

**CZM**

FOUNDATION EQUIPMENT



**LR160**

**LONG REACH**

**Cat® 340 TIER IV**

# ABOUT THE LONG REACH SERIES

## APPLICATIONS:

- **Long Reach**, the longest reach drill rig of its class in the market.
- Conversion to **Long Mast** and **Short Mast** options available.

## BASE:

- **The new Cat 340** is a purpose-built machine powered by a fuel-efficient U.S. EPA **Tier 4 Final** C9.3 ACERT engine.
- Equipped with **CAT Vision Link** that allows management to monitor machine operations and maintenance data online and wireless, providing information such as location, hours, fuel usage, idle time, event codes and maintenance schedule.

## UNDERCARRIAGE:

- Caterpillar **variable undercarriage** VH5000/4300/800. Reinforced frame H style variable undercarriage.

## MAST:

- Reinforced mast, with high resistance steel **Weldox 700**.
- Dual tilt up cylinders add mast rigidity

## ROTARY:

- **Robust design**, with 2 slewing bearings on top and bottom, robust pinion and main gear.
- Anti-cavitation and anti-shock system for longer hydraulic motor life.
- **2 groups of Hydraulic Motor / Planetary Gear** for high torque, high speeds and long life.
- Cooling system for hydraulic motors and gearboxes.
- 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.
- **Automatic gear shifting**, for seamless operation, high production.
- **Exchangeable keys**, bolted. No need to rebuild keys by welding inside the rotary.
- Hydraulic measurement of torque displayed in the cabin for the operator.

## MAIN WINCH:

- **Special groove** for better cable winding and longer cable life.
- Press-roller included
- **2 gears** allows for both **high speed** and **high pulling force**.
- **Automatic gear shifting**, for seamless operation, high production.
- Automatic down the hole winch stop. When Kelly bar reaches the bottom of the hole, winch automatically stops.
- Freewheeling winch during crowd operation.
- Hydraulic and mechanical brake.
- Hydraulic measurement of pulling force displayed in the cabin for operator.

## 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**.



## CAB:

- AM/FM Radio, Air conditioning/Heating
- ROPS cab
- Top protection
- LCD monitor for Engine and Hydraulics computer, with diagnostic system

## CONTROL SYSTEM:

- Touch Screen Display
- Measurements:
  - Torque and rotary speeds
  - Drilling depth
  - Mast inclination X/Y axis
  - Main Winch pulling force
  - Crowd force
- 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

## ACCESSORIES:

- Lighting package
- Refueling pump
- Cold weather start up package
- Fine filtration system
- Tool & O'ring kits



# TECHNICAL SPECIFICATIONS

## KELLY BAR SHORT MAST APPLICATION

Drilling Depth (4 elements; interlock kelly bar)*	53 ft	16,764 mm
Maximum Drilling Depth (Interlocking bars)	80 ft	24,384 mm
Maximum Drilling Depth (Friction bars)	100 ft	30,480 mm
Drilling Diameter	12 ft	3,650 mm

\*For longer bars, most extension is required.

## ROTARY HEAD - RT 406-14

Max. torque (nominal)	155,100 ft.lbs	21,500 kg.m
Working speed of rotation	14-34 rpm	14-34 rpm
Spin-off rotation	70-140 rpm	70-140 rpm

## ROTARY HEAD - RT 406-12

Max. torque (nominal)	134,300 ft.lbs	18,620 kg.m
Working speed of rotation	16-38 rpm	16-38 rpm
Spin-off rotation	80-150 rpm	80-150 rpm

## CROWD SYSTEM

Cylinder stroke - short mast	9 ft 6 in	2,900 mm
Cylinder push force	44,500 lbf	20,230 kgf
Cylinder push speed	128 ft/min	33 m/min
Cylinder pull force	53,220 lbf	24,190 kgf
Cylinder pull speed	118 ft/min	36 m/min

## MAIN WINCH

Max. pull-force - 1st Layer (effective)	41,270 lbf	18,760 kgf
Cable diameter	-	24 mm
Drum diameter - 1st Layer	18.5 in	473 mm

## AUXILIARY WINCH

Max. pull-force - 1st Layer (effective)	22,000 lbf	10,000 kgf
Line speed - 1st Layer	180 ft/min	55 m/min
Cable diameter	3/4 in	19 mm
Drum diameter - 1st Layer	16.5 in	420 mm

## MAST INCLINATION

Backward	15°	15°
Forward	5°	5°
Sideways	8° / 8°	8° / 8°

## DIESEL ENGINE Cat® 340 TIER IV (Cat® C9.3B)

Net Power – Standard ISO 9249	346 hp	258.3 kW
Displacement	568 in3	9.3 L
Fuel Tank	158.5 gal	600 L

## HYDRAULIC SYSTEM (Cat® 340 TIER IV)

Hydraulic pressure	5,076 psi	350 bar
Flow rate (main circuit)	2x74 gal/min	2x280 L/min
Hydraulic oil tank capacity	42.5 gal	161 L

