



**CZM**

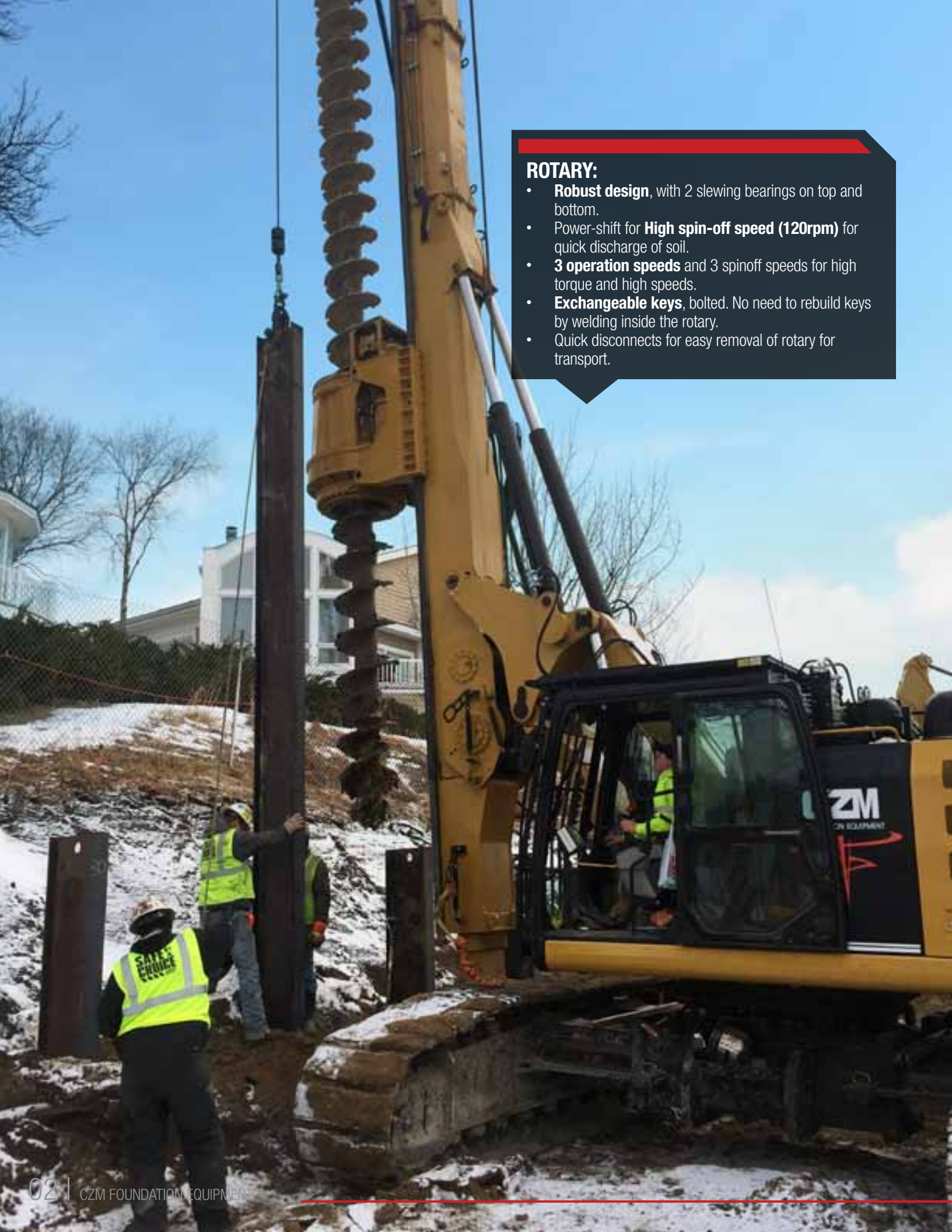
FOUNDATION EQUIPMENT



**EK200**

**ON CAT336  
(NEXT GEN)**





### ROTARY:

- **Robust design**, with 2 slewing bearings on top and bottom.
- Power-shift for **High spin-off speed (120rpm)** for quick discharge of soil.
- **3 operation speeds** and 3 spinoff speeds for high torque and high speeds.
- **Exchangeable keys**, bolted. No need to rebuild keys by welding inside the rotary.
- Quick disconnects for easy removal of rotary for transport.



# EK200

Mounted on  
CAT336  
(NEXT GEN)



## CONTROL SYSTEM:

- Touch Screen Display
- Measurements:
  - Torque and rotary speeds / Main Winch pulling force / Crowd force
  - Drilling depth Mast inclination X/Y axis
- Automatic functions:
  - Auto-level of mast
  - Rotary automatic gear shifting
  - Main Winch automatic gear shifting
  - Drill Lock / Auto Crowd / Return to Center
- Maintenance and data logging



# APPLICATIONS

## APPLICATIONS:

- Conversion to Short Mast and Mid Mast options available.
- Easy Conversion to from Kelly bar to "Bottom Drive CFA" up to 24in diam.

