



HPM250

| Mounted on CAT 336F base

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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.

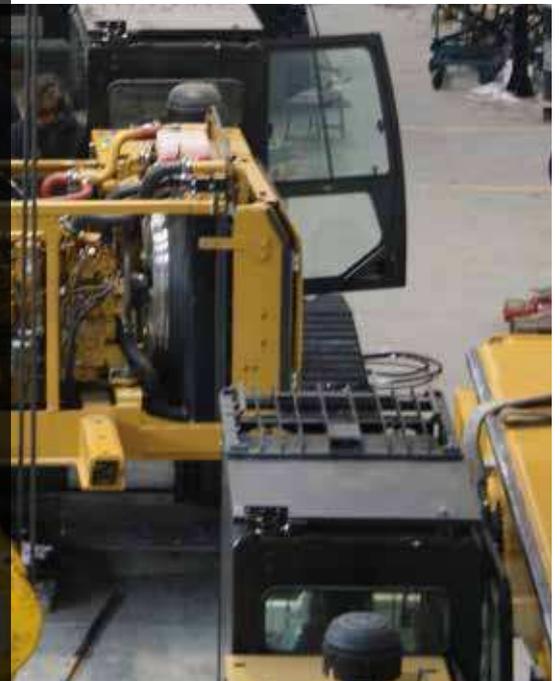
Over the past few years, HPM has become specialized in design and manufacturing low headroom drilling rigs, which they can be easily converted in long mast rigs.

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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HPM250

Despite of its large machine class, the HPM250 is mounted on a compact CAT 336F base, ensuring the fast moving of the machine between different jobsites, thus positively effecting the cost-effective operation of the rig.

The C9.3 ACERT Tier 4 diesel engine has a fly wheel power of 303 hp (226 kW).

HPM adds to the original CAT hydraulic plan his Hydraulic system delivering to the rotary a maximum effective torque of 232000 lb-ft (315 kNm).

The HPM250 are available in the following configuration:

HPM250 13 feet - HPM250 TM (Telescopic Mast) - HPM250 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.



HPM250 13'

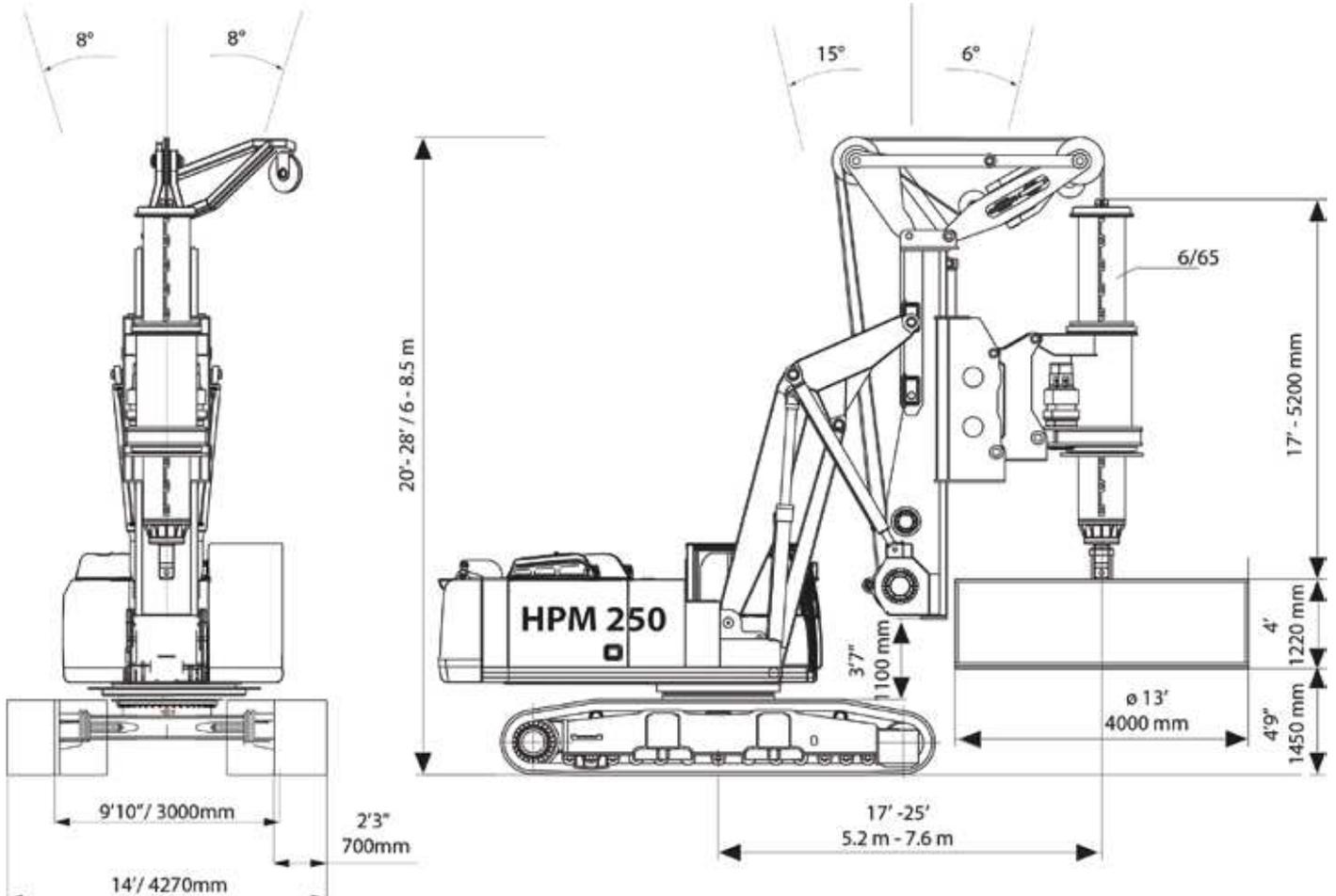
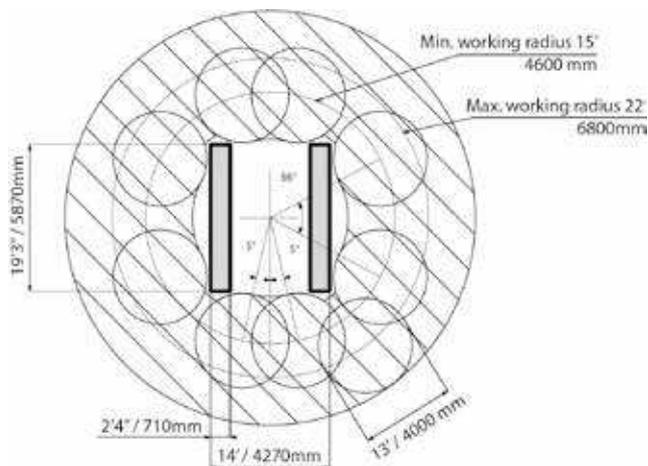
GENERAL DIMENSIONS

