.



# EK200

Mounted on standard  
CAT336 (Tier IV) ”



MODEL EK200 STANDARD MAST - DRILLED SHAFT PILE

# 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.

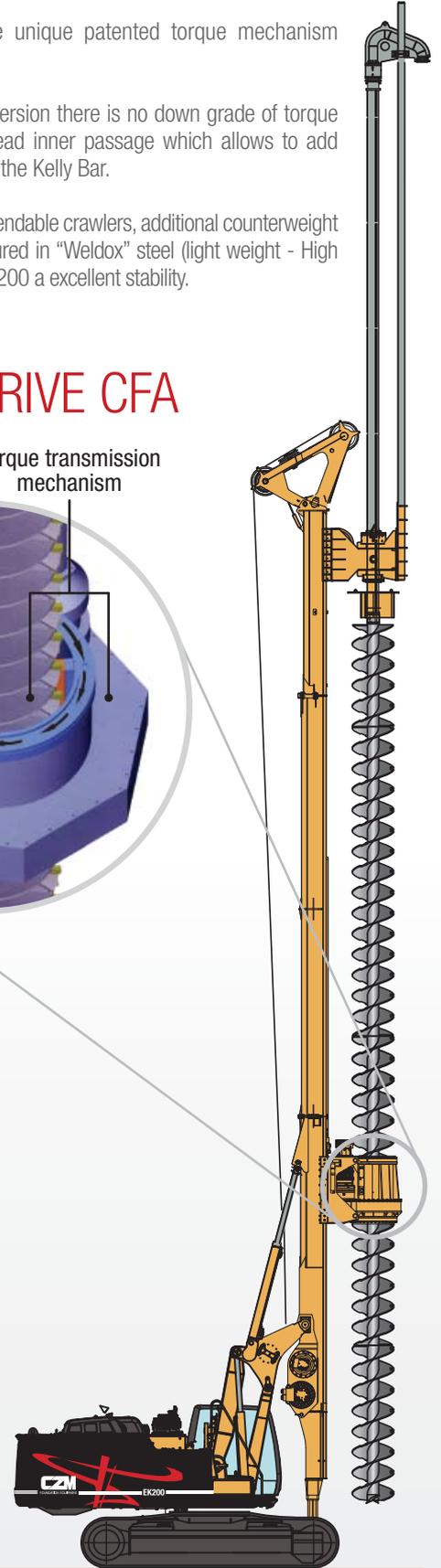
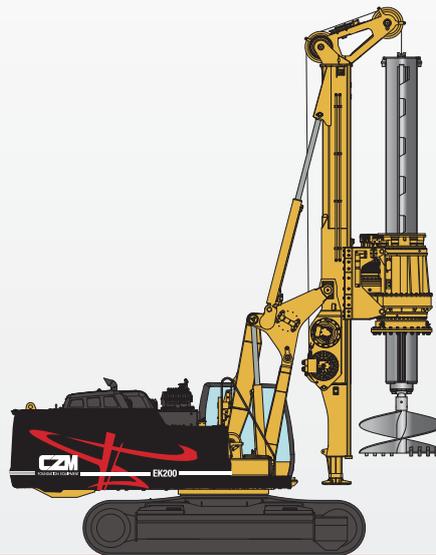
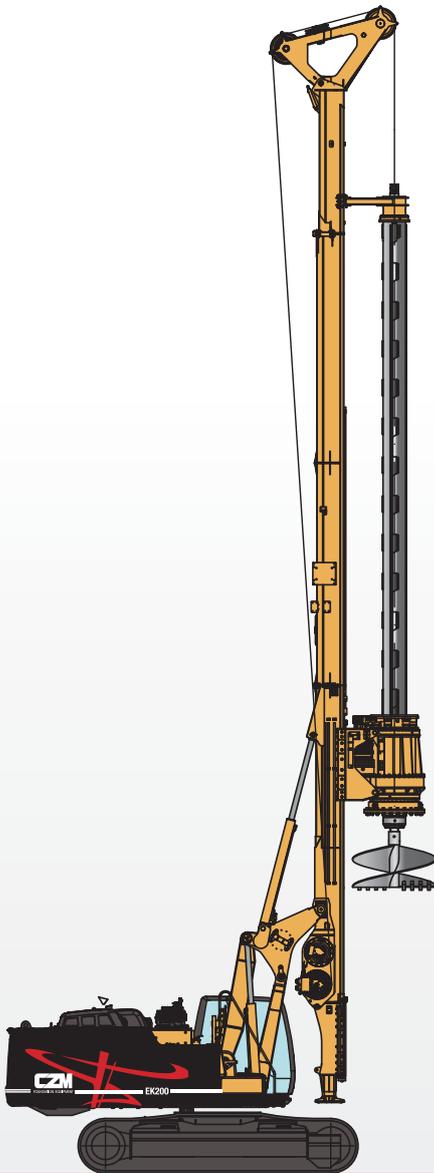
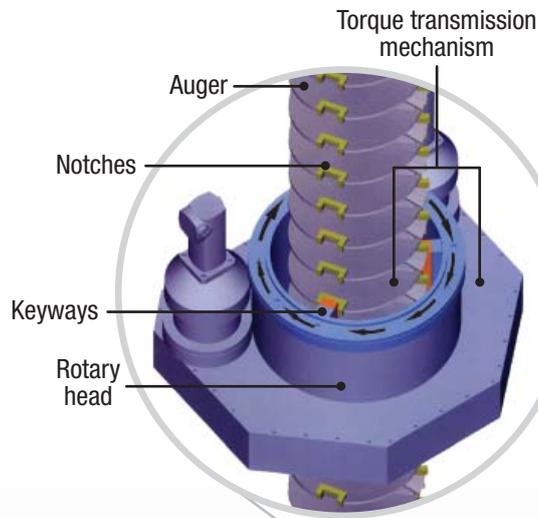
The EK200 rotary head follows the most robust design in the market and has the largest inner passage of its drilling rigs' class. These features allows the EK200 to deliver higher drilling torque, the use of stronger kelly bars and the versatility of different applications such as kelly bar (long and short mast) and CFA. There are no changes of hydraulic hoses for converting to any

application thanks to the unique patented torque mechanism "Bottom Drive CFA".

