



# HPM200

| Mounted on CAT 330F base

[www.hpmitaly.com](http://www.hpmitaly.com)

*Courtesy of Crane Market*





# HPM

## HYDRAULIC PERFORMANCE MACHINES

### THE COMPANY

HPM is a fast-growing Company, leader in the design and manufacture of high-quality drilling rigs mounted on CAT base.

HPM was founded in 2012 by Eng. Giuseppe Cartechini, who has worked as a design engineer since the 1980s for notable drilling design companies.

Located in Italy, HPM facilities include a fully-integrated machine shop, fabrication and weld shop, assembly and testing facility.

Over the past few years, HPM has become specialized in design and manufacturing low headroom drilling rigs, which they can be easily converted in long mast rigs.

The HPM machines are suitable for the following applications:

- Deep bored piles
- Cased bored piles (with casing oscillator, rotator or directly driven by the rotary)
- Low headroom bored piles
- Large diameter bored piles
- CFA
- Displacement
- Soil mixing
- Vibroflotation
- Down the hole hammer
- Hydraulic hammer for precast piles

HPM is able to produce both standard equipment and specialised equipment which meets the individual requirements of the customers.

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# HPM200

The HPM200 meets the needs of large construction projects and work done within confined spaces.

HPM 200 uses a Caterpillar Cat 330F, this base has a C7.1 ACERT Tier 4 diesel engine with a power of 180 kW (175 kW fly wheel).

On this basis, HPM adds his Hydraulic system for positioning operations and motion of the rotary, in order to send the entire power to the rotary or to main winch in order to maximize the productivity. The HPM200 are available in the following configuration:

***HPM200 11 feet - HPM200 Short Mast - HPM200 Standard Mast***

Each rig can be easily converted from standard to short-mast version and vice versa in a very short time for a true multipurpose rig.



## HPM200 11'

### GENERAL DIMENSIONS

The HPM200 is designed to perform large diameter piles on sites with limited headroom or restricted access.

The HPM200 comes with three major pluses:

- An effective torque of 185,000 lbf (251kN)
- An economical transportation weight of 74900 lbf (33.3 ton)
- A tool diameter in front of the mast of 11 ft (3350m)