This equipment has been designed to construct large diameter piles on sites with limited headroom or restricted access.

With a maximum effective torque of 232,000 lbf (315kN) the HPM250 13' is able to work with a 13 ft (4000mm) tool diameter in front of the mast and 18' (5500mm) tool under the mast, in a wide range of strata, including weak rocks.

Eff. torque: 232000 lbf-ft 315 kNm
Depth: 65 ft 20 m
Weight: 150000 lb 68000 Kg
Fly Wheel Power: 303 hp 226 kW

WORKING AREA

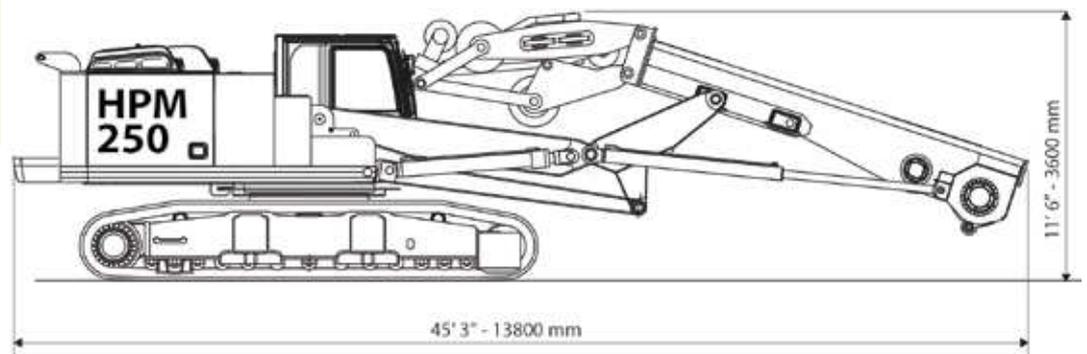


TECHNICAL DATA

UNDERCARRIAGE	US	METRIC
Track Length	19 ft 3 in	5870 mm
Shoes Width	2 ft 4 in	710 mm
Overall Width (extended)	14 ft	4270 mm
Overall Width (retracted)	9 ft 10 in	3000 mm
ROTARY		
Maximum Torque (effective)	232000 lbf-ft	315 kNm
Working Speed	7-28 rpm	7-28 rpm
Spin-off Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	7 ft	2210 mm
Pull Force	90000 lbf	400 kN
Push Force	74000 lbf	330 kN
MAIN WINCH		
Maximum Pull Force (1st layer)	51700 lbf	230 kN
Starting Pull Force (1st layer)	50000 lbf	250 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)	13 ft	4000 mm
Max Diameter (under mast)	18 ft	5500 mm
Height	20 - 28 ft	6 - 8.5 m
Width	14 ft	4270 mm
Operative Weight	150000 lbf	68000 kg
Working Radius	15' to 22'	4.6 to 6.7 m
Depth with 6/65 Kelly Bar	65 ft	20 m
Depth with 6/43 Kelly Bar	43 ft	13 m

TRANSPORT DATA

**Disassembled rig
Weight:
102500 lb / 46.5 Ton**



Rotary+Sled: 12120 lb / 5500 Kg Counterweight: 22000 lb / 9300 Kg 6/65 kelly bar: 13500 lb / 6100 Kg

TRANSPORT WEIGHTS and DIMENSIONS	US	METRIC
Transport Height	11 ft 6 in	3600 mm
Transport Length	45 ft 3 in	13800 mm
Transport Width	9 ft 10 in	3000 mm
Transport Weight	102500 lbf	46.5 Kg