## UNDERCARRIAGE

Track length	19 ft 4 in	5,880 mm
Length to Center of rollers	16 ft 5 in	5,000 mm
Transport position width (retracted)	9 ft 11 in	3,000 mm
Working position width (extended)	14 ft 1 in	4,300 mm
Shoes width	32 in	800 mm
Max. drawbar pull (both tracks)	90,200 lbf	41,000 kgf
Max. travel speed	1.30 mph	2.0 km/h

## UNDERCARRIAGE (SHORT BOOM)

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
Working position width (extended)	14 ft 7 in	4,450 mm
Shoes width	28 in	720 mm

## TRANSPORT

Transport height	10 ft 8 in	3,260 mm
Length	45 ft 8 in	13,195 mm
Transport width	9 ft 11 in	3,000 mm
Transport weight (standard kelly 4 / 53 ft)	125,000 lb	56,500 kg
Transport weight (without kelly & counterweight)	102,000 lb	46,300 kg

## TRANSPORT WEIGHTS - SHORT BOOM

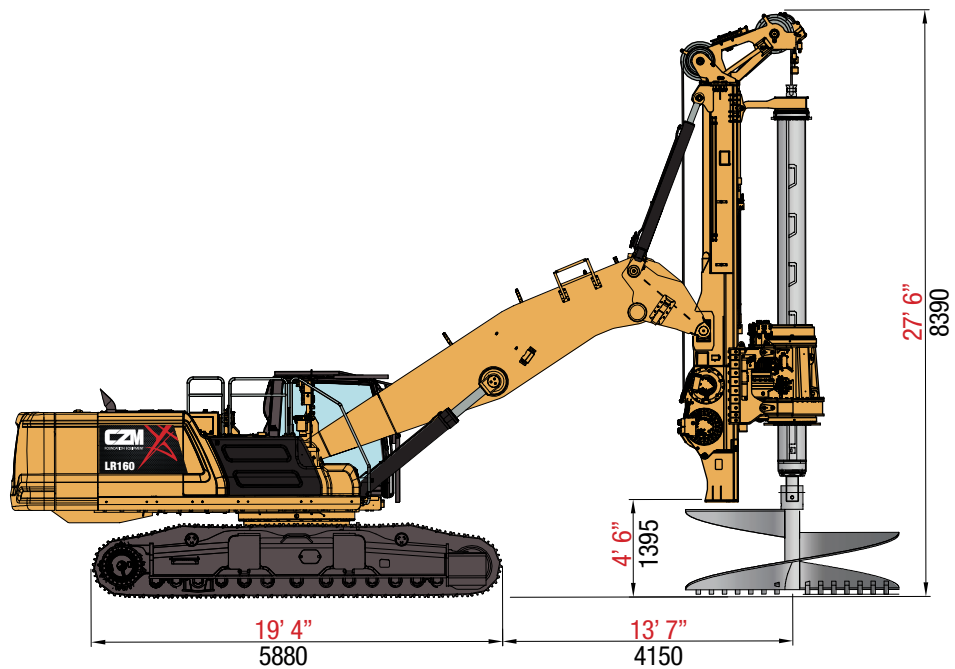
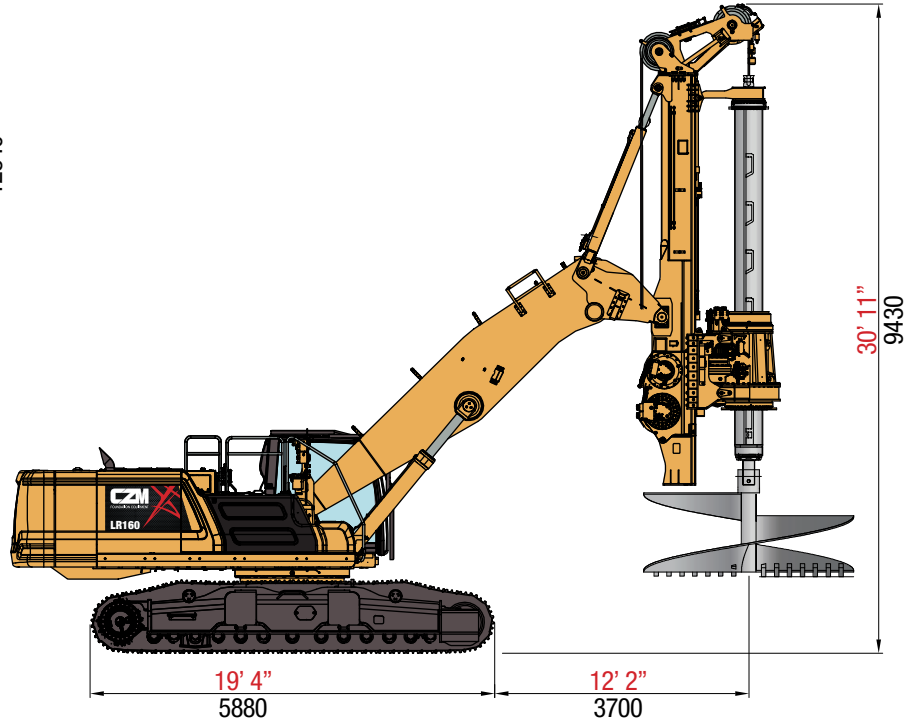
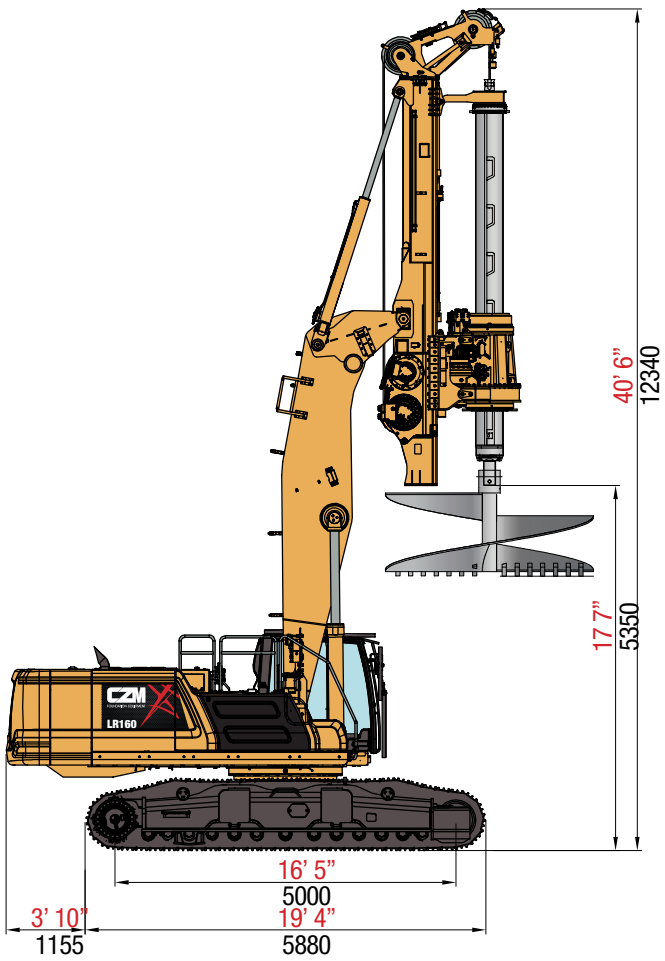
Long Mast - standard kelly	125,800 lb	57,000 kg
Short Mast - standard kelly	124,800 lb	56,600 kg
Long Mast - without kelly & counterweight	98,300 lb	44,600 kg
Short Mast - without kelly & counterweight	97,300 lb	44,100 kg