In the EK200 short mast version there is no down grade of torque due to the great rotary head inner passage which allows to add more external elements to the Kelly Bar.

Equipped with hydraulic extendable crawlers, additional counterweight and also a mast manufactured in "Weldox" steel (light weight - High Yield Strength) gives the EK200 an excellent stability.

## BOTTOM DRIVE CFA



### DRILLED SHAFT PILE

Depth: 130 - 175 ft / 39 - 53 m (interlock)  
130 - 200 ft / 39 - 60 m (friction)

Diameter (max.) with mast shoe: 70 in / 1,800 mm

Diameter (max.) w/o mast shoe: 132 in / 3,350 mm

### DRILLED SHAFT PILE "LOW CLEARANCE"

Depth (max.): 95 ft / 29 m (interlock)

Diameter (max.) with mast shoe: 70 in / 1,800 mm

Diameter (max.) w/o mast shoe: 132 in / 3,350 mm

### BOTTOM DRIVE CONTINUOUS FLIGHT AUGER PILE

Depth (max.) only with auger: 59 ft / 18 m

Depth (max.) (auger + extension): 79 ft / 24 m

Diameter (max.): 24 in / 600 mm

**CONVERSION TO SHORT MAST OR CFA ARE MADE WITH SIMPLE KITS WITHOUT CHANGING ANY HOSES**

# TECHNICAL SPECIFICATIONS

## KELLY BAR STANDARD MAST APPLICATION

|  |        |          |
|--|--------|----------|
| Depth (Standard – 4 elements; interlock Kelly bar) | 130 ft | 39 m     |
| Depth (Maximum – 4 elements; interlock Kelly bar)  | 175 ft | 53 m     |
| Diameter (Max. with the mast shoe)                 | 70 in  | 1,800 mm |
| Diameter (Max. w/o the mast shoe)                  | 132 in | 3,350 mm |

## KELLY BAR LOW CLEARANCE APPLICATION

|  |        |          |
|--|--------|----------|
| Depth (Max. – 6 elements; interlock Kelly bar) | 95 ft  | 29 m     |
| Diameter (Max. with the mast shoe)             | 70 ft  | 1,800 m  |
| Diameter (Max. w/o the mast shoe)              | 132 ft | 3,350 mm |

## CFA APPLICATION

|                                    |                   |                 |
|------------------------------------|-------------------|-----------------|
| Drilling depth (Auger + Extension) | (59 + 20) = 79 ft | (18 + 6) = 24 m |
| Drilling Diameter (Max.)           | 24 in             | 600 mm          |

## ENGINE - CAT C9.3 ACERT\*

|                           |                      |                      |
|---------------------------|----------------------|----------------------|
| Exhaust Emission Standard | EPA Tier 4 (Interim) | EPA Tier 4 (Interim) |
| Net Power – SAE J1349     | 300 hp               | 224 kW               |
| Displacement              | 568 in <sup>3</sup>  | 9.3 L                |
| Fuel tank                 | 164 gal              | 620 L                |

## ROTARY HEAD

|                |                |              |
|----------------|----------------|--------------|
| Maximum torque | 167,803 lbf.ft | 23,200 kgf.m |
| Working Speed  | 12 - 32 rpm    | 12 - 32 rpm  |
| Spin-off Speed | 51 - 119 rpm   | 51 - 119 rpm |

## CROWD SYSTEM

|                                 |            |            |
|---------------------------------|------------|------------|
| Pull down force                 | 32,258 lbf | 14,632 kgf |
| Pull up force                   | 63,719 lbf | 28,903 kgf |
| Pull down speed                 | 56 ft/min  | 17 m/min   |
| Pull up speed                   | 39 ft/min  | 12 m/min   |
| Cylinder stroke (Standard Mast) | 16 ft 5 in | 5,000 mm   |
| Cylinder stroke (Short Mast)    | 8 ft       | 2,450 mm   |

## MAIN WINCH (PULL-UP)

|  |            |            |
|--|------------|------------|
| Maximum pull-force 1st layer (nominal)   | 46,977 lbf | 21,308 kgf |
| Maximum pull-force 1st layer (effective) | 39,930 lbf | 18,112 kgf |
| Line speed 1st layer                     | 269 ft/min | 82 m/min   |
| Cable diameter                           | 23 mm      | 23 mm      |
| Drum diameter 1st Layer                  | 18 in      | 464 mm     |

## AUXILIARY WINCH

|  |            |            |
|--|------------|------------|
| Maximum pull-force 1st Layer (effective) | 22,479 lbf | 10,196 kgf |
| Line speed - 1st layer                   | 240 ft/min | 73 m/min   |
| Cable diameter                           | 3/4 in     | 19 mm      |
| Drum diameter 1st Layer                  | 16.5 in    | 420 mm     |