HPM250 TM

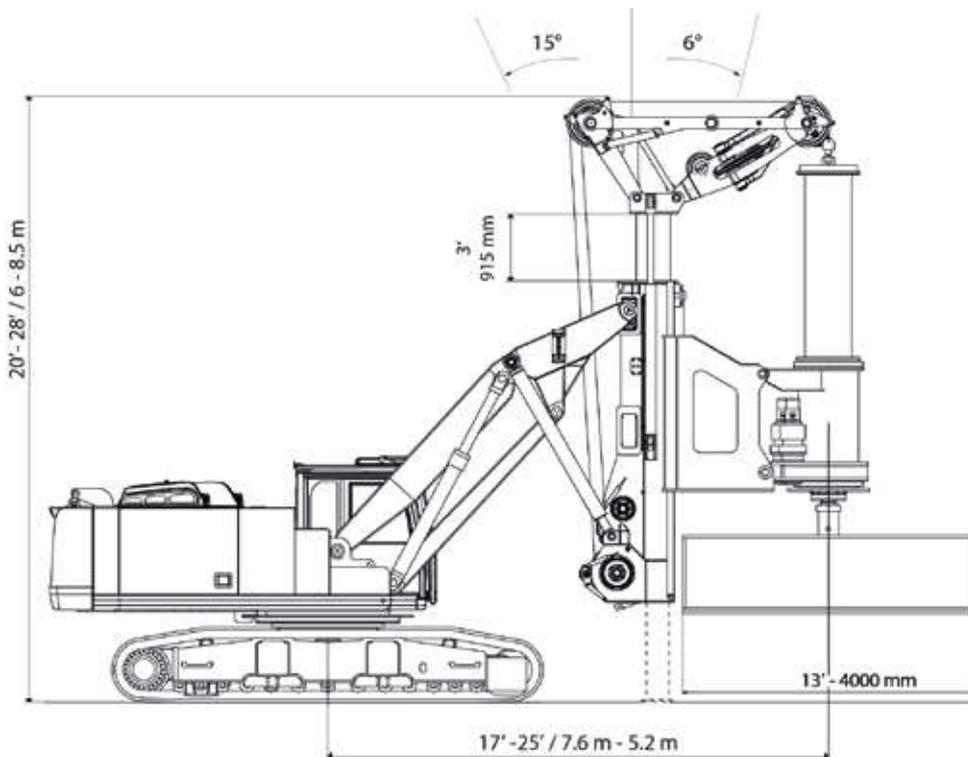
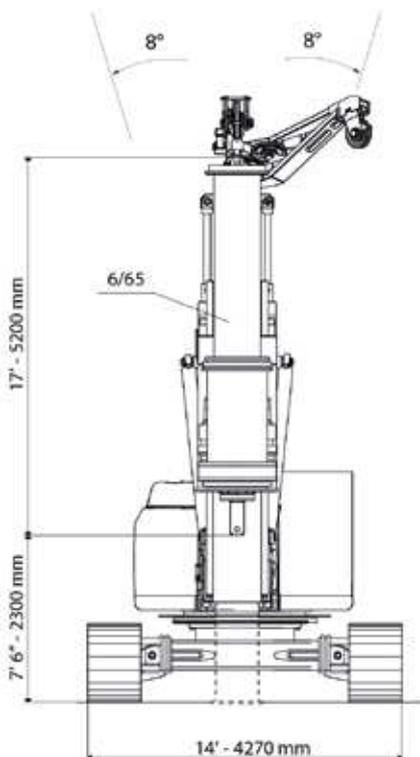
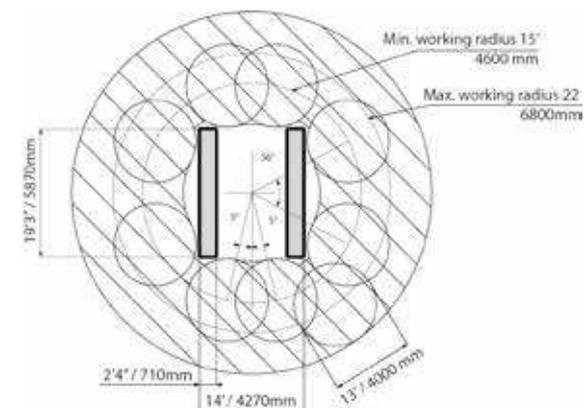
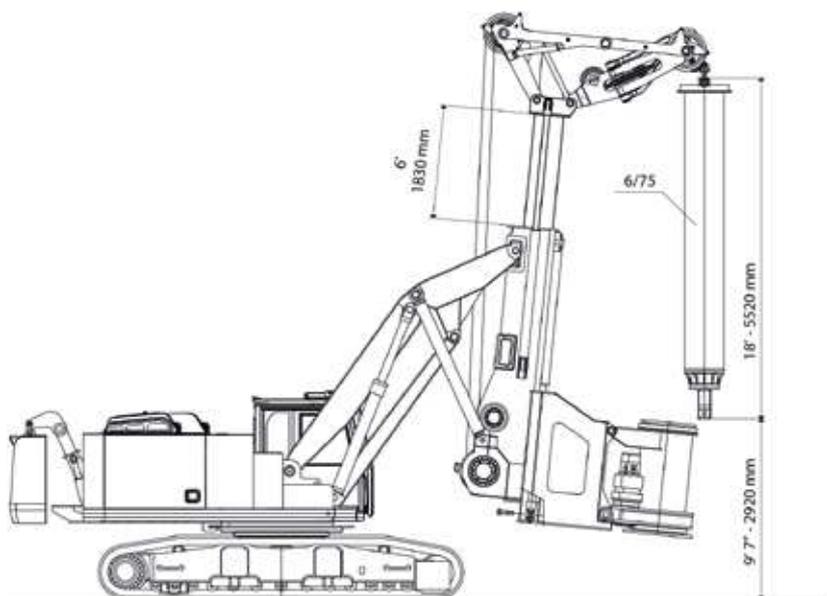
GENERAL DIMENSIONS

The HPM250 TM has been designed to be a very polyvalent machine, having features similar to the HPM25013, the user can work with different types of Kelly bar reaching depths of 77 feet (23.5m). When the telescopic mast is fully extended to 6 feet, allows the operator to easily mount the 6/75 Kelly bar, without the need of crane.