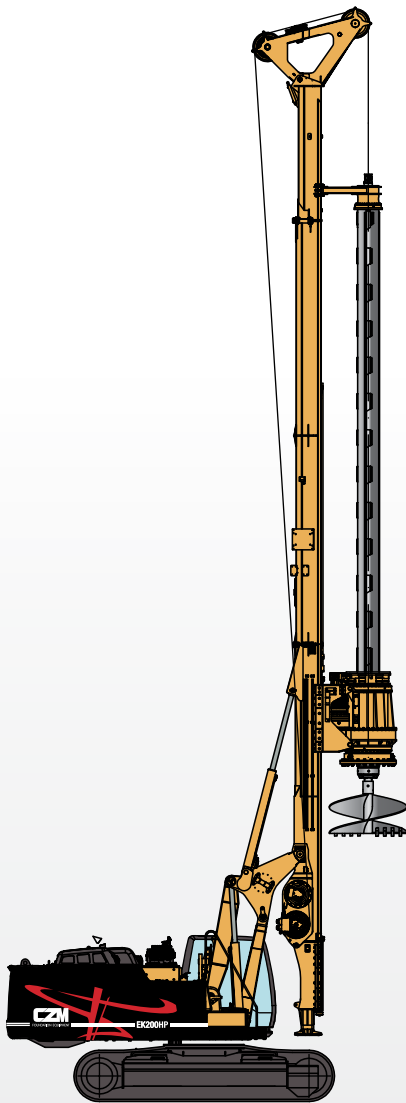
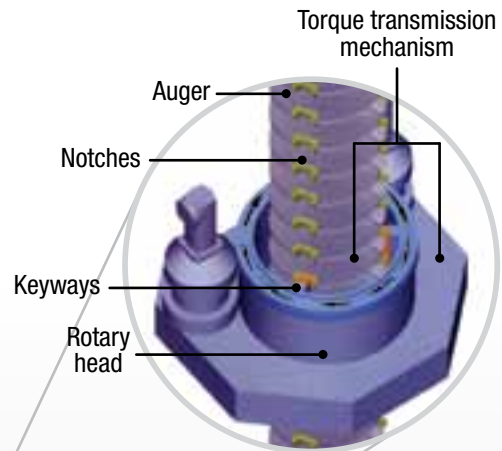
## MAIN WINCH:

- **Special groove** for better cable winding and longer cable life.
- **2 gears** allows for both **high speed** and **high pulling force**.
- Automatic down the hole winch stop.
- Free willing winch during crowd operation.

## KELLY BAR:

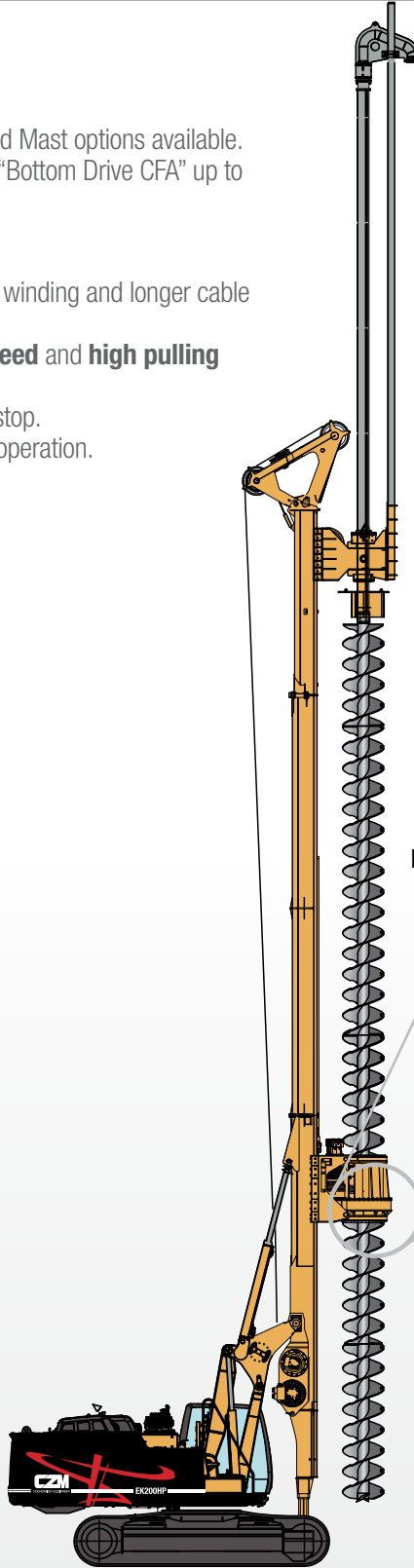
- **Large inner passage** on rotary allows for **large diameter pipes** (16in) and **thicker keys**.
- Thick Keys made of Wear resistant materials – **Hardox 450**.