## MAIN HYDRAULIC SYSTEM\*

|                                |           |         |
|--------------------------------|-----------|---------|
| Main circuit pressure (max.)   | 5,076 psi | 350 bar |
| Main circuit Flow rate (max.)  | 131 gpm   | 498 lpm |
| Pilot circuit pressure (max.)  | 595 psi   | 41 bar  |
| Pilot circuit Flow rate (max.) | 7 gpm     | 26 lpm  |

## AUXILIARY HYDRAULIC SYSTEM

|                                    |                      |                    |
|------------------------------------|----------------------|--------------------|
| Pump Displacement                  | 3.66 in <sup>3</sup> | 60 cc <sup>3</sup> |
| Auxiliary circuit flow rate (max.) | 29 gpm               | 108 lpm            |

## MAST INCLINATION

|          |     |     |
|----------|-----|-----|
| Forward  | 5°  | 5°  |
| Backward | 15° | 15° |
| Sideways | 9°  | 9°  |

## UNDERCARRIAGE

|                                      |            |          |
|--------------------------------------|------------|----------|
| Track length                         | 16 ft 5 in | 5,020 mm |
| Length to center of rollers          | 13 ft 3 in | 4,040 mm |
| Transport position width (retracted) | 10 ft 7 in | 3,243 mm |
| Operation position width (extended)  | 14 ft 5 in | 4,413 mm |
| Track shoes width                    | 31.5 in    | 800 mm   |

## TRANSPORT

|  |             |           |
|--|-------------|-----------|
| Overall Height (Standard Mast)               | 11 ft 2 in  | 3,410 mm  |
| Overall Height (Short Mast)                  | 11 ft 10 in | 3,600 mm  |
| Transport Length (Standard Mast)             | 52 ft 10 in | 16,120 mm |
| Transport Length (Short Mast)                | 36 ft 10 in | 11,200 mm |
| Transport Width (Standard Mast / Short Mast) | 10 ft 8 in  | 3,245 mm  |
| Transport Weight (Standard Mast)             | 141,000 lb  | 64,000 kg |
| Transport Weight (Short Mast)                | 137,350 lb  | 62,300 kg |

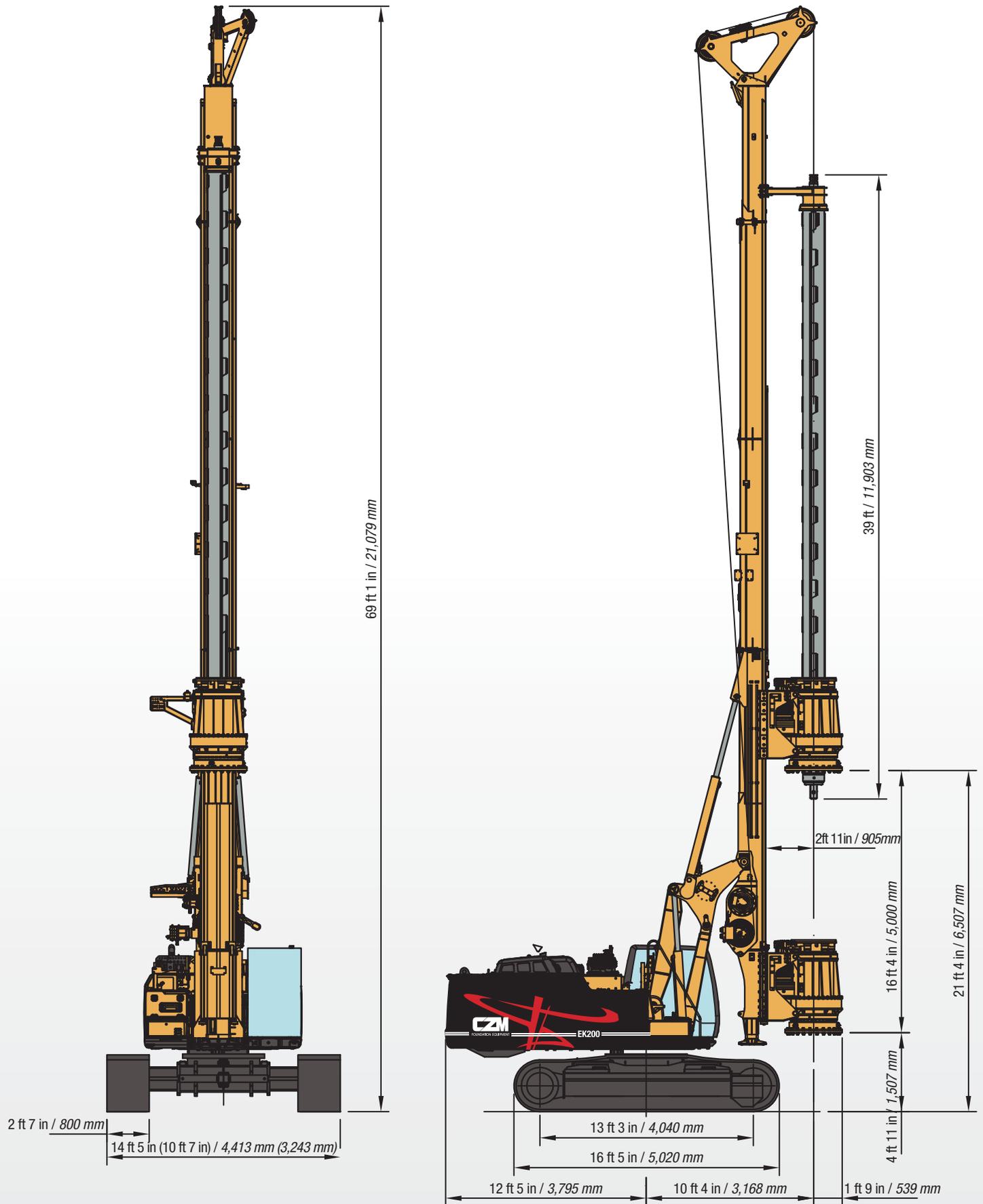
## GENERAL DATA

|  |            |                      |
|--|------------|----------------------|
| Overall height (Working position; Standard mast) | 70 ft      | 21,100 mm            |
| Overall height (Working position; Short mast)    | 32 ft 4 in | 9,845 mm             |
| Operation weight (Standard mast)                 | 152,000 lb | 69,000 kg            |
| Operation weight (Short mast)                    | 150,000 lb | 68,000 kg            |
| Ground pressure                                  | 14.2 psi   | 1 kg/cm <sup>2</sup> |