With a 6/43 Kelly Bar type, the HPM250 TM has a working height of just 20' (6 meters), when using a 6/65 Kelly Bar the working height is less than 25' (7.5 meters) and with the 6/75 Kelly Bar the rig has an height of 26' (8 meters).

Eff. torque:	232000 lF-ft	315 kNm
Max Depth:	77 ft	23.5m
Weight:	152000 lb	69000 Kg
Fly Wheel Power:	303 hp	226 kW

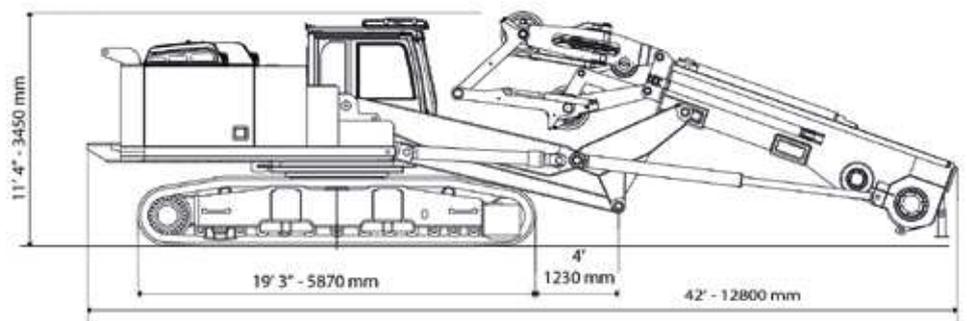
WORKING AREA



TECHNICAL DATA

UNDERCARRIAGE	US	METRIC
Track Length	19 ft 3 in	5870 mm
Shoes Width	2 ft 4 in	710 mm
Overall Width (extended)	14 ft	4270 mm
Overall Width (retracted)	9 ft 10 in	3000 mm
ROTARY		
Maximum Torque (effective)	232000 lbf-ft	315 kNm
Working Speed	7-28 rpm	7-28 rpm
Spin-off Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	7 ft	2210 mm
Pull Force	90000 lbf	400 kN
Push Force	74000 lbf	330 kN
MAIN WINCH		
Maximum Pull Force (1st layer)	51700 lbf	230 kN
Starting Pull Force (1st layer)	50000 lbf	250 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)	13 ft	4000 mm
Max Diameter (under mast)	18 ft	5500 mm
Height	24 ft 4 in	7400 mm
Width	14 ft	4270 mm
Operative Weight	152000 lbf	69000 kg
Working Radius	15' to 22'	4.6 to 6.8 m
Max depth with 6/43 Kelly Bar	45 ft	13.5 m
Max depth with 6/65 Kelly Bar	70 ft	21 m
Max depth with 6/75 Kelly Bar	77 ft	23.5 m

**Disassembled rig
Weight:
105800 lb / 48 Ton**



TRANSPORT DATA

Rotary+Sled: 10600 lb / 4800 Kg Counterweight: 22000 lb / 9300 Kg 6/65 kelly bar: 13500 lb / 6100 Kg

TRANSPORT WEIGHTS and DIMENSIONS	US	METRIC
Transport Height	11 ft 4 in	3450 mm
Transport Length	42 ft	12800 mm
Transport Width	9 ft 10 in	3000 mm
Transport Weight	105800 lbf	48000 Kg