## BOTTOM DRIVE CFA



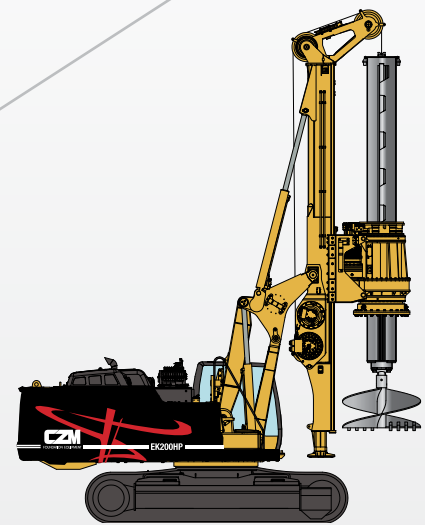
### DRILLED SHAFT PILE

Depth: 130 - 200 ft / 39 - 61 m (interlock)  
 Diameter (max.) with foot mast: 70 in / 1,800 mm  
 Diameter (max.) w/o foot mast: 132 in / 3,350 mm



### BOTTOM DRIVE CONTINUOUS FLIGHT AUGER PILE

Depth (max.) only with auger: 68 ft / 20.8 m  
 Depth (max.) (auger + extension): 84 ft / 25.6 m  
 Diameter (max.): 24 in / 600 mm



### DRILLED SHAFT PILE "LOW CLEARANCE"

Depth (std.): 76 ft / 23.2 m (interlock)  
 Depth (max.): 95 ft / 29 m (interlock)  
 Diameter (max.) with foot mast: 70 in / 1,800 mm  
 Diameter (max.) w/o foot mast: 132 in / 3,350 mm

# 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)	200 ft	61 m
Depth (Optional – 3 elements; interlock Kelly bar)	90 ft	27 m
Diameter (Max. with foot mast)	70 in	1,800 mm
Diameter (Max. w/o foot mast)	132 in	3,350 mm

## KELLY BAR LOW CLEARANCE APPLICATION

Depth (Max. – 6 elements; interlock Kelly bar)	95 ft	29 m
Depth (Standard – 6 elements; interlock Kelly bar)	76 ft	23.2 m
Diameter (Max. with foot mast)	70 in	1,800 mm
Diameter (Max. w/o foot mast)	132 in	3,350 mm

## CFA APPLICATION

Drilling depth (Auger + Extension)	(68 + 16) = 84 ft	(20.6 + 5) = 25.6 m
Drilling Diameter (Max.)	24 in	600 mm

## ENGINE - CAT 336 NEXT GEN C9.3 ACERT\*

Exhaust Emission Standard	EPA Tier 4 (Final)	EPA Tier 4 (Final)
Gross Power – SAE J1995	314 hp	234 kW
Displacement	568 in <sup>3</sup>	9.3 L
Fuel tank	158 gal	600 L

## ROTARY HEAD

Maximum torque (nominal)	193,360 lbf.ft	26,700 kgf.m
Working Speed	10 - 26 rpm	10 - 26 rpm
Spin-off Speed	50 - 120 rpm	50 - 120 rpm

## CROWD SYSTEM

Pull down force	52,200 lbf	23,750 kgf
Pull up force	62,800 lbf	28,500 kgf
Pull down speed	37 ft/min	11 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)	63,540 lbf	28,800 kgf
Maximum pull-force 1st layer (effective)	50,800 lbf	23,100 kgf
Line speed 1st layer	190 ft/min	58 m/min
Cable diameter	1 in	26 mm
Drum diameter 1st Layer	20.2 in	513 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	500 lpm

## AUXILIARY HYDRAULIC SYSTEM

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

## MAST INCLINATION

Forward	5°	5°
Backward	15°	15°
Sideways	7°	7°

## UNDERCARRIAGE

Track length	17 ft 10 in	5,450 mm
Length to center of rollers	15 ft 1 in	4,600 mm
Transport position width (retracted)	9 ft 10 in	3,000 mm
Operation position width (extended)	14 ft 7 in	4,450 mm
Track shoes width	28.3 in	750 mm