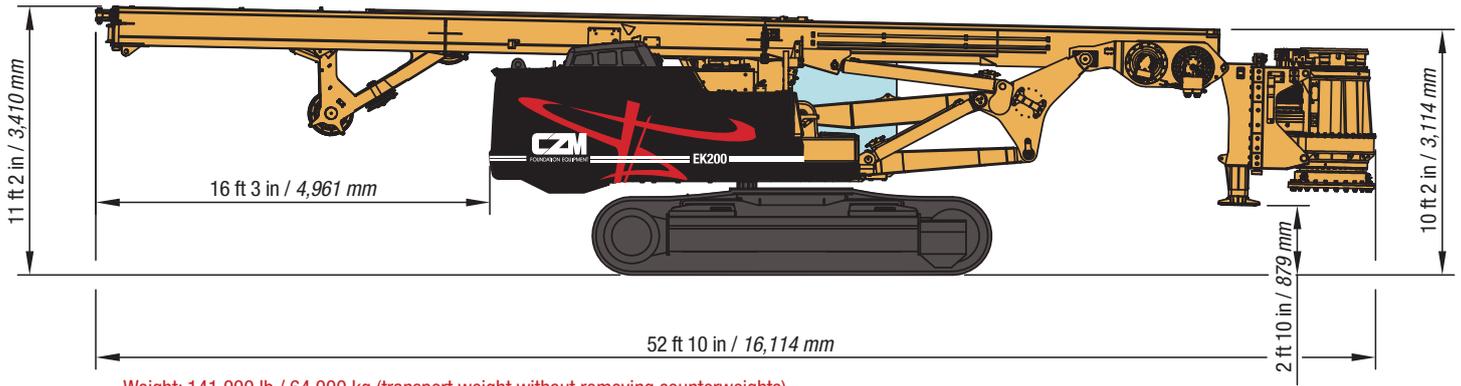
\*Specifications based on Caterpillar base.

Specifications are subject to change without notice.

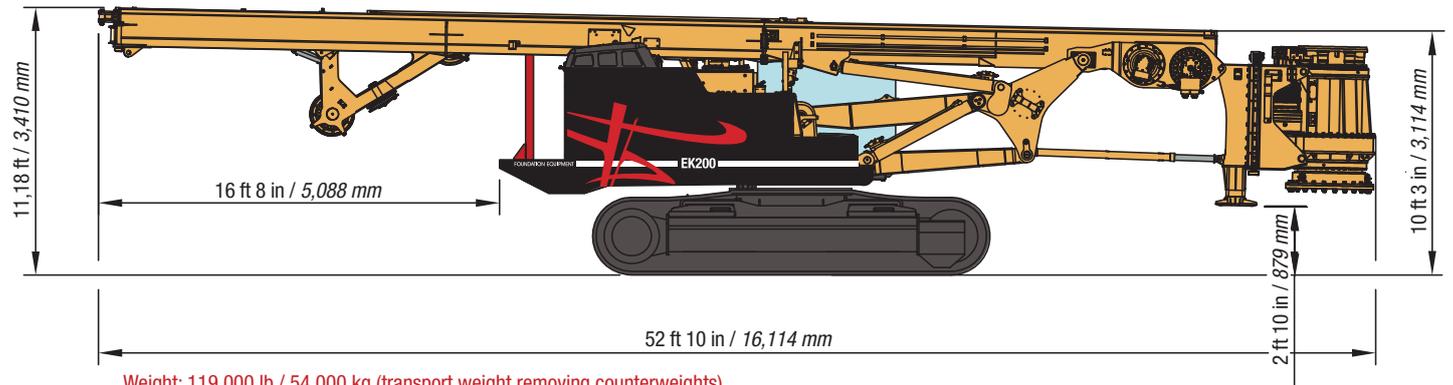
# GENERAL DIMENSIONS



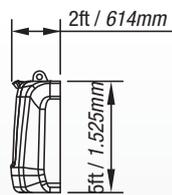
# TRANSPORT POSITION



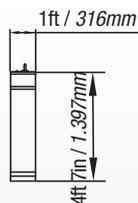
Weight: 141,000 lb / 64,000 kg (transport weight without removing counterweights)



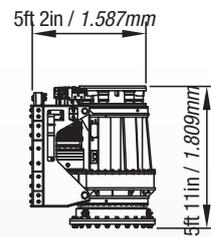
Weight: 119,000 lb / 54,000 kg (transport weight removing counterweights)