## GENERAL DATA

Overall height (boom in)	37 ft 11 in	11,565 mm
Overall height (boom out)	26 ft 11 in	8,195 mm
Operating weight (Short Boom - Long Mast)	133,500 lb	60,550 kg
Operating weight (Short Boom - Short Mast)	132,500 lb	60,100 kg
Minimum transport weight	105,000 lb	47,627 kg

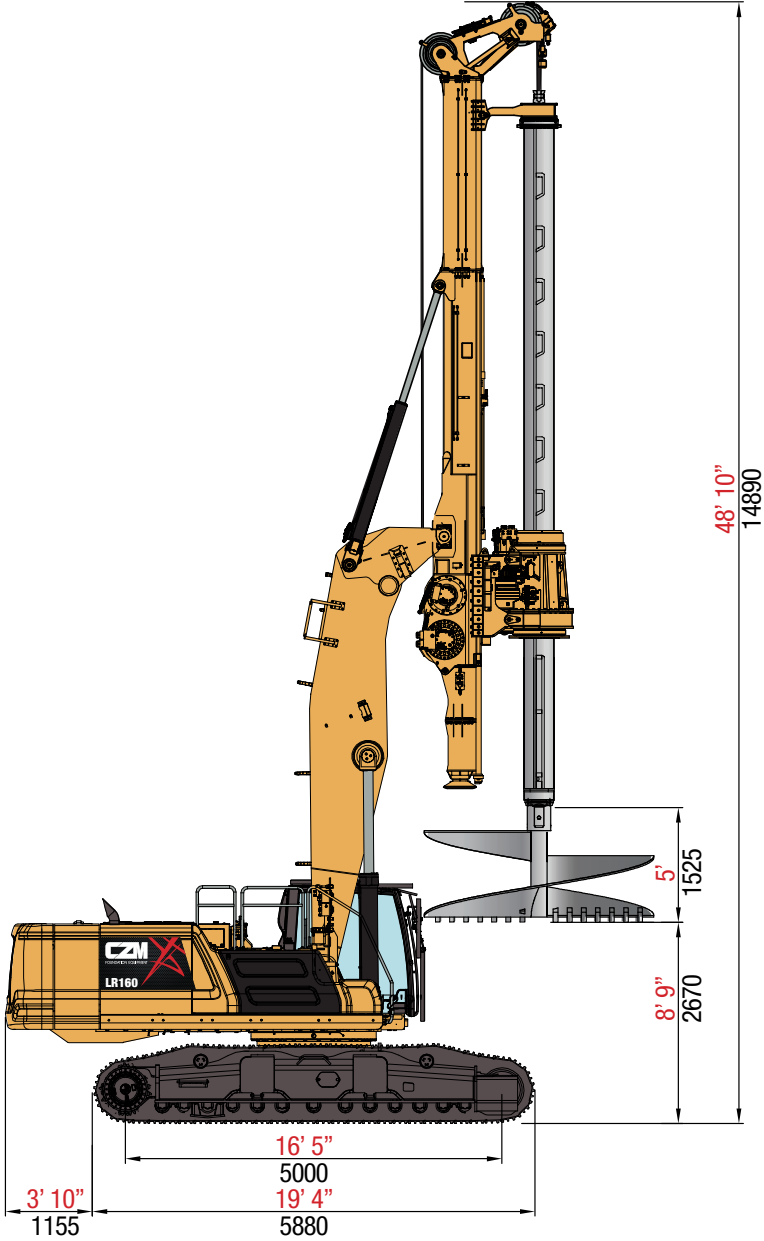


# GENERAL DIMENSIONS LONG BOOM SHORT MAST

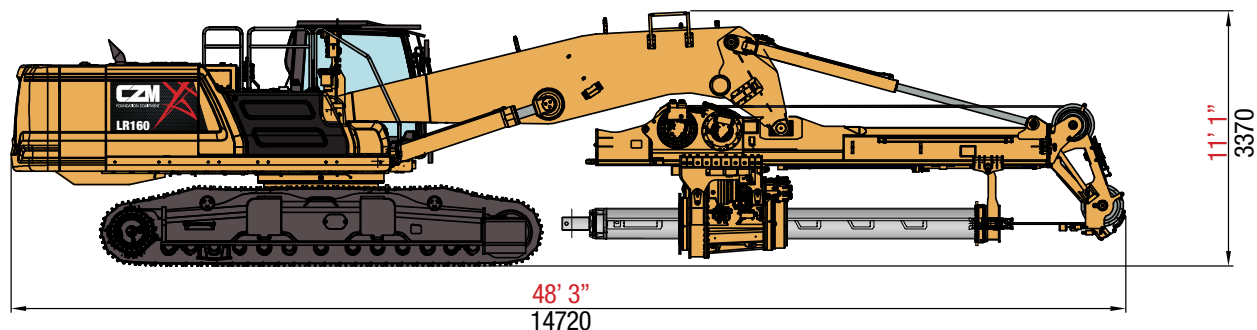




# GENERAL DIMENSIONS LONG BOOM LONG MAST



# TRANSPORT POSITION LONG BOOM GENERAL DIMENSIONS



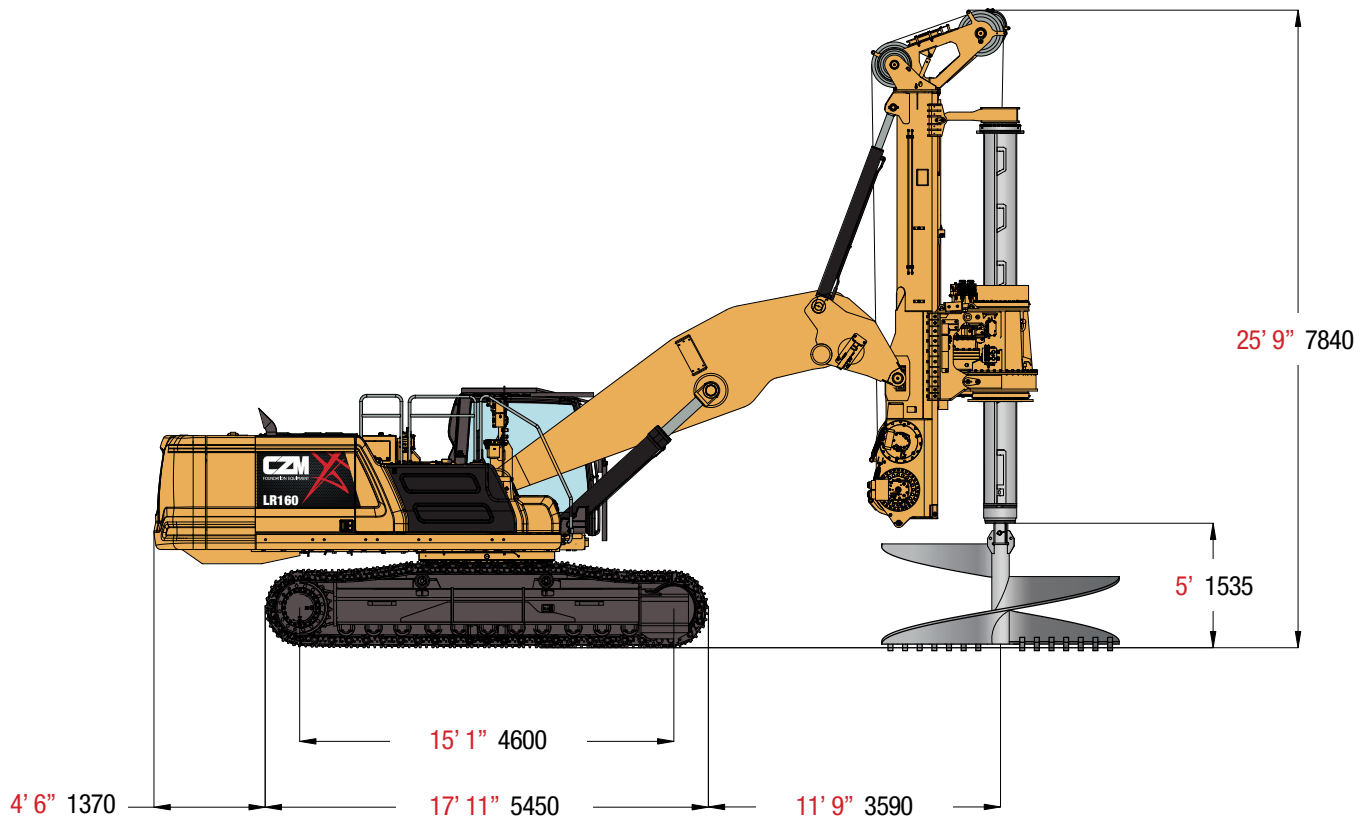