## TRANSPORT

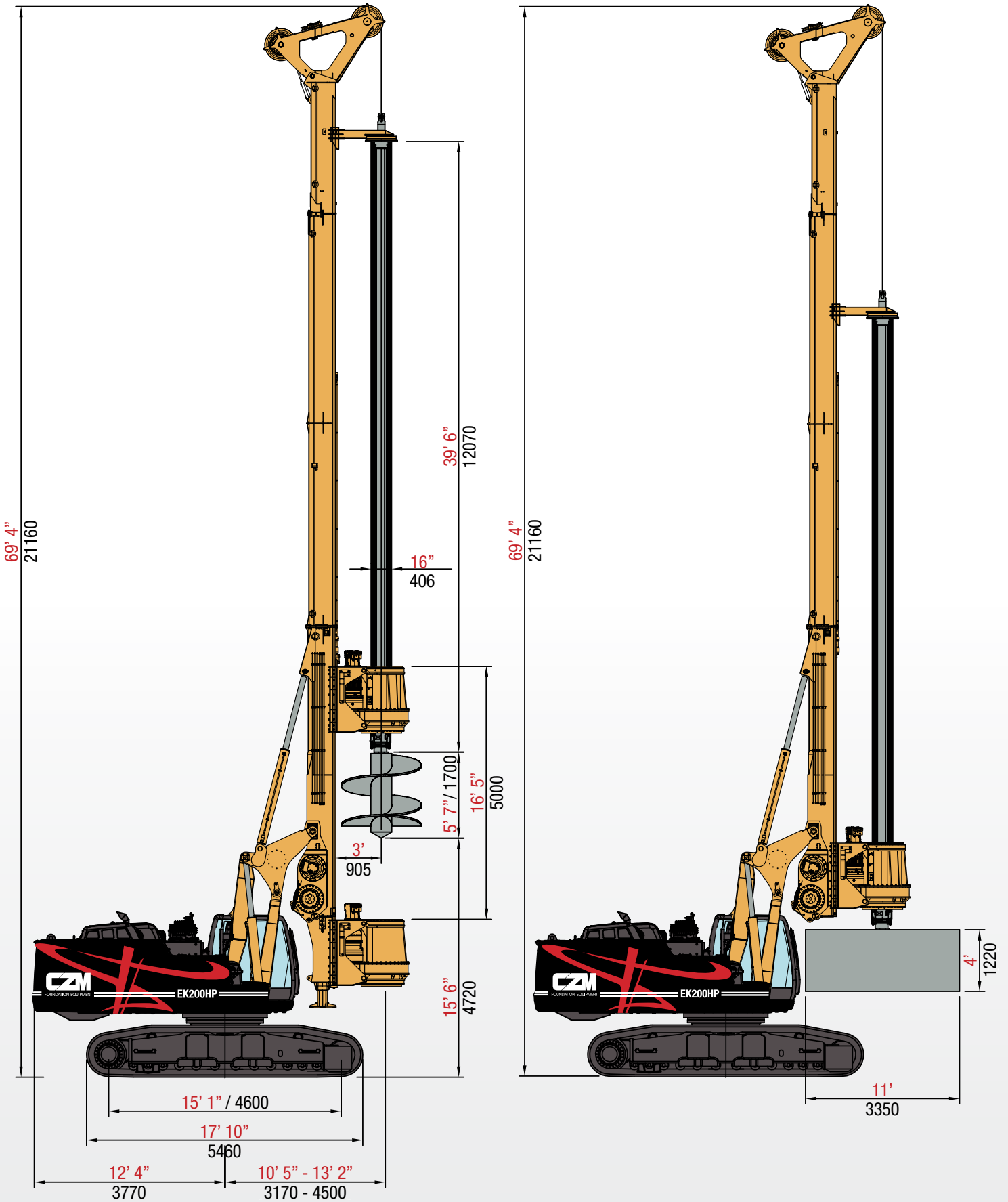
Overall Height (Standard Mast)	11 ft 10 in	3,615 mm
Overall Height (Short Mast)	11 ft 8 in	3,560 mm
Transport Length (Standard Mast)	53 ft 1 in	16,185 mm
Transport Length (Short Mast)	36 ft 7 in	11,140 mm
Transport Width (Standard Mast / Short Mast)	9 ft 10 in	3,000 mm
Transport Weight (Standard Mast)	121,000 lb	55,000 kg
Minimum Transport Weight (Standard Mast)	92,000 lb	41,800 kg
Transport Weight (Short Mast)	115,000 lb	52,300 kg
Minimum Transport Weight (Short Mast)	86,000 lb	39,100 kg

## GENERAL DATA

Overall height (Working position; Standard mast)	69 ft 4 in	21,160 mm
Overall height (Working position; Short mast)	32 ft 7 in	9,931 mm
Operation weight (Standard mast)	138,000 lb	62,700 kg
Operation weight (Extra counterweight)	147,900 lb	67,250 kg
Operation weight (Short mast)	127,200 lb	57,800 kg