HPM250

GENERAL DIMENSIONS

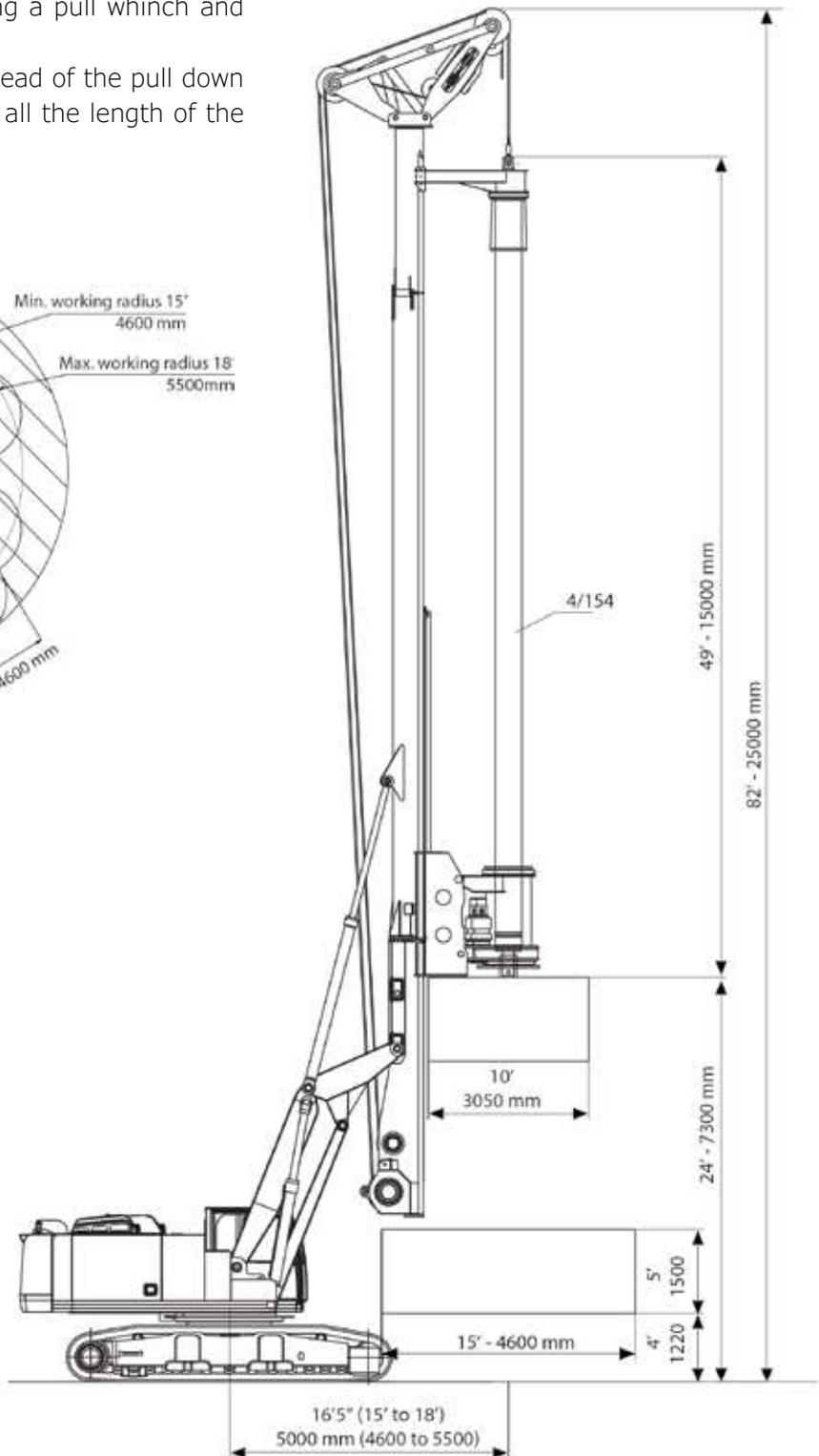
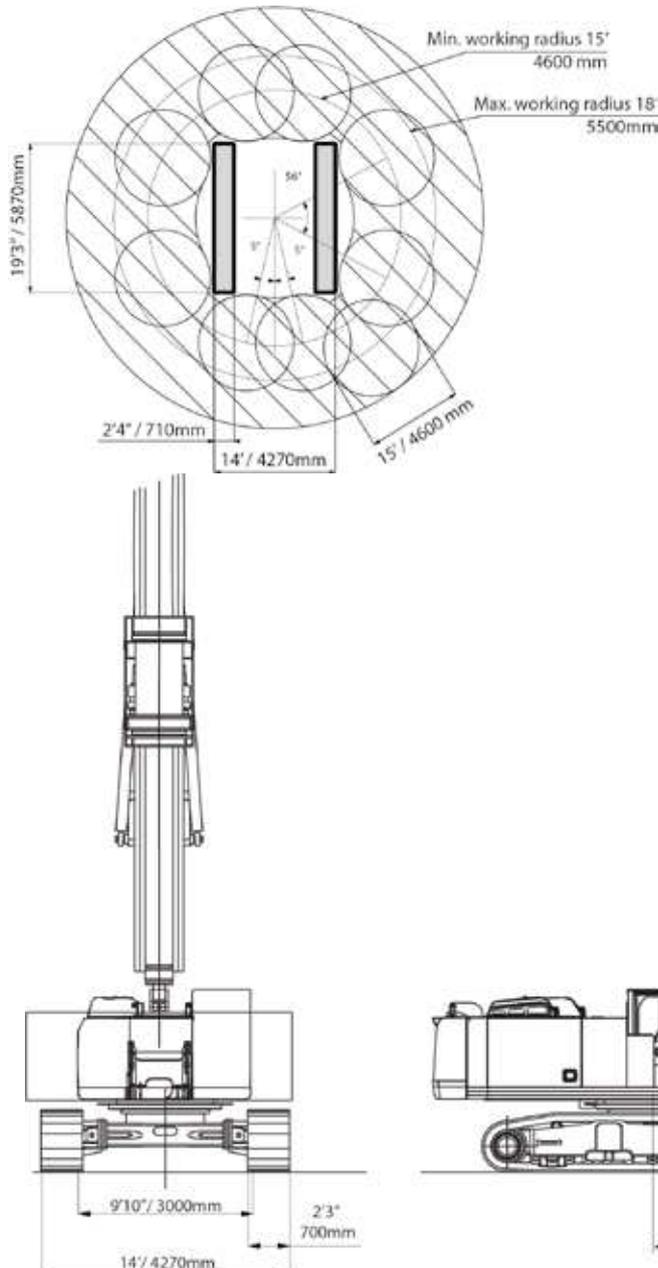
The HPM250 is designed for the installation of different foundation piles. This includes Kelly drilling as well as various continuous drilling methods.

The HPM250 has a maximum effective torque of 232,000 lbf (315kN) , the HPM250 is able to drill with a 10' (3050mm) diameter tool in front of the mast down to a maximum depth of up to 154' (47m) with standard kelly bar.