Weight: 14,500 lb  
6,600 kg



Weight: 7,800 lb  
3,500 kg



Weight: 10,200 lb  
4,600 kg



# EK200

Low Clearance version

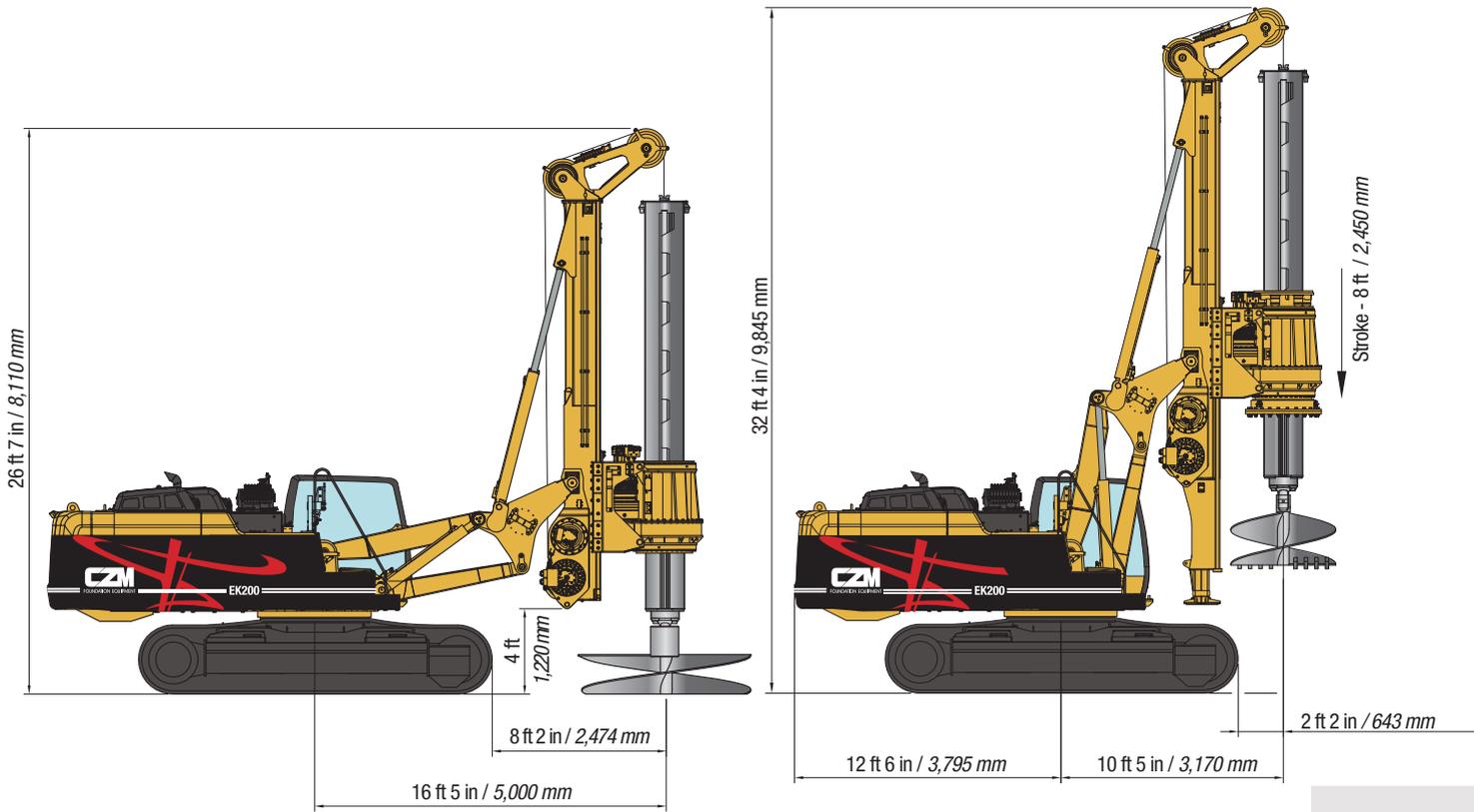


MODEL EK200 SHORT MAST - DRILLED SHAFT PILE "LOW CLEARANCE"

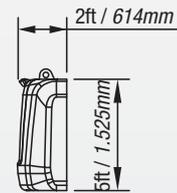
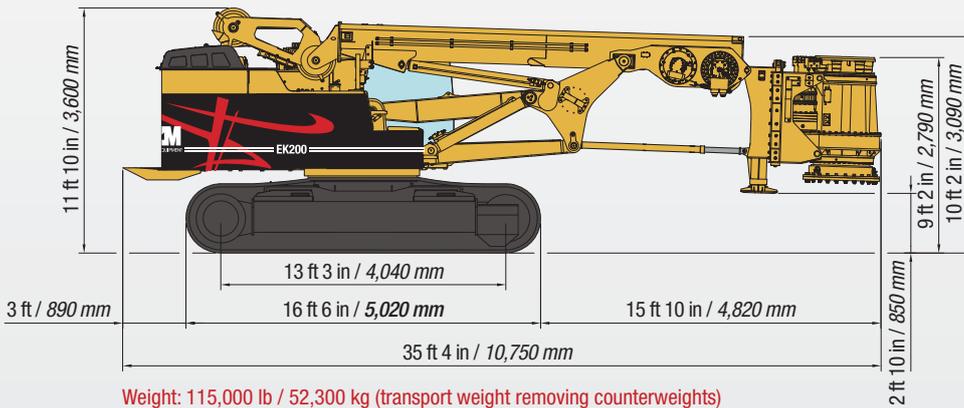
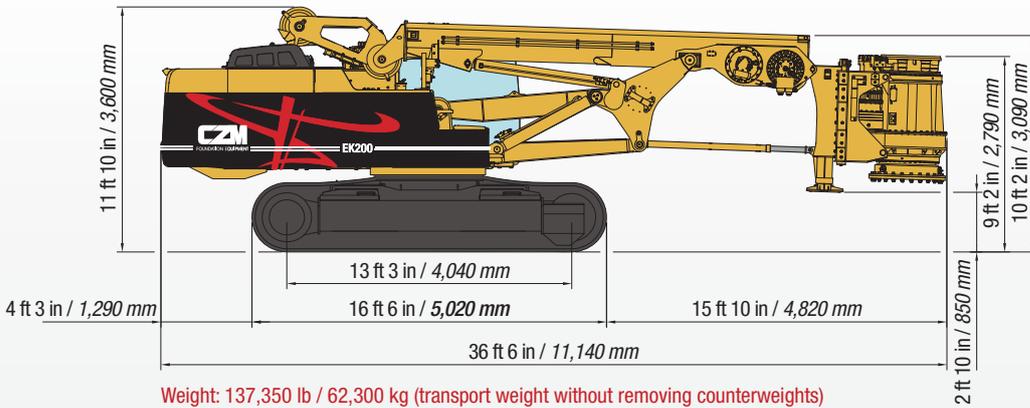