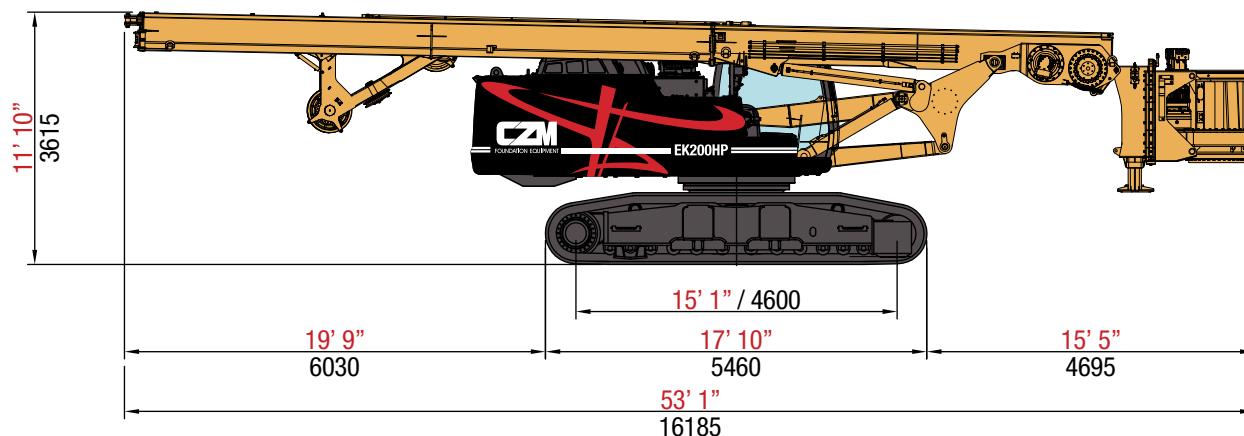
Specifications are subject to change without notice.

# GENERAL DIMENSIONS

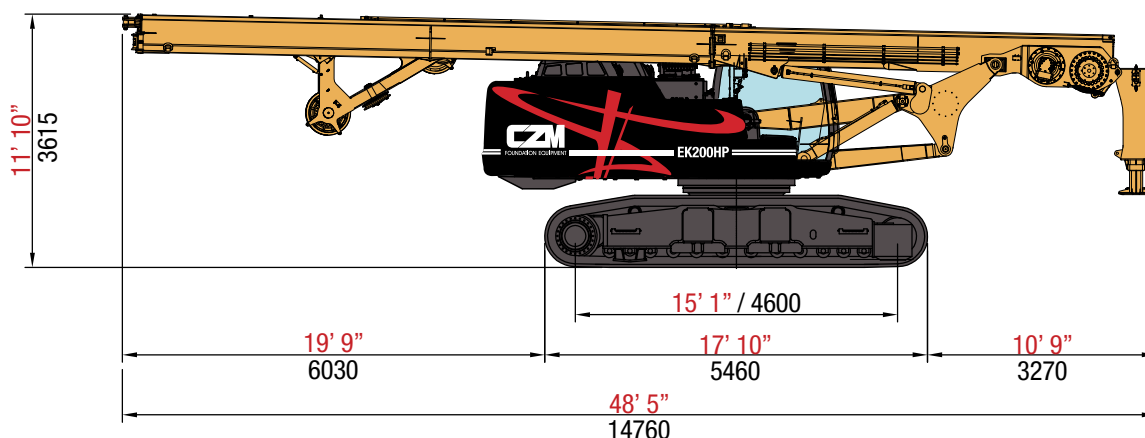




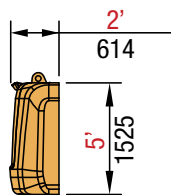
# TRANSPORT POSITION GENERAL DIMENSIONS



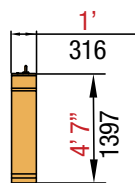
Weight: 125,000 lb / 56,800 kg (transport weight without removing counterweights and rotary)



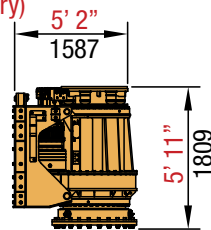
Weight: 95,300 lb / 43,300 kg (transport weight removing counterweights and rotary)