The rotary sled can be driven by using a pull winch and push winch located inside the sled. By using these optional winches, instead of the pull down cylinder, the rotary can be moved for all the length of the mast.

Eff. torque:	232000 lf-ft	315 kNm
Depth:	154 ft	47 m
Weight:	168400 lb	76400 Kg
Fly Wheel Power:	303 hp	226 kW

WORKING AREA

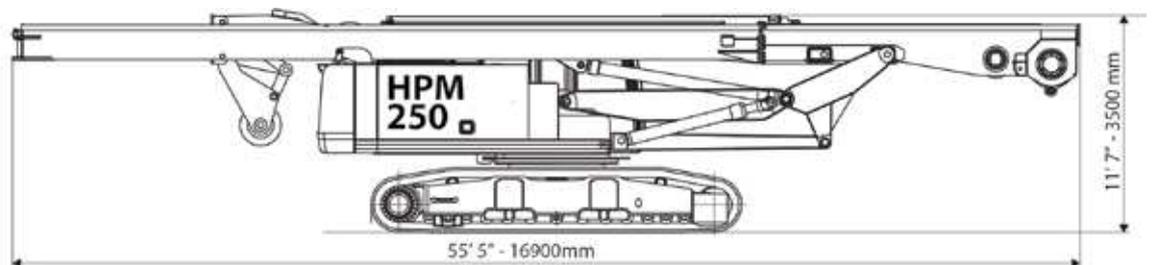


TECHNICAL DATA

UNDERCARRIAGE	US	METRIC
Track Length	19 ft 3 in	5870 mm
Shoes Width	2 ft 4 in	710 mm
Overall Width (extended)	14 ft	4270 mm
Overall Width (retracted)	9 ft 10 in	3000 mm
ROTARY		
Maximum Torque (effective)	232000 lbf-ft	315 kNm
Working Speed	7-28 rpm	7-28 rpm
Spin-off Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	14 ft 2 in	4300 mm
Pull Force	90000 lbf	400 kN
Push Force	74000 lbf	330 kN
MAIN WINCH		
Maximum Pull Force (1st layer)	51700 lbf	230 kN
Starting Pull Force (1st layer)	50000 lbf	250 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)	10 ft	3048 mm
Max Diameter (under mast)	15 ft	4600 mm
Height	82 ft	25000 mm
Width	14 ft	4270 mm
Operative Weight	168400 lbf	76400 kg
Working Radius	15' to 18'	4.6 to 5.5 m
Max depth	154 ft	47 m

TRANSPORT DATA

**Disassembled rig
Weight:
107000 lb / 48.5 Ton**



Rotary+Sled: 9400 lb / 4200 Kg Counterweight: 22000 lb / 9300 Kg 5/154 kelly bar: 20000 lb / 9070 Kg

TRANSPORT WEIGHTS and DIMENSIONS	US	METRIC
Transport Height	11 ft 7 in	3500 mm
Transport Length	55 ft 5 in	16900 mm
Transport Width	9 ft 10 in	3000 mm
Transport Weight	107000 lbf	48500 Kg

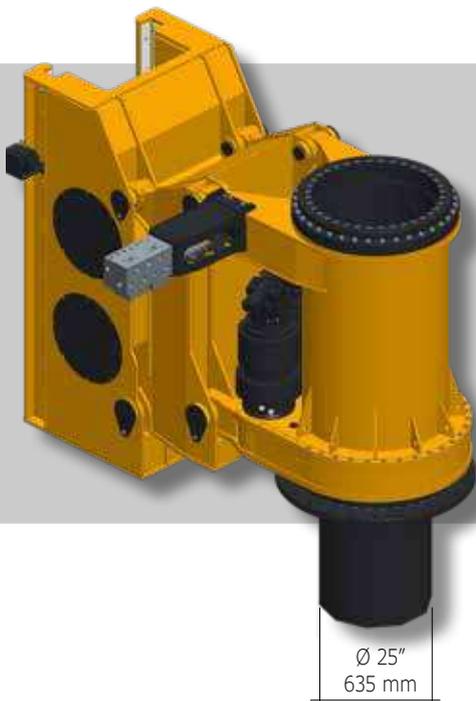
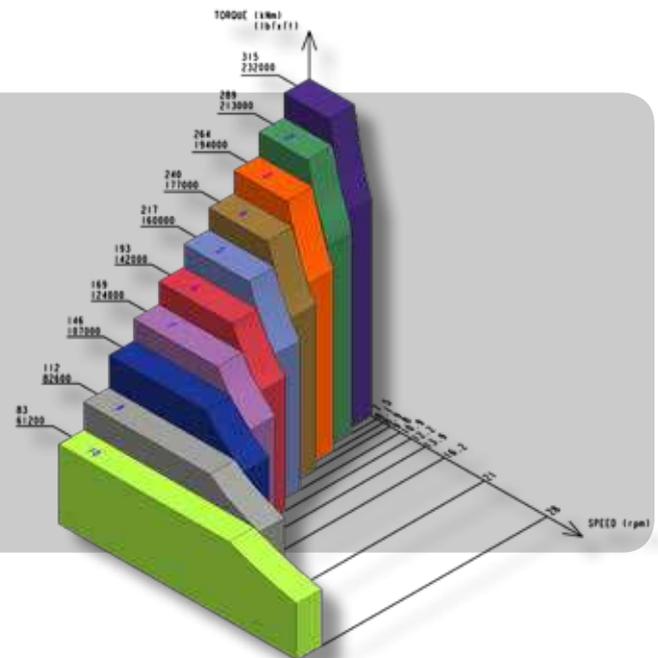
ROTARY



The Rotary of HPM 250 is constructed using three large pinions and a ring gear of supported by high-speed rotation bearings.