Weight: 125,000 lbs / 56,500 kg



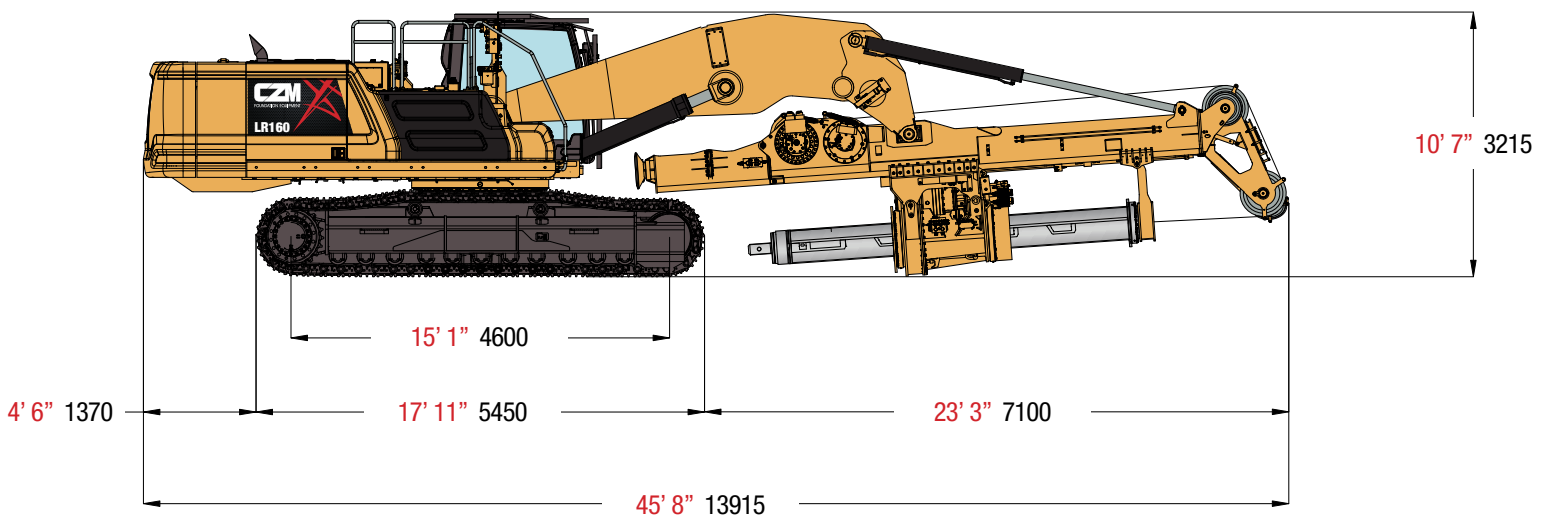
## KELLY BAR OPTIONS FOR LR160

	<b>NUMBER OF ELEMENTS</b>	<b>DEPTH - DPT</b>	<b>CLOSED LENGTH</b>	<b>WEIGHT</b>
4/45 Interlock	4	45' / 15.7m	17'2" / 5.2m	5,900lbs / 2,700kg
4/53 Interlock	4	53' / 16m	15'2" / 4.6m	6,400lbs / 2,900kg
4/80 Interlock	4	80' / 24m	23'11" / 7.3m	9,600lbs / 4,300kg
5/55 Friction	5	55' / 16.8m	15'2" / 4.6m	6,800lbs / 3,100kg
5/70 Friction	5	70' / 21m	18'2" / 5.5m	8,600lbs / 3,900kg
5/100 Friction	5	100' / 30.5m	24'2" / 4.6m	12,200lbs / 5,500kg