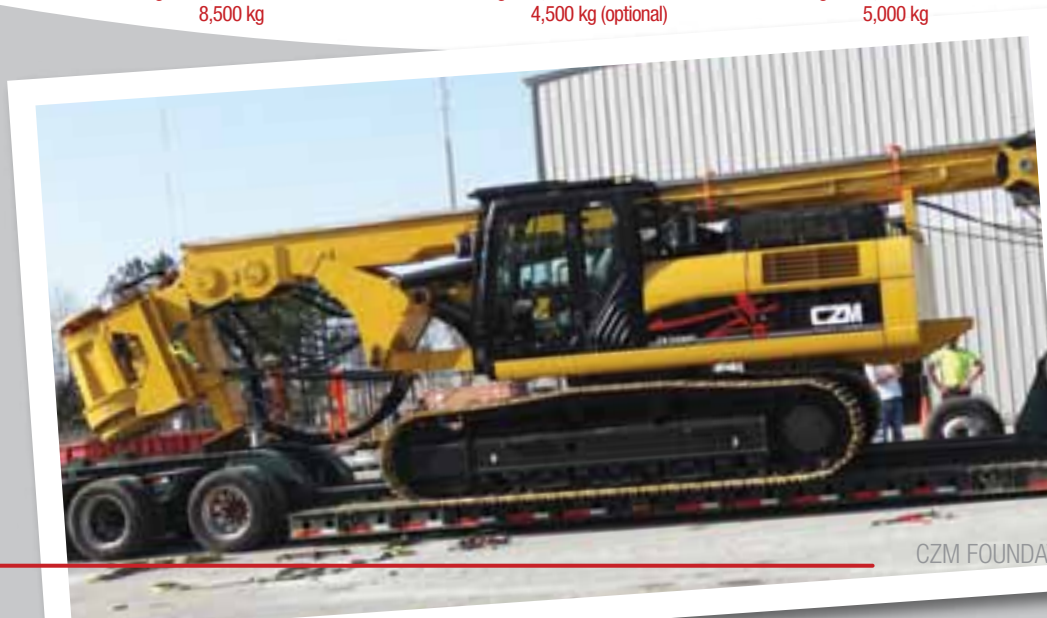
Weight: 18,700 lb / 8,500 kg



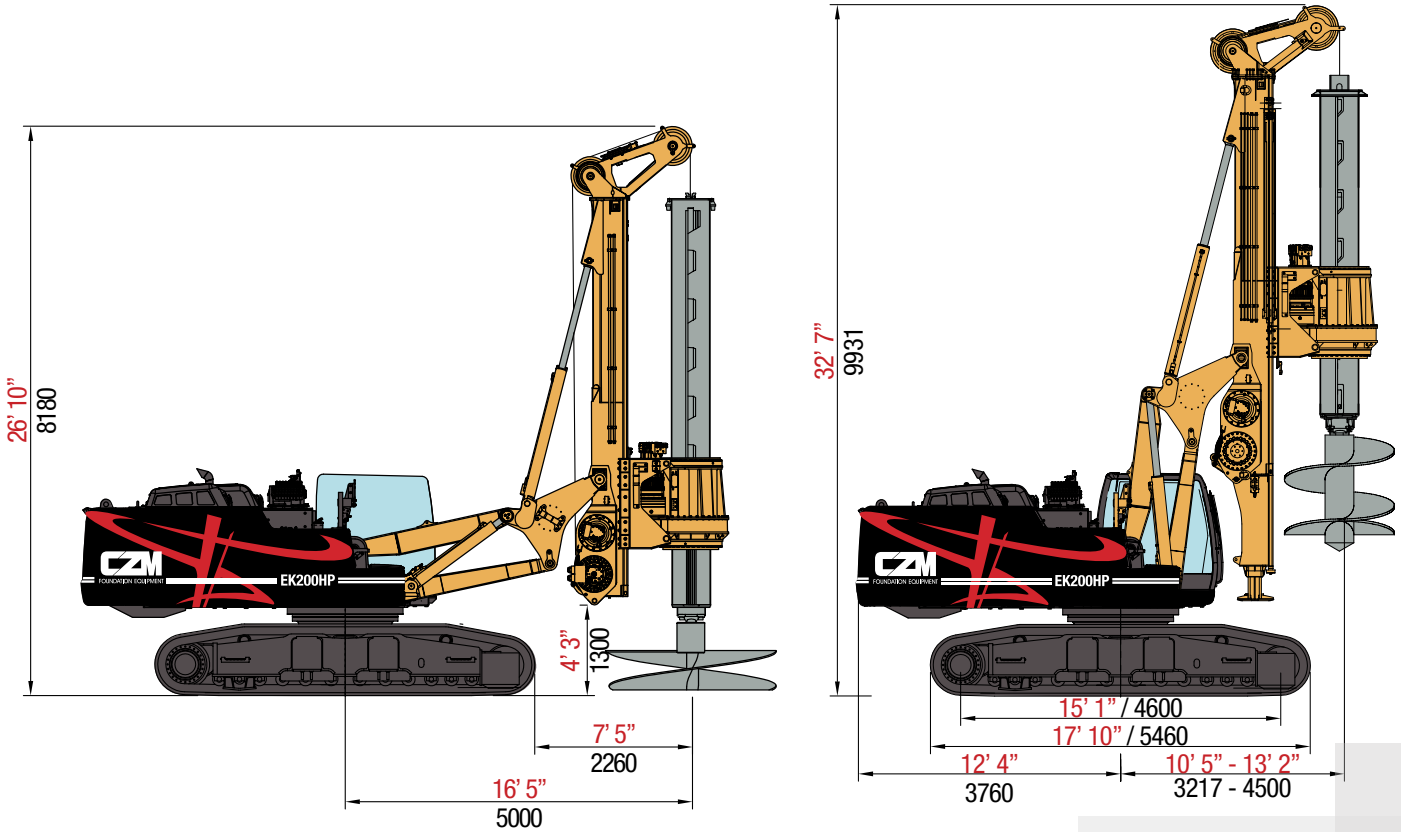
Weight: 9,900 lb / 4,500 kg (optional)