The pinions are moved by three bent-axis, variable displacement motors (Parker) and three gearboxes fitted with power shift transmission (Zollern). The rotary is able to provide a maximum and effective torque of 232000 lb-ft (315kNm) @ 6.5 rpm, the 10 working speeds can be easily set by the operator.

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 90000 lbf (400 kN), and a push force of 74000 lbf (330 kN).

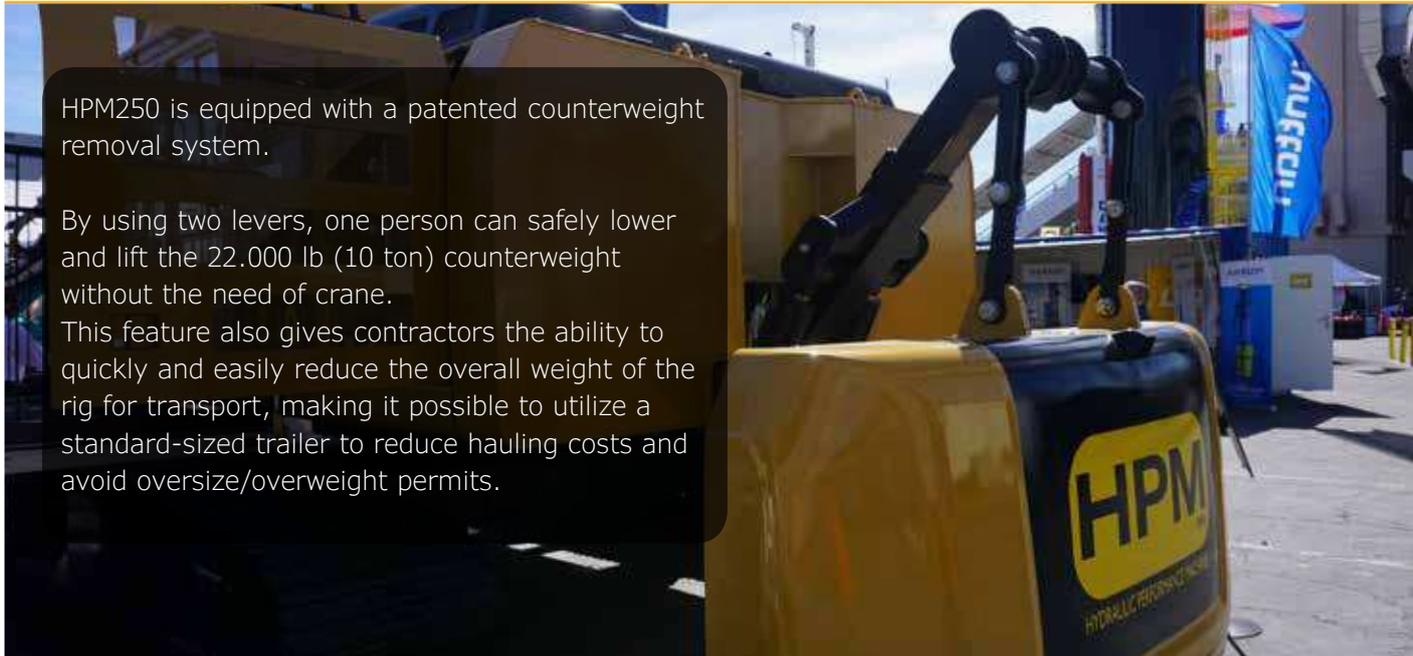
The cylinder stroke is 14'2" (4300mm) on the HPM250 standar mast and 7'3" (2210mm) on the HPM250 13'.

COUNTERWEIGHT

HPM250 is equipped with a patented counterweight removal system.

By using two levers, one person can safely lower and lift the 22.000 lb (10 ton) counterweight without the need of 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 HPM250 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 HPM250 is mounted on a CAT 336F Tier IV base, this reliable drilling rig result extremely friendly and efficient operation and maintenance.

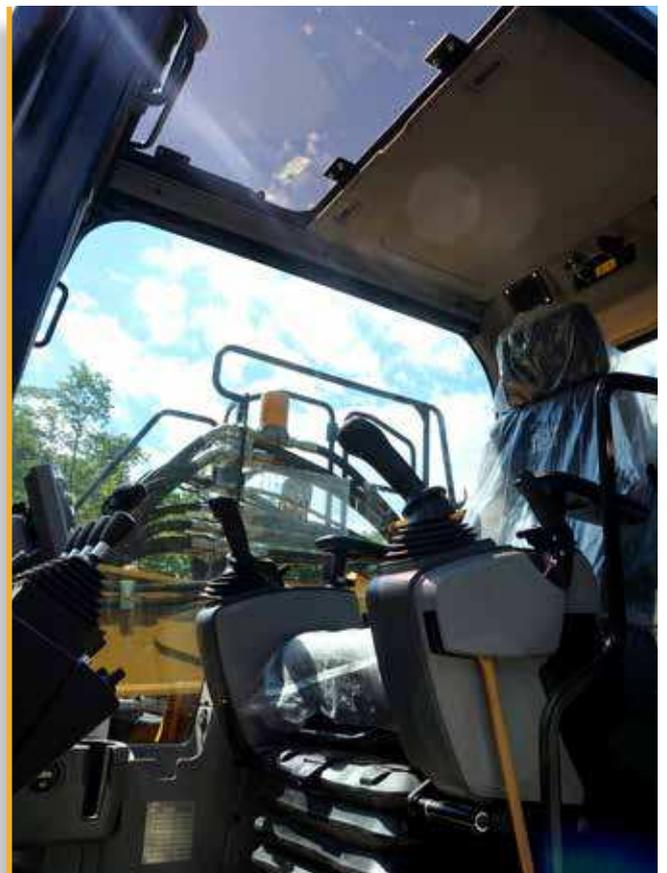
The HPM base, equipped with a CAT C9.3 ACERT engine meets Tier 4 Final emission standards

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 HPM250 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.