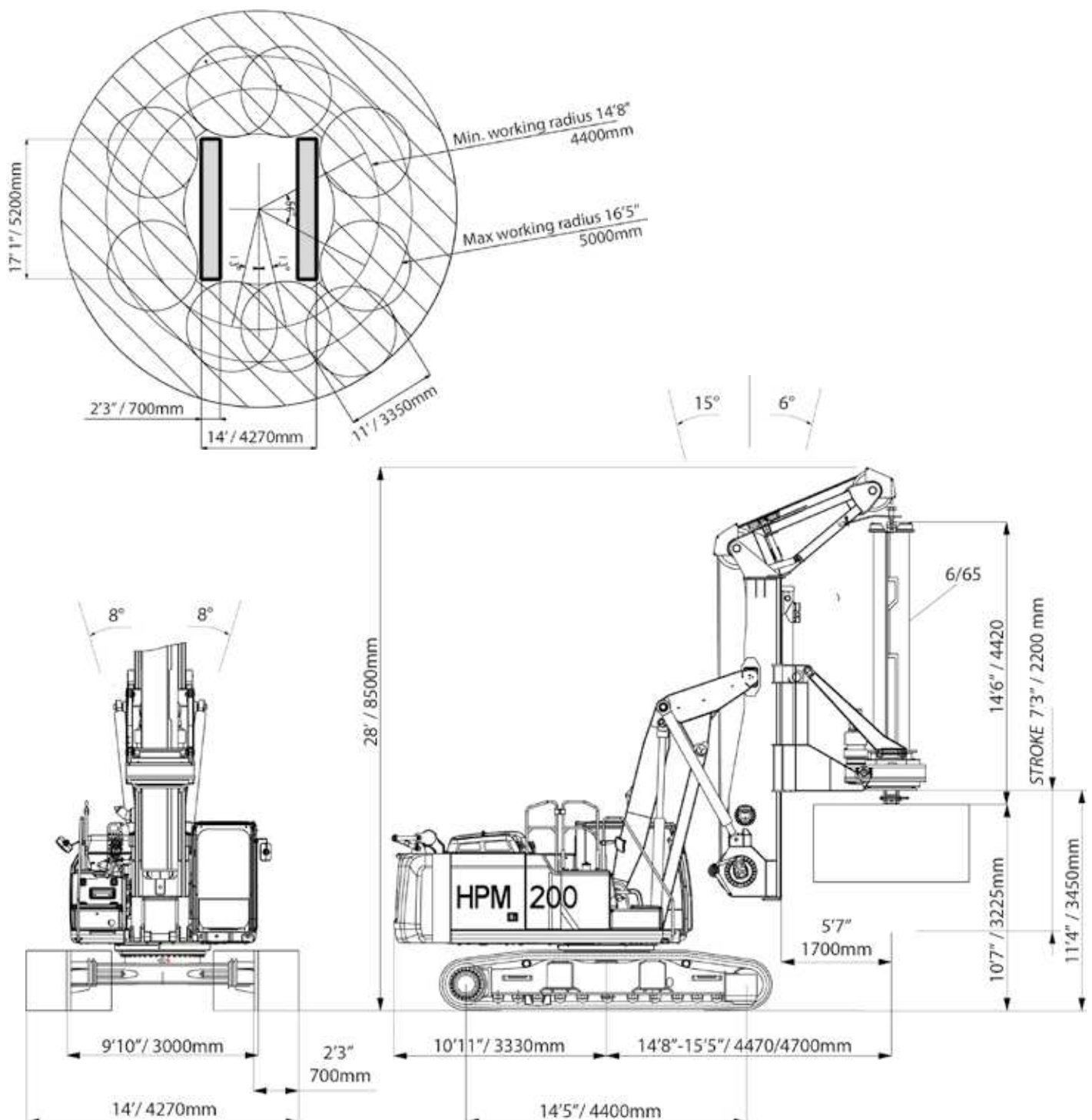
**Torque: 185000 lbf-ft 251 kNm**

**Depth:** 65 ft 20 m

**Weight:** 110700 lb 50200 Kg

**Fly Wheel Power:** 239 hp      175 kW

## WORKING AREA



## TECHNICAL DATA

UNDERCARRIAGE	US	METRIC
Track Length	17 ft 1 in	5200 mm
Shoes Width	2 ft 3 in	700 mm
Overall Width (extended)	14 ft	4270 mm
Overall Width (retracted)	9 ft 10 in	3000 mm
ROTARY		
Maximum Torque (effective)	185000 lbf-ft	251 kNm
Working Speed	9-27 rpm	9-27 rpm
Spin-off Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	7 ft 3 in	2210 mm
Pull Force	70000 lbf	310 kN
Push Force	45000 lbf	200 kN
MAIN WINCH		
Maximum Pull Force (1st layer)	46000 lbf	205 kN
Starting Pull Force (1st layer)	50000 lbf	222 kN
Line Speed	230 ft/min	70 m/min
Cable Diameter	1" 1/8	28 mm
AUXILIARY WINCH		
Maximum Pull Force	26000 lbf	115 kN
Line Speed	180 ft/min	55m/min
Cable Diameter	3/4"	19 mm
WORKING DIMENSION		
Max Diameter (front mast)	11 ft	3350 mm
Max Diameter (under mast)	15 ft	4570 mm
Height	28 ft	8500 mm
Width	14 ft	4270 mm
Operative Weight	110700 lbf	50200 kg
Working Radius	14' 8" to 16' 5"	4.4 to 5 m
Max depth	65 ft	20 m

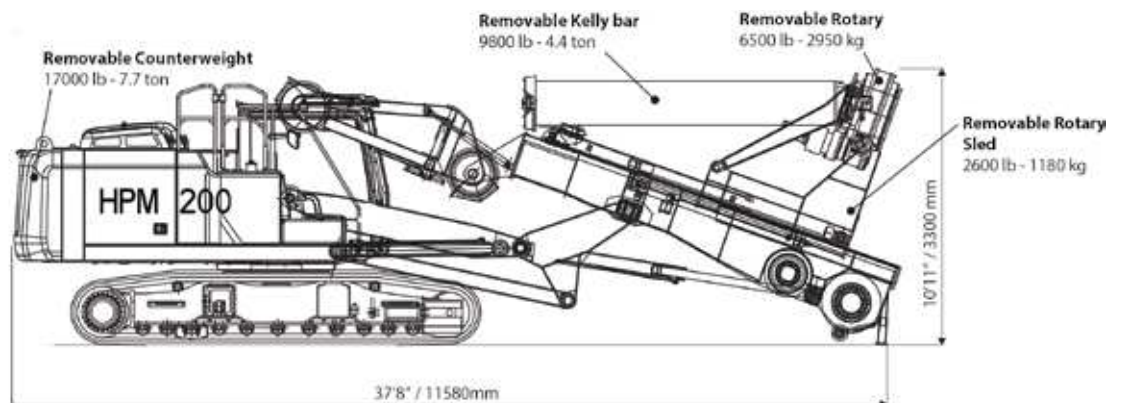
## TRANSPORT DATA

Disassembled rig

Weight:

**74900 lb**

**33.3 Ton**



TRANSPORT WEIGHTS and DIMENSIONS	US	METRIC
Transport Height	10 ft 11 in	3300 mm
Transport Length	38 ft	11580 mm
Transport Width	9 ft 10 in	3000 mm
Transport Weight	73400 lbf	33300 Kg



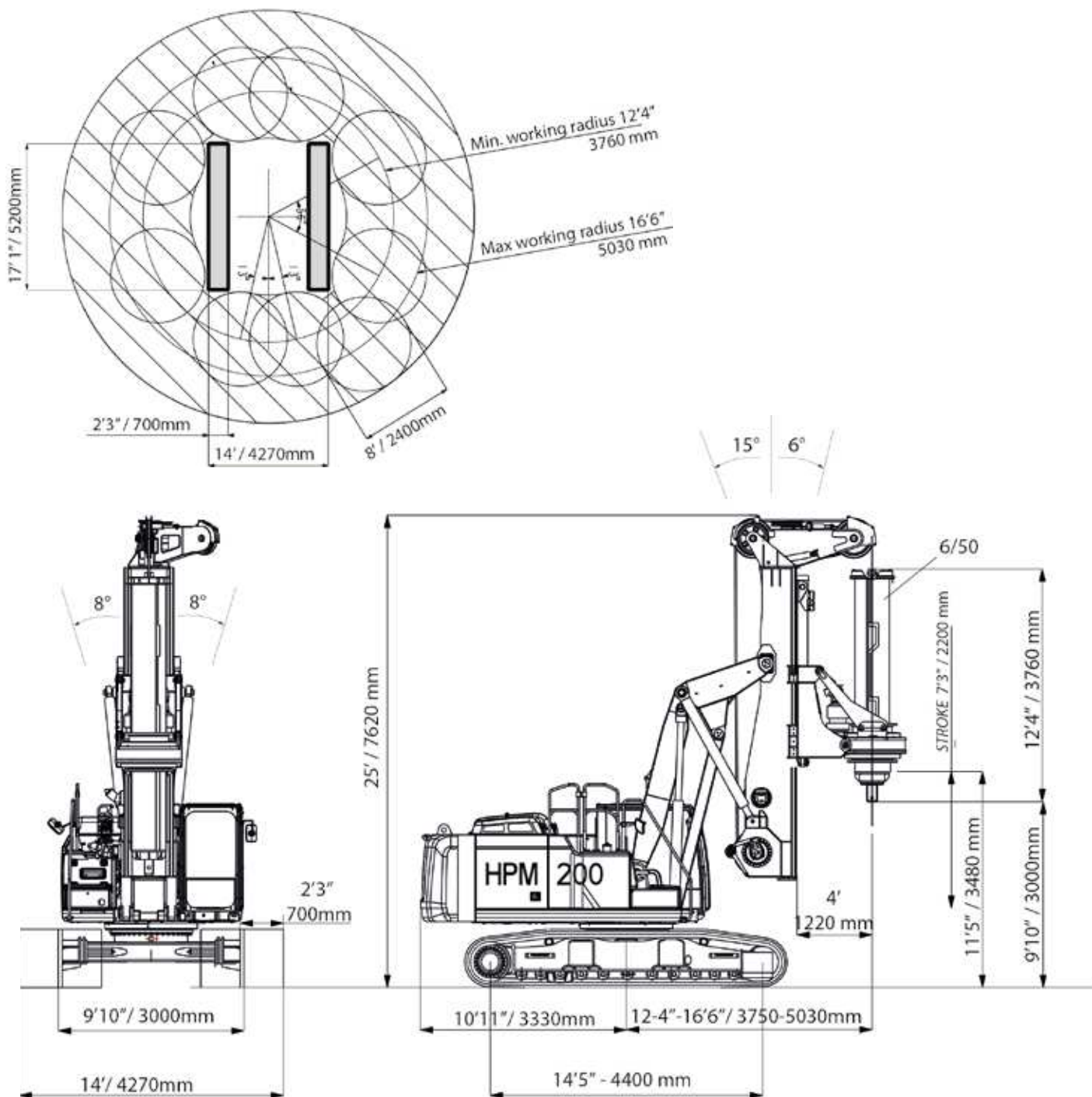
# HPM200 SHORT MAST

## GENERAL DIMENSIONS

The HPM200 Short Mast piling rig is a perfect match for many job sites including those with low-headroom conditions and large diameter requirements. It can be converted from Short to Standard Mast version in very short time by adding the mast extension and replacing kelly bar, wire rope and pull down cylinder.