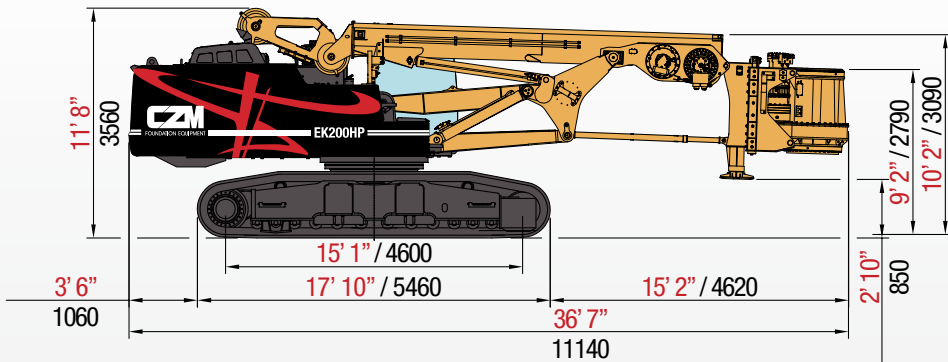
Weight: 11,000 lb / 5,000 kg



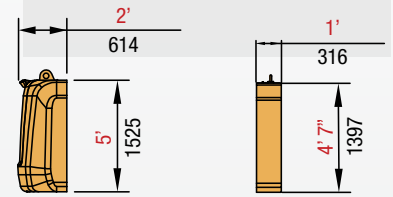
# SHORT MAST GENERAL DIMENSIONS



## TRANSPORT POSITION SHORT MAST

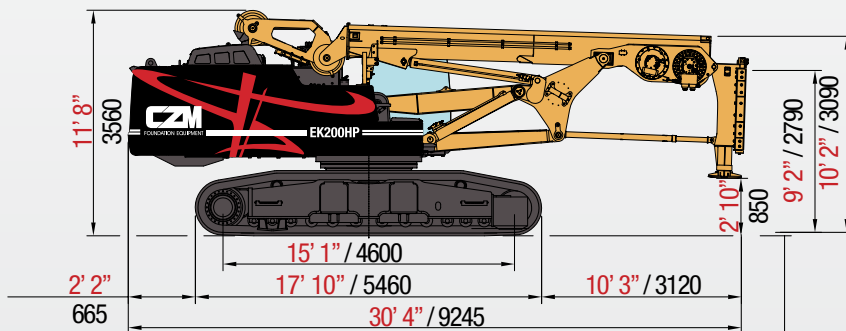


Weight: 115,700 lb / 52,600 kg (transport weight without removing counterweights and rotary)

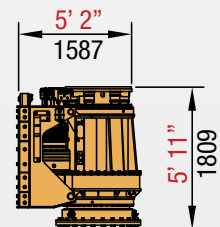


Weight: 18,700 lb / 8,500 kg

Weight: 9,900 lb / 4,500 kg (Optional)



Weight: 86,000 lb / 39,100 kg (transport weight removing counterweights and rotary)