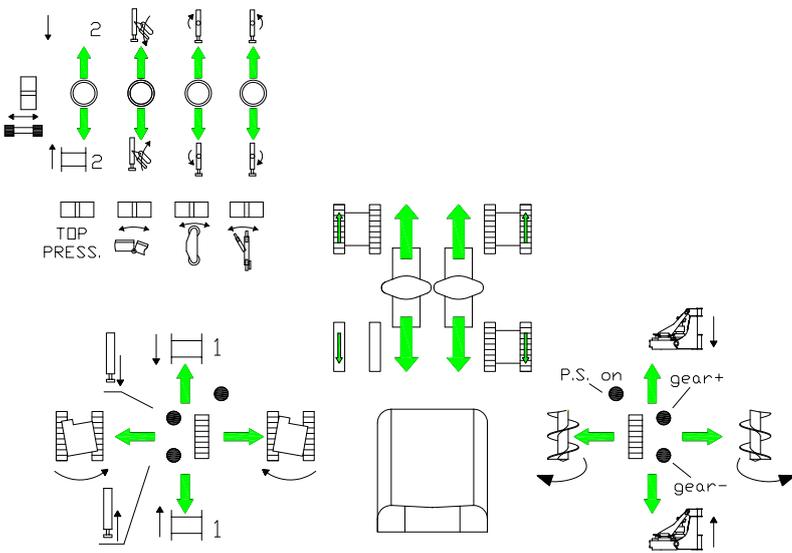


MONITORS

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 verticalize the mast automatically.



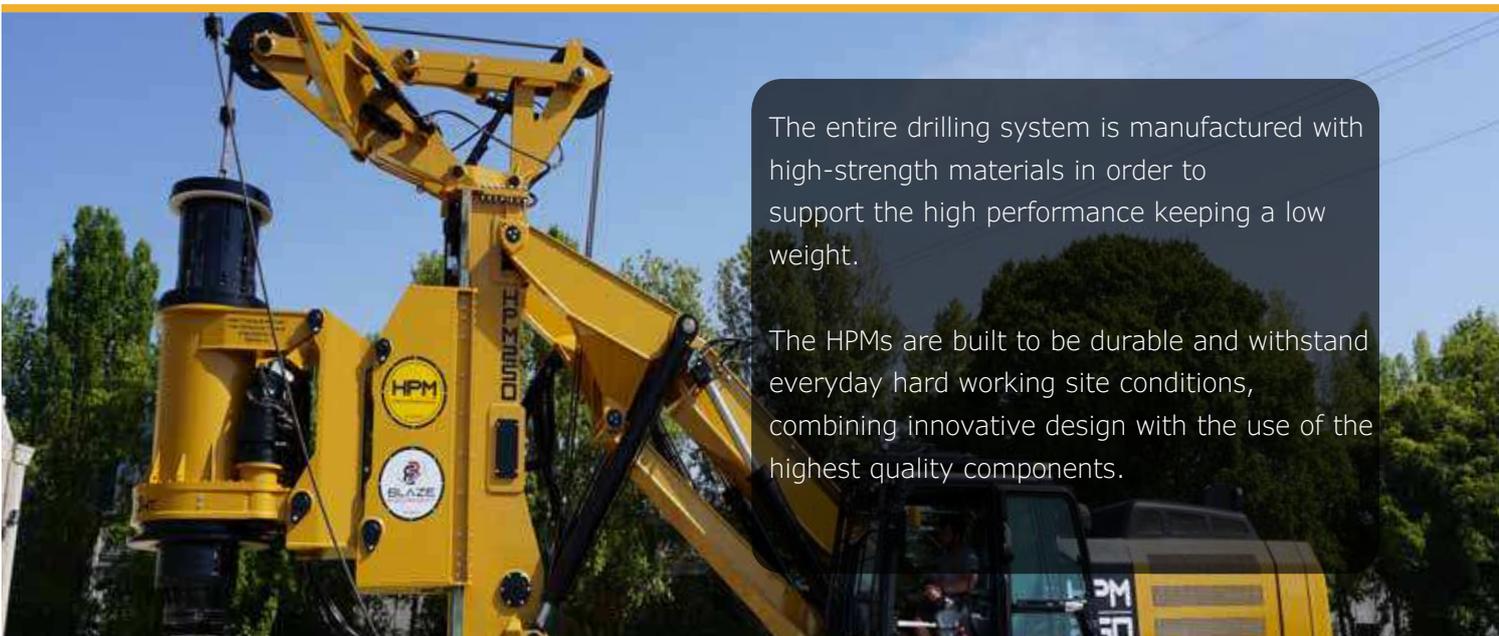
CONTROLS

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.

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
- 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.



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