<b>Torque:</b>	<b>185000 lbf-ft</b>	<b>251 kNm</b>
<b>Depth:</b>	<b>50 ft</b>	<b>15 m</b>
<b>Weight:</b>	<b>106200 lb</b>	<b>48200 Kg</b>
<b>Fly Wheel Power:</b>	<b>239 hp</b>	<b>175 kW</b>

### WORKING AREA

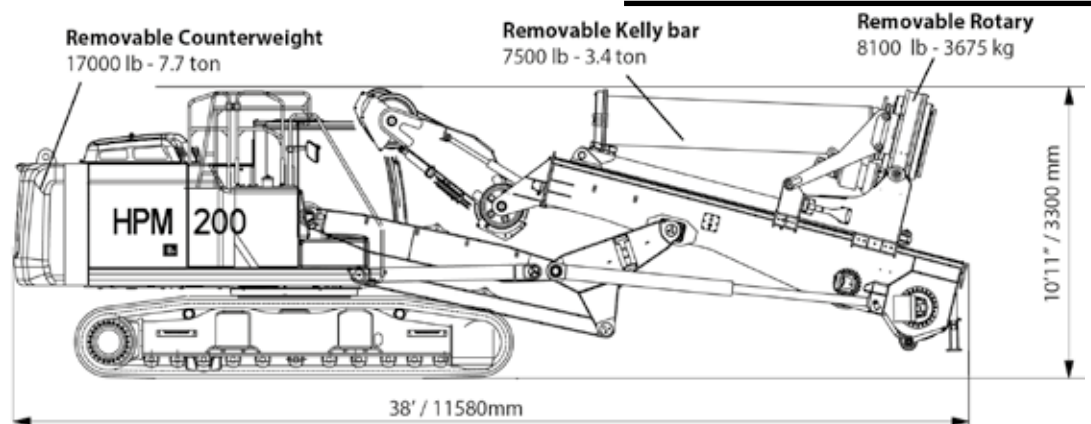


## TECHNICAL DATA

UNDERCARRIAGE	US	METRIC
Track Length	17 ft 1 in	5200 mm
Shoes Width	2 ft 3 in	700 mm
Overall Width (extended)	14 ft	4270 mm
Overall Width (retracted)	9 ft 10 in	3000 mm
ROTARY		
Maximum Torque (effective)	185000 lbf-ft	251 kNm
Working Speed	9-27 rpm	9-27 rpm
Spin-off Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	7 ft 3 in	2210 mm
Pull Force	70000 lbf	310 kN
Push Force	45000 lbf	200 kN
MAIN WINCH		
Maximum Pull Force (1st layer)	46000 lbf	205 kN
Starting Pull Force (1st layer)	50000 lbf	222 kN
Line Speed	230 ft/min	70 m/min
Cable Diameter	1" 1/8	28 mm
AUXILIARY WINCH		
Maximum Pull Force	26000 lbf	115 kN
Line Speed	180 ft/min	55m/min
Cable Diameter	3/4"	19 mm
WORKING DIMENSION		
Max Diameter (front mast)	8 ft	2400 mm
Max Diameter (under mast)	13 ft	4000 mm
Height	25 ft	7620 mm
Width	14 ft	4270 mm
Operative Weight	106200 lbf	48200 kg
Working Radius	14' 8" to 16'5"	4.4 to 5 m
Max depth with optional 6/70 Kelly bar	70 ft	21 m

## TRANSPORT DATA

Disassembled rig  
Weight:  
**73400 lb**  
**33 Ton**



TRANSPORT WEIGHTS and DIMENSIONS	US	METRIC
Transport Height	10 ft 11 in	3300 mm
Transport Length	38 ft	11580 mm
Transport Width	9 ft 10 in	3000 mm
Transport Weight	74900 lbf	34000 Kg