MODEL EK200 SHORT MAST - DRILLED SHAFT PILE "LOW CLEARANCE"

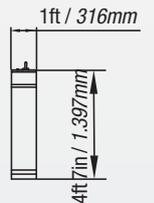
# GENERAL DIMENSIONS SHORT MAST



# TRANSPORT POSITION SHORT MAST

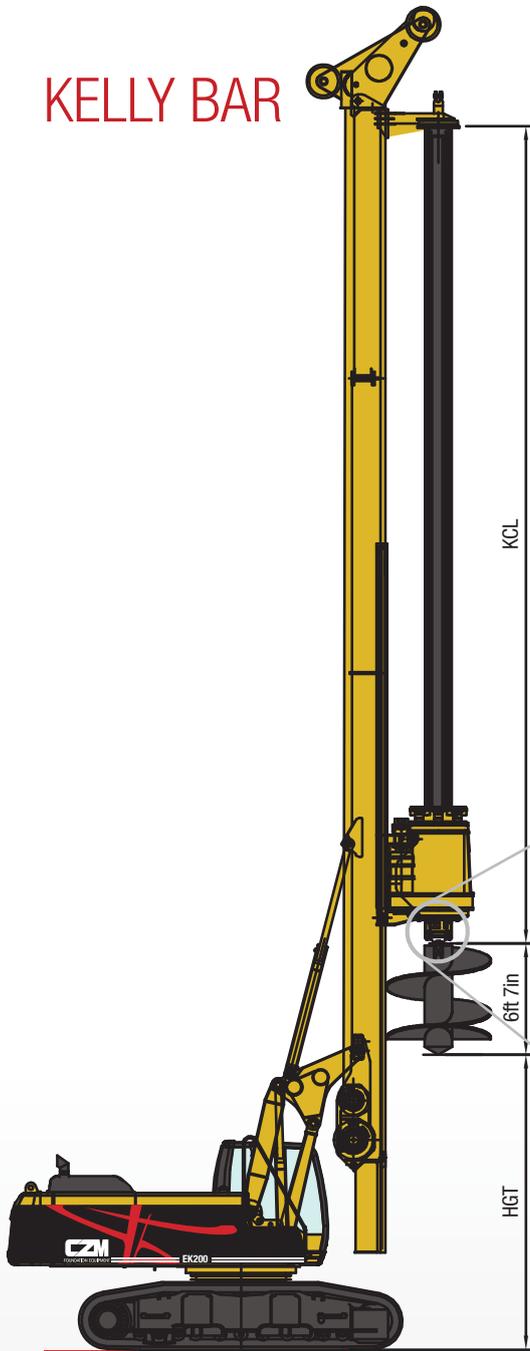


Weight: 14,500 lb / 6,600 kg



Weight: 7,800 lb / 3,500 kg

# KELLY BAR

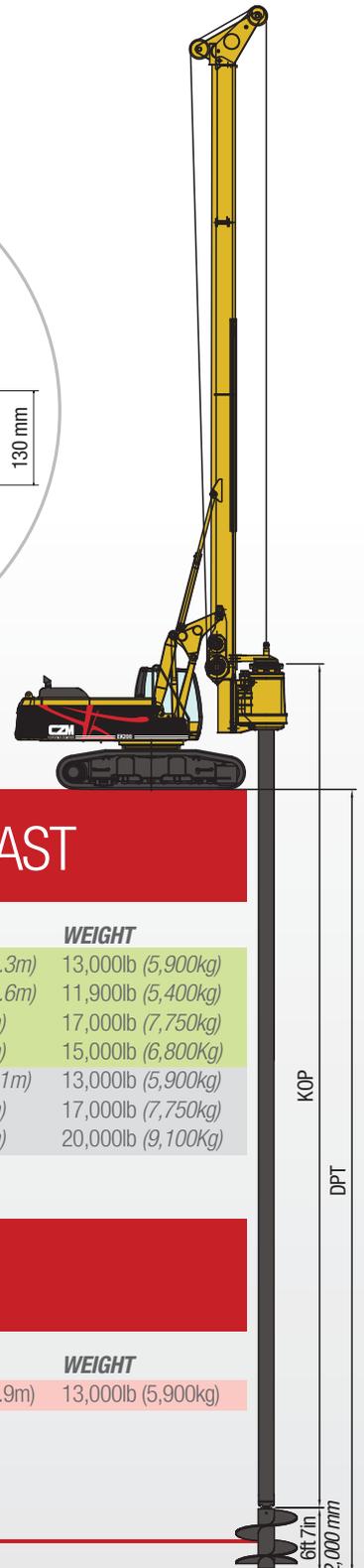
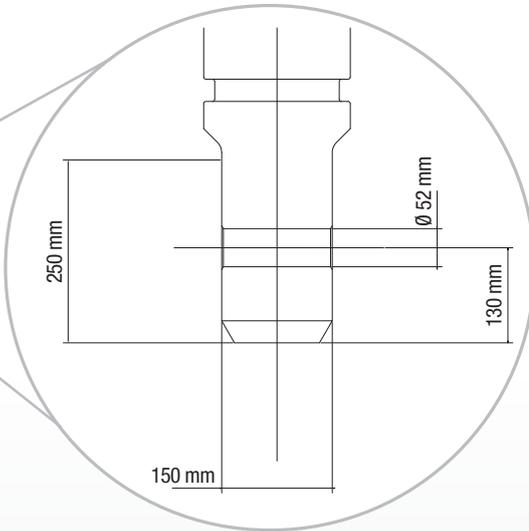