# GENERAL DIMENSIONS SHORT BOOM SHORT MAST

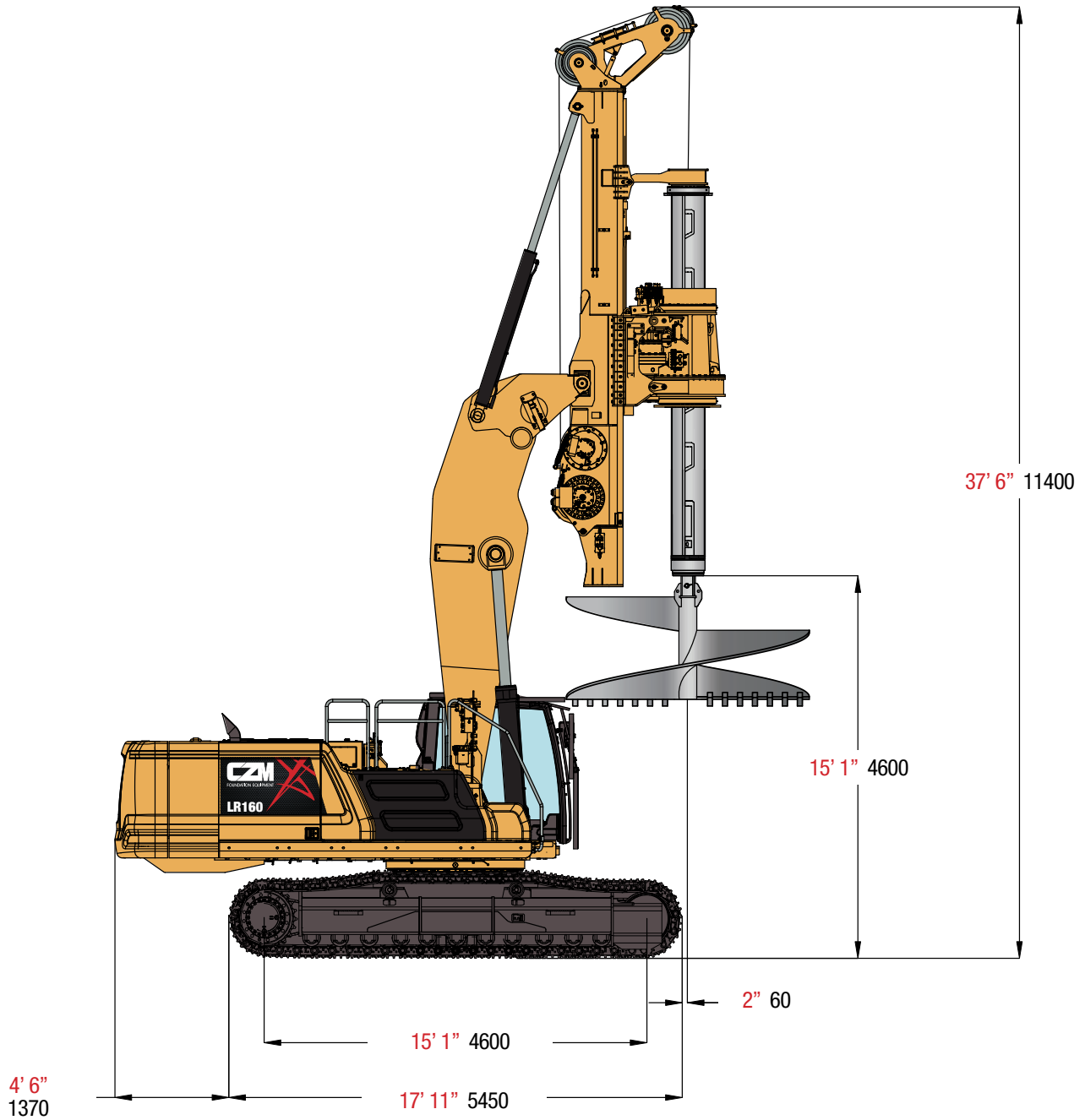


# TRANSPORT DIMENSIONS SHORT BOOM SHORT MAST