# HPM200

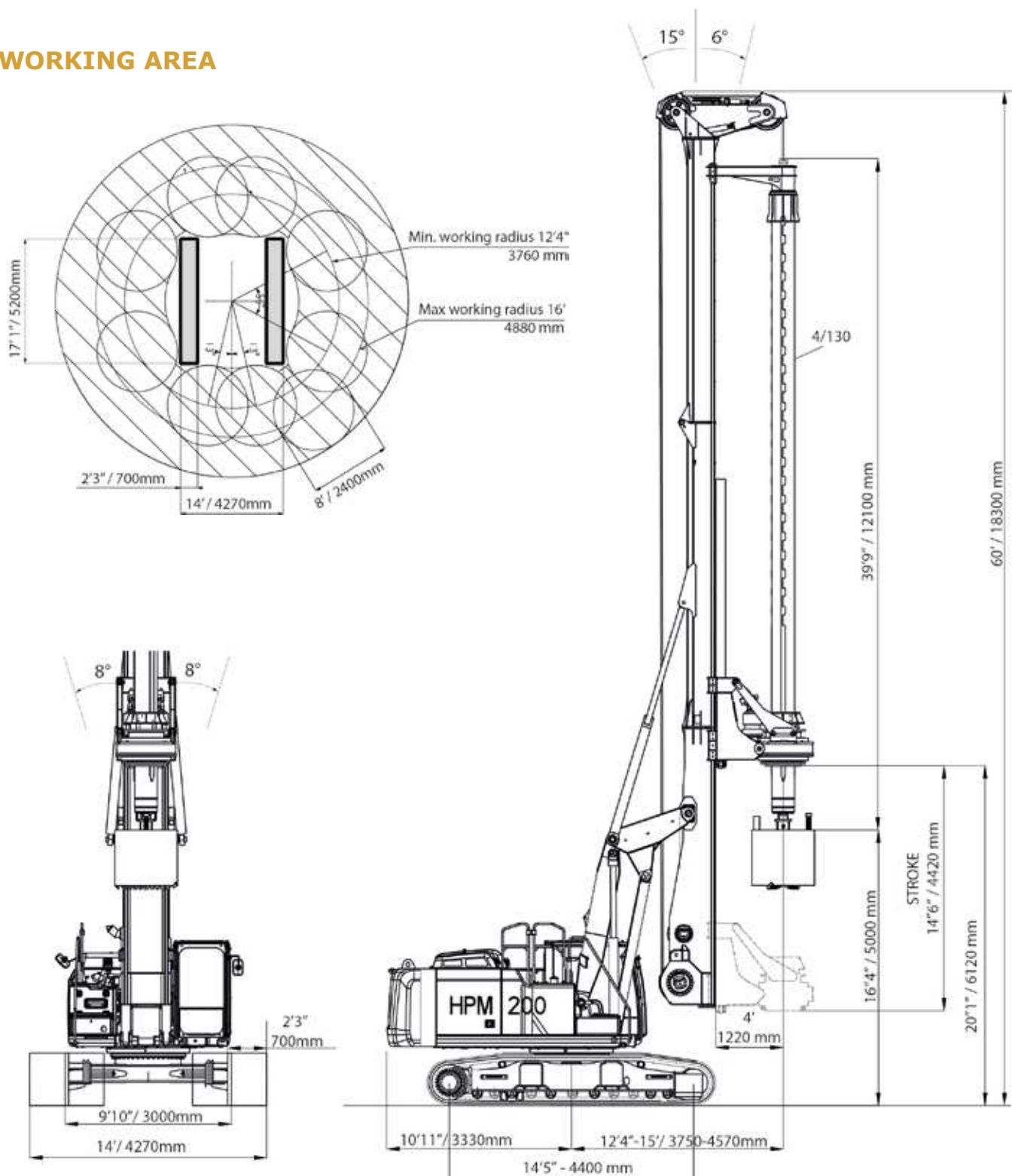
## GENERAL DIMENSIONS

The HPM200, mounted on CAT 330F base has been designed to perform foundation piles with diameters of 8ft (2400mm) and a depth up to 60 meters using the 5/195 kelly bar.

It can be converted in Short Mast version in very short time by simply removing the mast extension and replacing kelly bar, wire rope and pull down cylinder.

<b>Torque:</b>	<b>185000 lf-ft</b>	<b>251 kNm</b>
<b>Depth:</b>	<b>130 ft</b>	<b>40 m</b>
<b>Weight:</b>	<b>119700 lb</b>	<b>54300 Kg</b>
<b>Fly Wheel Power:</b>	<b>239 hp</b>	<b>175 kW</b>

## WORKING AREA





## TECHNICAL DATA

UNDERCARRIAGE	US	METRIC
Track Length	17 ft 1 in	5200 mm
Shoes Width	2 ft 3 in	700 mm
Overall Width (extended)	14 ft	4270 mm
Overall Width (retracted)	9 ft 10 in	3000 mm
ROTARY		
Maximum Torque (effective)	185000 lbf-ft	251 kNm
Working Speed	9-27 rpm	9-27 rpm
Spin-off Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	14 ft 6 in	4420 mm
Pull Force	70000 lbf	310 kN
Push Force	45000 lbf	200 kN
MAIN WINCH		
Maximum Pull Force (1st layer)	46000 lbf	205 kN
Starting Pull Force (1st layer)	50000 lbf	222 kN
Line Speed	230 ft/min	70 m/min
Cable Diameter	1" 1/8	28 mm
AUXILIARY WINCH		
Maximum Pull Force	26000 lbf	115 kN
Line Speed	180 ft/min	55m/min
Cable Diameter	7/8"	22 mm
WORKING DIMENSION		
Max Diameter (front mast)	8 ft	2400 mm
Max Diameter (under mast)	13 ft	4000 mm
Height	60 ft	18280 mm
Width	14 ft	4270 mm
Operative Weight	120000 lbf	54300 kg
Working Radius	12' 4" to 16'	3750 to 4800mm
Max depth with optional 5/195 Kelly bar	196'	60 m