## CASED DRILLED SHAFT PILES

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

| CASING DIAMETER  | MAXIMUM DEPTH |
|------------------|---------------|
| 60 in / 1,500 mm | 60 ft / 18 m  |
| 50 in / 1,300 mm | 72 ft / 22 m  |
| 40 in / 1,000 mm | 90 ft / 27 m  |

- Maximum length of each casing element 15 ft (4.6 m).



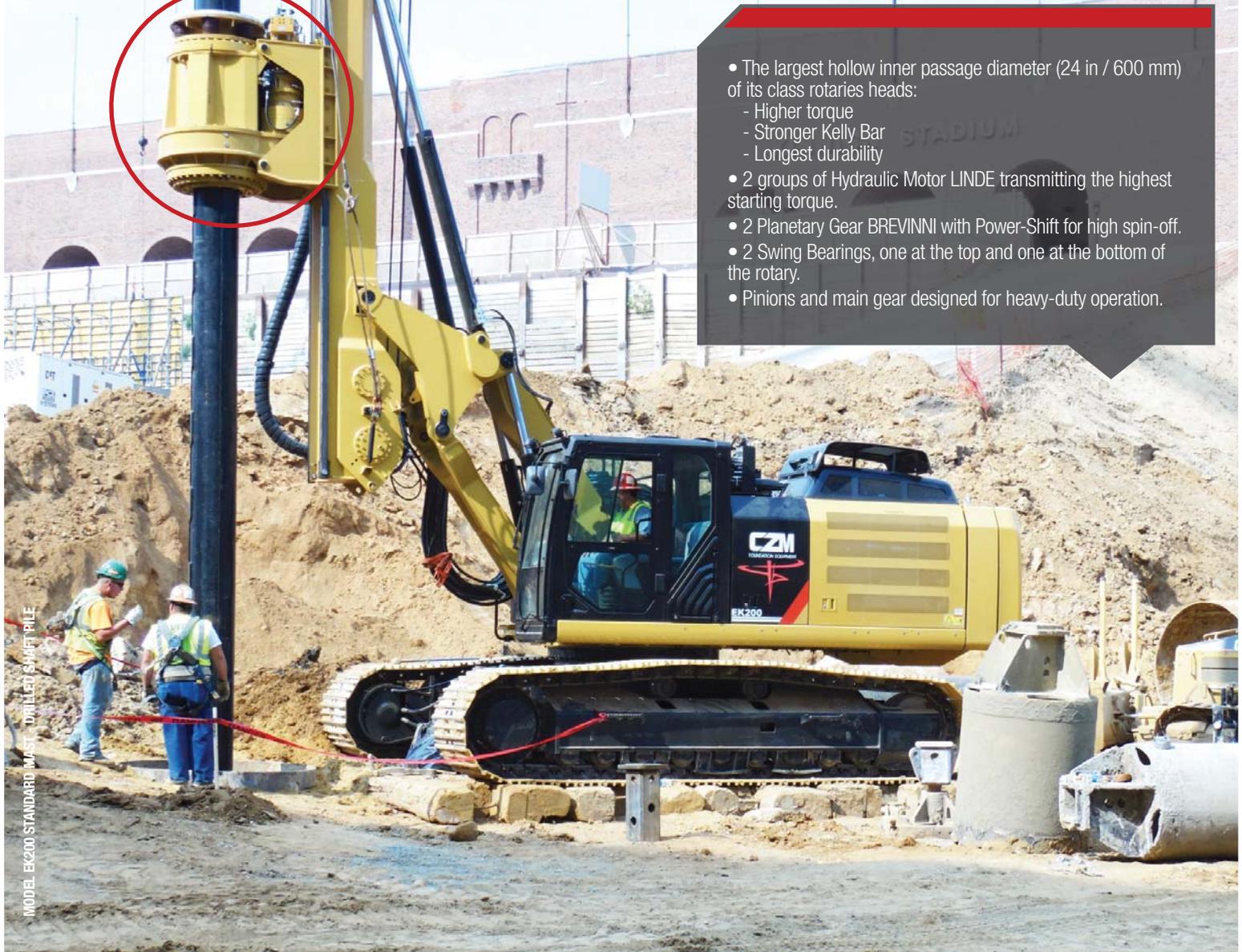
## KELLY BAR CHOICES FOR STANDARD MAST

|                          | NUMBER OF ELEMENTS | DEPTH - DPT | TRANSPORT - KCL  | HGT             | KOP               | WEIGHT             |
|--------------------------|--------------------|-------------|------------------|-----------------|-------------------|--------------------|
| Standard 4/130 Interlock | 4                  | 130ft (39m) | 39ft (11.9m)     | 13ft 8in (4.2m) | 132ft 3in (40.3m) | 13,000lb (5,900kg) |
| 3/97 Interlock           | 3                  | 97ft (29m)  | 39ft 4in (12m)   | 13ft 4in (4.0m) | 100ft 5in (30.6m) | 11,900lb (5,400kg) |
| Long 4/175 Interlock     | 4                  | 175ft (53m) | 50ft 7in (15.4m) | 6ft 7in (2m)    | 178ft (54.3m)     | 17,000lb (7,750kg) |
| Long 3/120 Interlock     | 3                  | 120ft (36m) | 50ft 7in (15.4m) | 6ft 7in (2m)    | 123ft (37.5m)     | 15,000lb (6,800kg) |
| 4/130 Friction           | 4                  | 130ft (39m) | 39ft (11.9m)     | 13ft 8in (4.2m) | 134ft 10in (41m)  | 13,000lb (5,900kg) |
| 5/160 Friction           | 5                  | 160ft (49m) | 39ft 4in (12m)   | 13ft 4in (4.0m) | 167ft (50.9m)     | 17,000lb (7,750kg) |
| 5/200 Friction           | 5                  | 200ft (60m) | 47ft 3in (14.4m) | 9ft 10in (3.0m) | 206ft (62.9m)     | 20,000lb (9,100kg) |