Weight: 11,000 lb / 5,000 kg





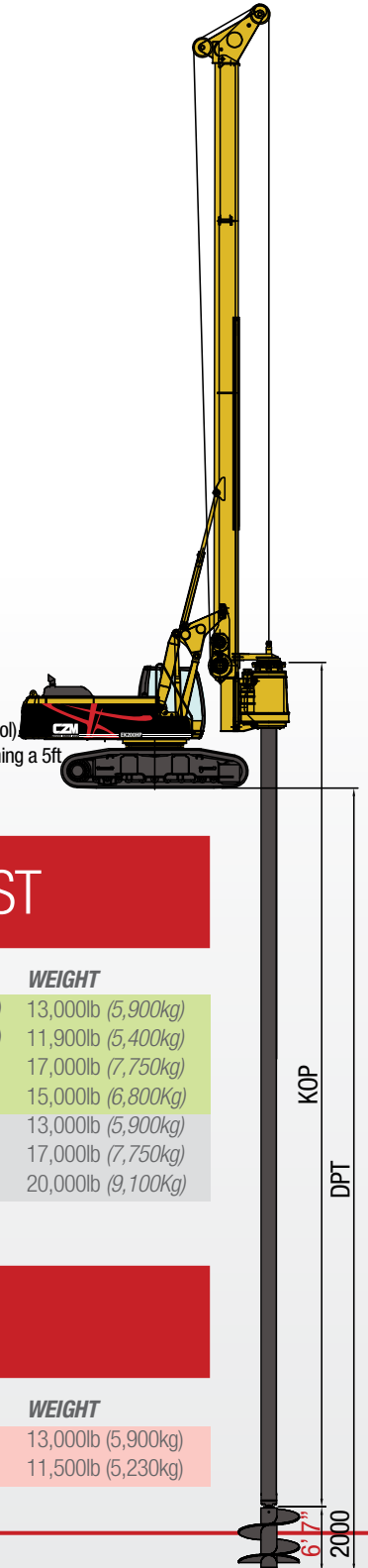
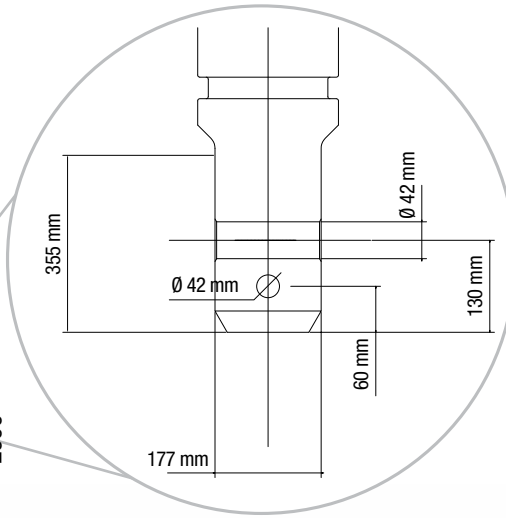
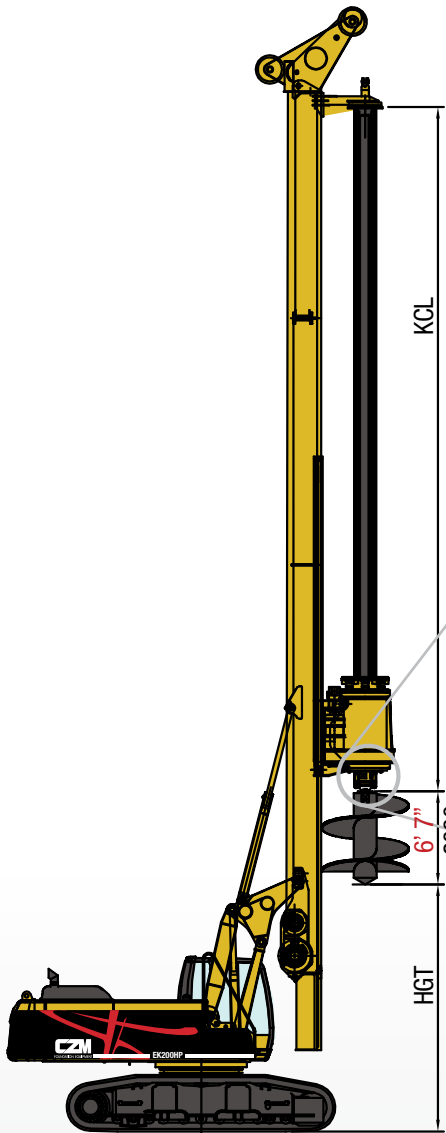
# KELLY BAR GENERAL DIMENSIONS

## 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).



- <sup>1</sup> KCL: Length measured from bottom of stub to top of swivel.
- <sup>2</sup> KOP: Length measure from top of flange to bottom of stub (without a tool)
- <sup>3</sup> HGT: Length measure from bottom of ground to bottom of auger assuming a 5ft tall tool. More clearance can be reached with mast extension.
- <sup>4</sup> DPT: Total depth with 5ft tool boomed all the way back.

## KELLY BAR OPTIONS FOR STANDARD MAST

	NUMBER OF ELEMENTS	DEPTH - DPT <sup>4</sup>	TRANSPORT - KCL <sup>1</sup>	HGT <sup>3</sup>	KOP <sup>2</sup>	WEIGHT
Standard 4/130 Interlock	4	130ft (39m)	39ft (11.9m)	13ft 8in (4.2m)	132ft 3in (40.3m)	13,000lb (5,900kg)
3/90 Interlock	3	90ft (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 OPTIONS FOR SHORT MAST

	NUMBER OF ELEMENTS	DEPTH - DPT	TRANSPORT - KCL	HGT	KOP	WEIGHT
Long 6/95 Interlock	6	95ft (29m)	21ft (6.4m)	2ft 9in (0.9m)	101ft 5in (30.9m)	13,000lb (5,900kg)
Standard 6/76 Interlock	6	76ft (23.2m)	18ft (5.6m)	5ft 3in (1.6m)	84ft (25.6m)	11,500lb (5,230kg)









FOUNDATION EQUIPMENT

## ▲ THE COMPANY

CZM is headquartered in Savannah, Georgia, USA. For over 40 years, we have specialized in manufacturing foundation equipment. We design and customize models for many different drilling applications including Drill shafts, CFA/cased CFA, Micropile and anchoring, piledrive and hydraulic hammers and soil improvements. We are a CAT OEM supplier.

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