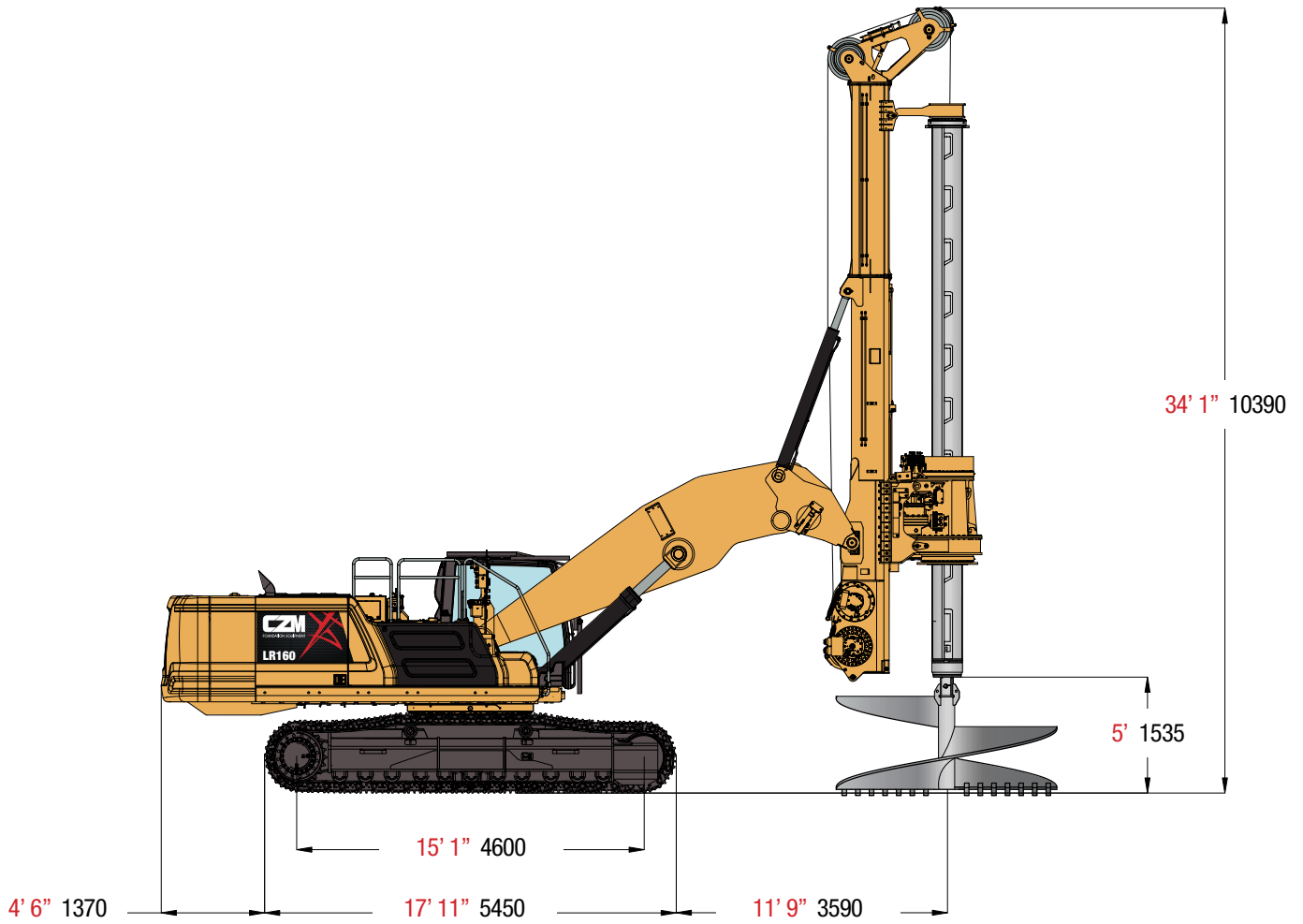




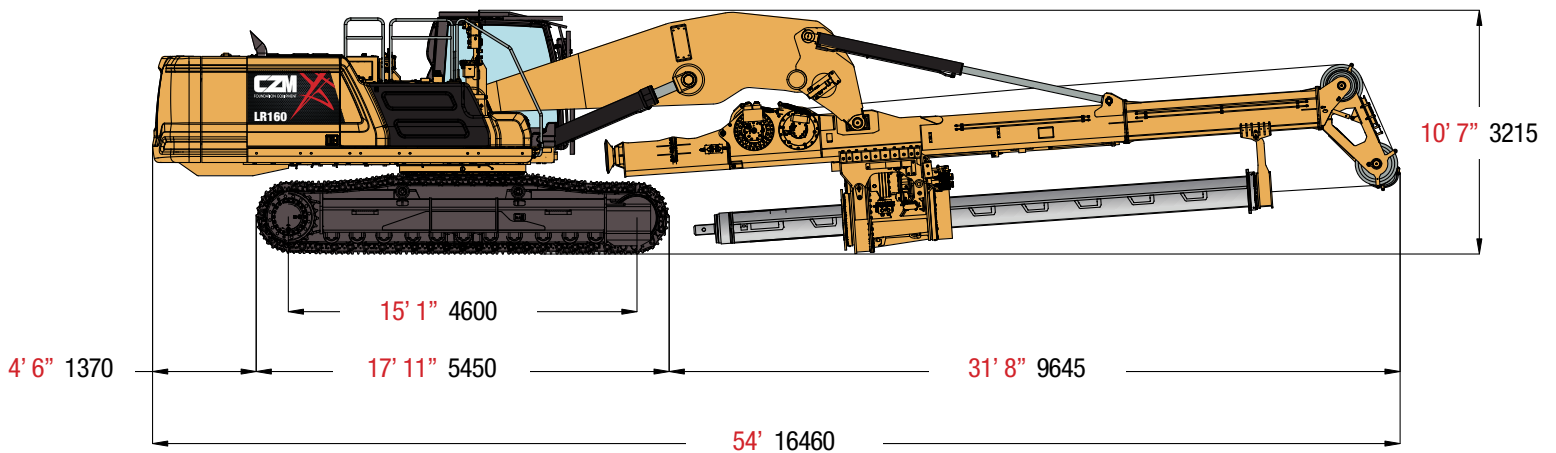
# GENERAL DIMENSIONS SHORT BOOM SHORT MAST