The standard kelly has 4 interlocking elements and reaches 130 ft (39 m) depth.

## KELLY BAR FOR LOW CLEARANCE

|                         | NUMBER OF ELEMENTS | DEPTH - DPT | TRANSPORT - KCL | HGT            | KOP               | WEIGHT             |
|-------------------------|--------------------|-------------|-----------------|----------------|-------------------|--------------------|
| Standard 6/95 Interlock | 6                  | 95ft (29m)  | 21ft (6.4m)     | 2ft 9in (0.9m) | 101ft 5in (30.9m) | 13,000lb (5,900kg) |



- The largest hollow inner passage diameter (24 in / 600 mm) of its class rotaries heads:
  - Higher torque
  - Stronger Kelly Bar
  - Longest durability
- 2 groups of Hydraulic Motor LINDE transmitting the highest starting torque.
- 2 Planetary Gear BREVINNI with Power-Shift for high spin-off.
- 2 Swing Bearings, one at the top and one at the bottom of the rotary.
- Pinions and main gear designed for heavy-duty operation.

MODEL EK200 STANDARD MAST - DRILLED SHAFT PILE



The mast is made of special steel called "Weldox" that has a yield strength 2,8 times higher than regular ASTM A36 steel. It means that with less weight the EK200 can have better stability and displacements on the job site and easier transport handlings

MODEL EK200 STANDARD MAST - DRILLED SHAFT PILE



**USA**  
**SAVANNAH**

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**CZM**  
FOUNDATION EQUIPMENT

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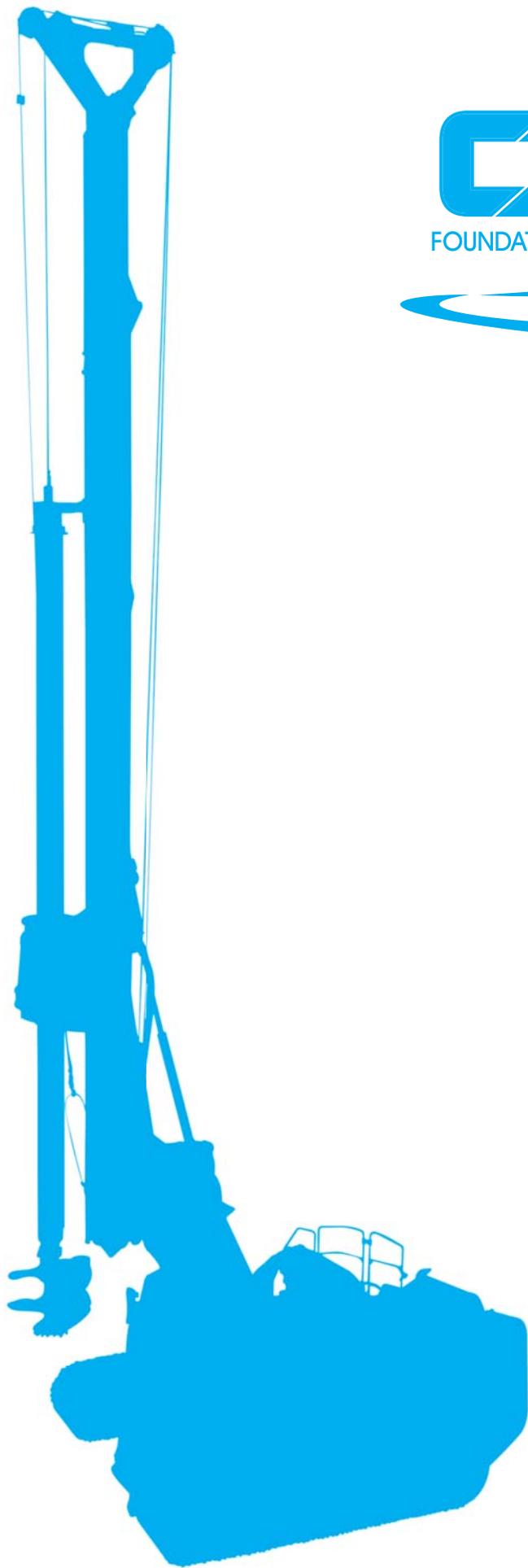


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