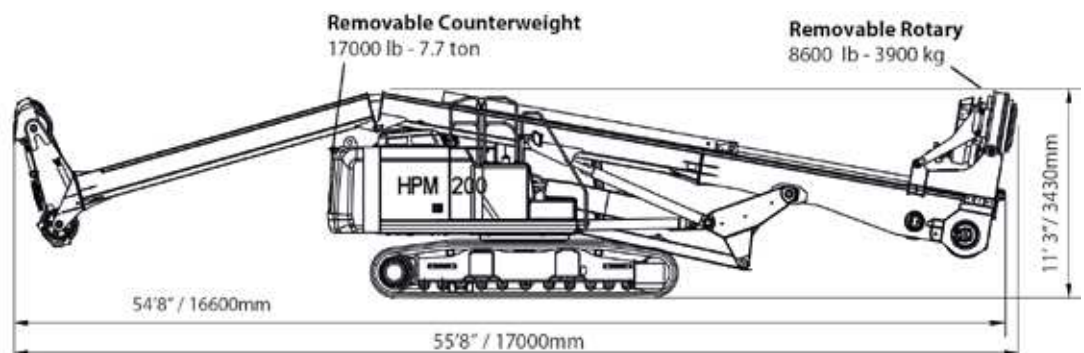
## TRANSPORT DATA

### Disassembled rig

Weight:

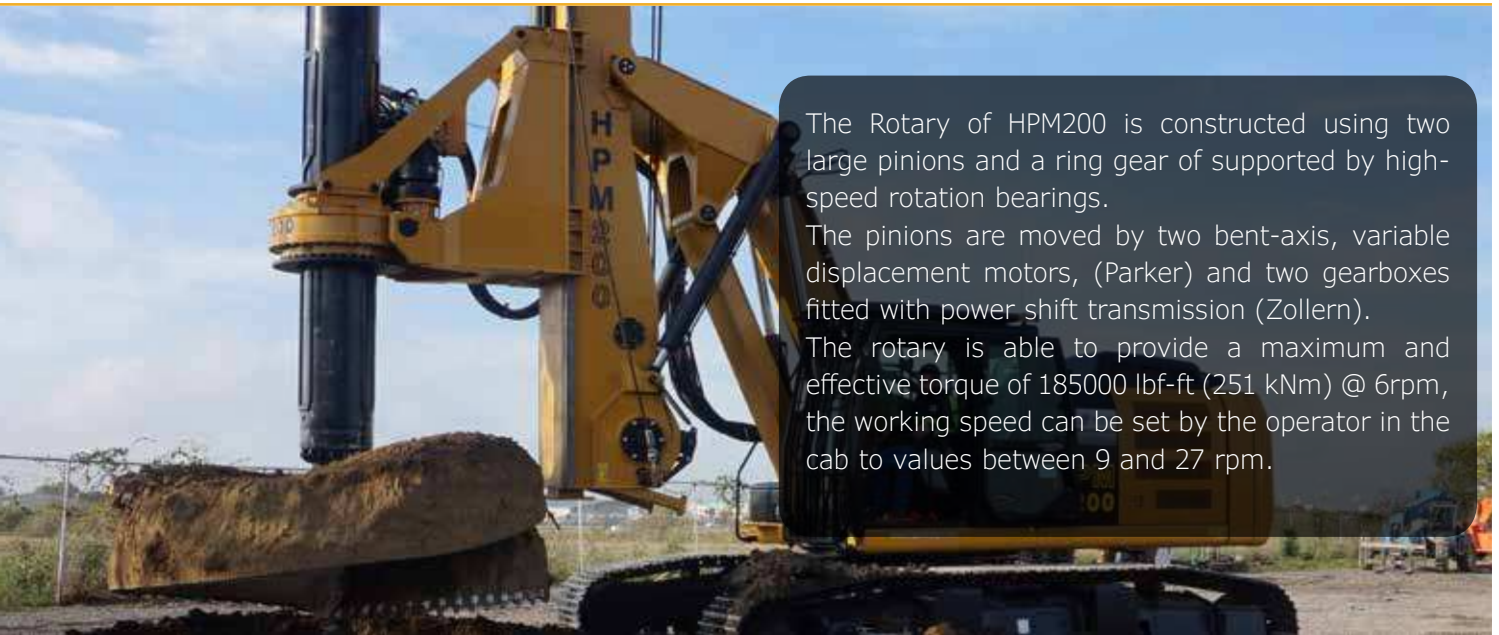
**80500 lb**

**36.5 Ton**



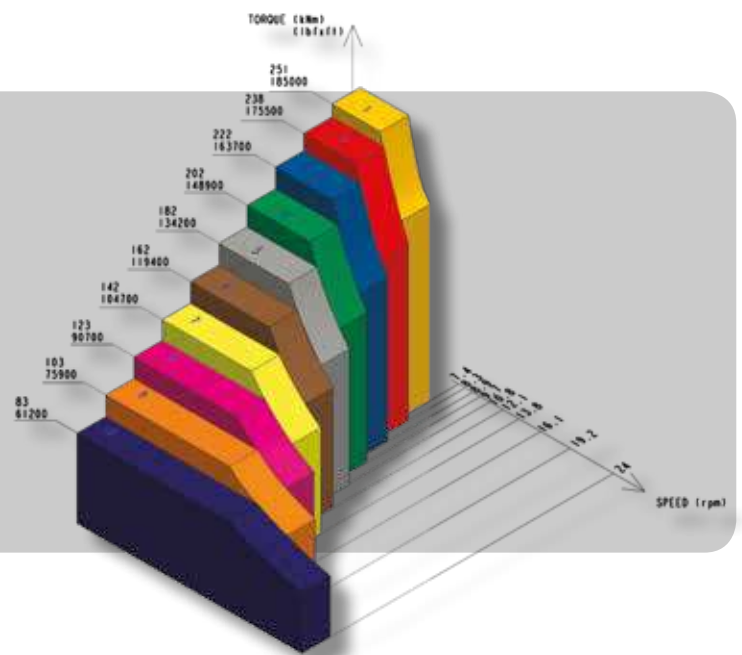
TRANSPORT WEIGHTS and DIMENSIONS	US	METRIC
Transport Height	11 ft 3 in	3430 mm
Transport Length	58 ft 8 in	16660 mm
Transport Width	9 ft 10 in	3000 mm
Transport Weight	80500 lbf	36500 Kg

# ROTARY



The Rotary of HPM200 is constructed using two large pinions and a ring gear of supported by high-speed rotation bearings. The pinions are moved by two bent-axis, variable displacement motors, (Parker) and two gearboxes fitted with power shift transmission (Zollern). The rotary is able to provide a maximum and effective torque of 185000 lbf-ft (251 kNm) @ 6rpm, the working speed can be set by the operator in the cab to values between 9 and 27 rpm.

## WORKING SPEED DIAGRAM



## PATENTED

During the working phase, the operator can choose the right rotary rotation speed, having 10 speed level choices. HPM has a gear control system that allows the operator to quickly reach the optimal spin-off speed.

## CROWD SYSTEM

The rotary's motion is implemented using a hydraulic cylinder. The cylinder has a pull force of 70000 lbf (310 kN), and a push force of 45000 lbf (200 kN).

The cylinder stroke is 14'6" (4420mm) on the HPM200 standar mast and 7'3" (2210mm) on the HPM200 SM (Short Mast) and HPM200 11' version.



# COUNTERWEIGHT

HPM200 is equipped with a patented counterweight removal system.

By using two levers, one person can safely lower and lift the 17.000 lb (7.7ton) counterweight without the need of a crane.

This feature also gives contractors the ability to quickly and easily reduce the overall weight of the rig for transport, making it possible to utilize a standard-sized trailer to reduce hauling costs and avoid oversize/overweight permits.

## AUXILIARY HOUSELOCK

The HPM200 also has an Auxiliary Houselock, mounted between upper and undercarriage.

This patented feature allows the operator to drill on rocky soil, preventing the swing of the machine from side to side.

The engaging of the auxiliary houselock is also the only way to make full use of the high torque.



## BASE



The HPM200 is mounted on a CAT 330F Tier IV base, this reliable drilling rig result extremely friendly and efficient operation and maintenance.

The HPM base, equipped with a CAT C7.1 ACERT engine meets Tier 4 Final emission standards

To the CAT hydraulic plan, HPM adds his own hydraulic system for positioning operation. This additional hydraulic system is indispensable to make the maximum use of the CAT hydraulic plan for the rotary rotation and the main winch pull.