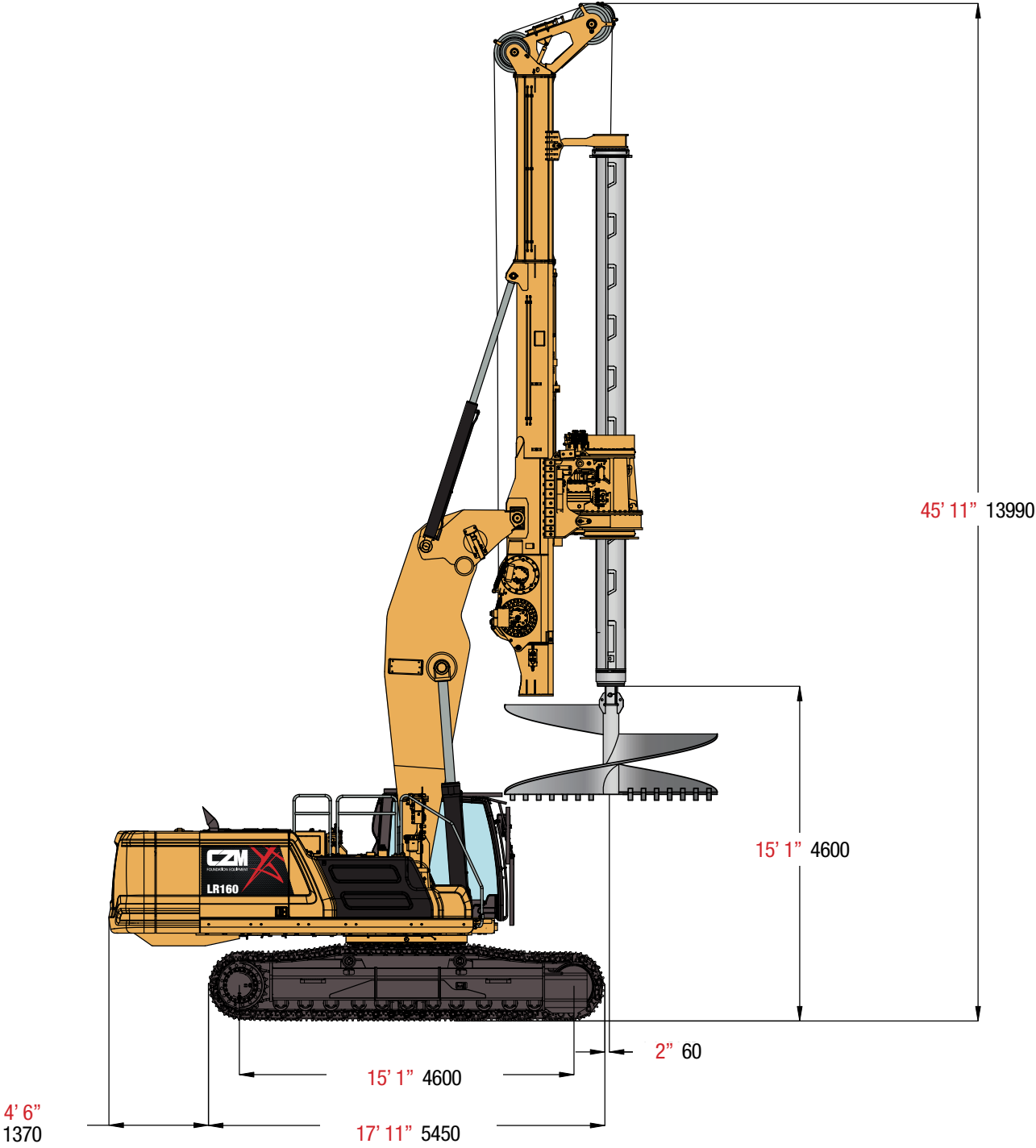
# GENERAL DIMENSIONS SHORT BOOM LONG MAST



# TRANSPORT DIMENSIONS SHORT BOOM LONG MAST



# GENERAL DIMENSIONS SHORT BOOM LONG MAST





# LR160

Mounted on  
Cat® 340 TIER IV



**SCAN  
QR CODE**

To view a video  
of the LR160.







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, driven pile and hydraulic hammers and soil improvements. We are a Caterpillar OEM (Original Equipment Manufacturer).

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Specifications are subject to change without notice.