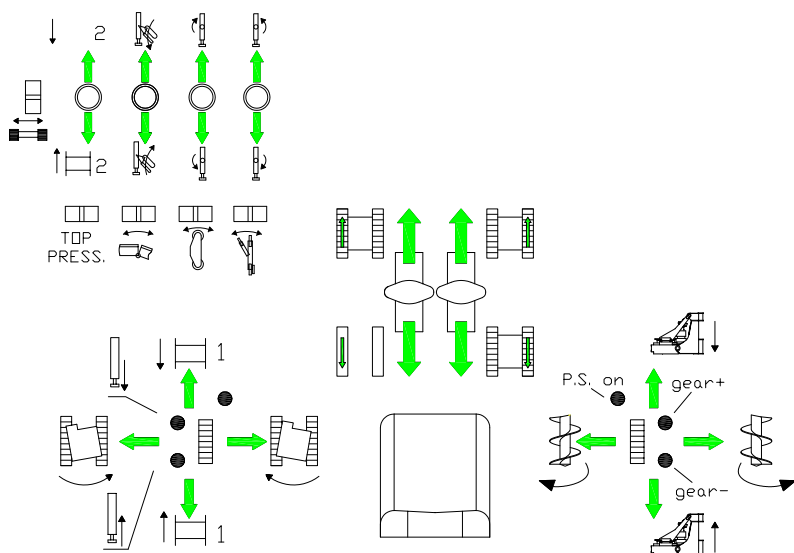
## CABIN

The HPM200 cabin is equipped with:

- Pressurized operator station.
- Mirror package.
- Sliding upper door window.
- Glass-breaking safety hammer.
- Coat hook Beverage holder.
- Literature holder.
- Stereo speakers.
- Color LCD display with warnings, filter/fluid change, and working hour information.
- Adjustable armrest Height.
- Adjustable joystick consoles.
- Neutral lever (lock out) for all controls.
- Control pedals with removable hand levers.
- Two power outlets, 10 amp (total).
- Laminated glass front window.
- Windshield wiper, parallel type.
- Sunscreen Radio 12V mounting.
- Opening roof hatch.







## CONTROLS

All the commands for the drilling phase are integrated into the two main Joystick, so the operators can keep safely focused on the job.

The left-hand joystick controls the swing movements, the main winch, auxiliary winch, foot cylinder and automatic return of the swing. The right-hand joystick controls the rotary, crowd cylinder, rotary speed and spin-off.



## MONITORS

The HPM are equipped with two screens for monitoring and control the rig performances and operating parameters including:

- Verticality of the mast
- Depth
- Crowd cylinder push force
- Main winch data
- Rotary data
- Kelly bar position
- Filter and oil change warnings
- Rear and side camera view.

The computer is also used to vericalize the mast utomatically.

## ARTICULATION



The entire drilling system is manufactured with high-strength materials in order to support the high performance keeping a low weight.

The HPMs are built to be durable and withstand everyday hard working site conditions, combining innovative design with the use of the highest quality components.







### HPM200 Standard Equipment:

- Auxiliary House-lock brake
- Self Counterweight removal
- Front guard cab
- Top guard cab
- Travel alarm
- Two speed travel
- Additional high pressure load sensing circuit
- Additional cooling circuit make up oil circuit
- HPM multifunctional computer
- Automatic mast verticalization
- Automatic return stored position of the swing base
- Automatic tilting system for the tilting cylinder
- Free kelly bar moving system
- Down hole automatic stop

### HPM200 Optional Equipment:

- Bio hydraulic oil package
- Low temperature arrangement (-32°)
- Artic arrangement
- Swing alarm kit
- Centralized lubrication system
- Casing oscillator predisposition
- Crowd winch system
- Three crowd cylinder kit
- Universal casing joint
- Optional Kelly bar (4/155 - 5/195 Std Mast, 6/70 Short Mast)
- Rotary adaptor for different kelly bars.
- Rotary quick release couplings kit.\*
- Drilling tools
- Predisposition for: C.F.A., Soil Displacement, Soil Mixing, Hydraulic Grab, Diesel Hammer, Vibroflotation, etc etc \*

\* Consult the HPM technical dept. for details.



**HPM S.r.l.**  
**Hydraulic Performance Machines**  
**Registered Office:**  
Via Flamini, 13 62019 Recanati (MC) Italy  
**Headquarters:**  
Via Imbrecciata 11, 62010 Montefano (MC) Italy

**[info@hpmitaly.com](mailto:info@hpmitaly.com)**  
**[www.hpmitaly.com](http://www.hpmitaly.com)**