



# HPM 125

| Mounted on CAT 323FN 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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# HPM125

Designed for high performance and the fastest, easiest setup for operation and transport mode.

The HPM200 are available in the following configuration:

*HPM125 Standard Mast - HPM125 Short Mast*

Mounted on a CAT 323FN Tier IV base, this rig is easily convertible from standard to short-mast version in a very short time for a true multipurpose rig.





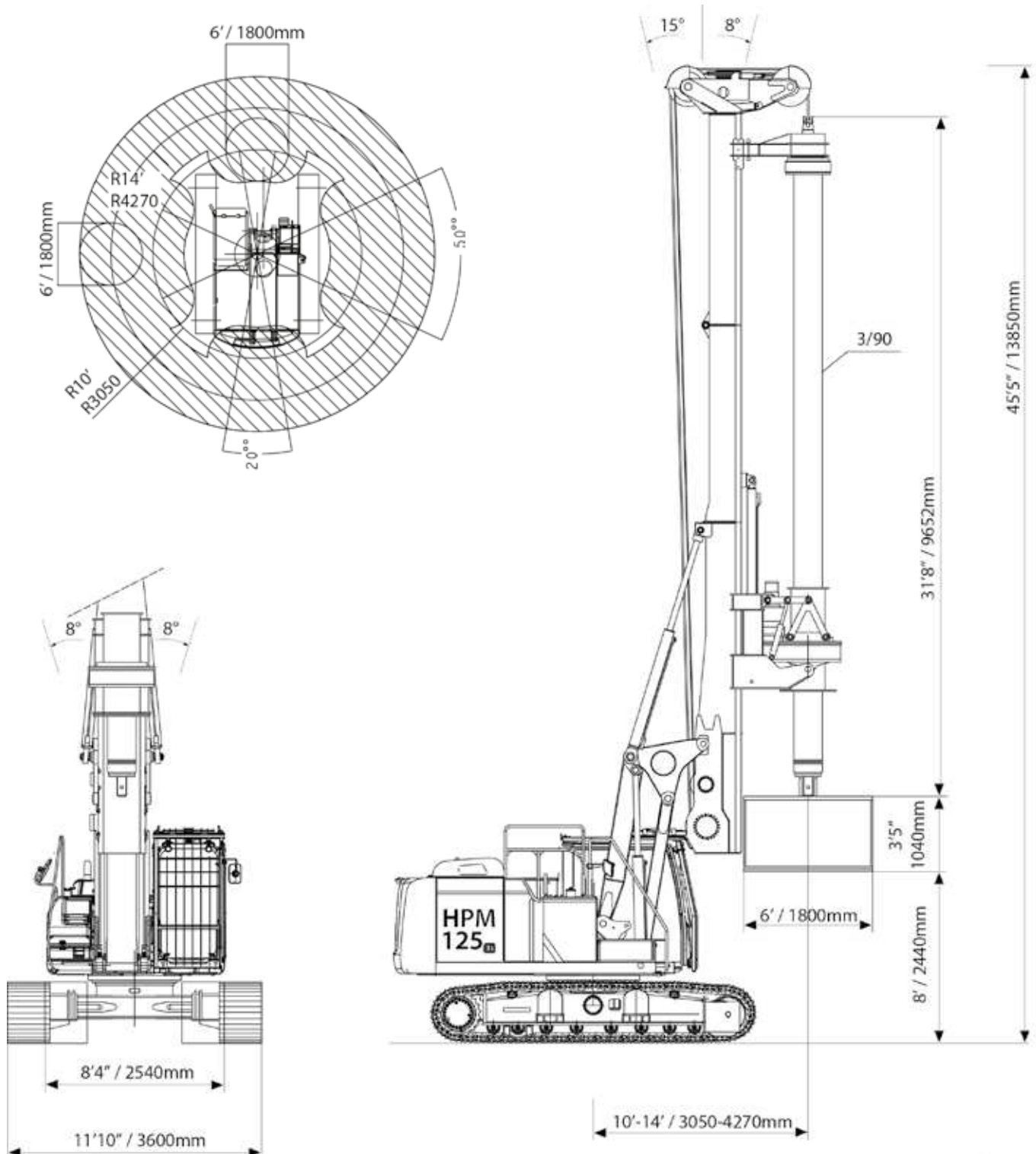
# HPM125

## GENERAL DIMENSIONS

HPM125 is the ideal machine for foundation, rathole and landfill drilling.  
 Its weight of 80000lb (36.3 Ton) makes the transportation economical without the need of oversized permits.  
 Like any other HPM rig, the HPM125 can be easily converted from standard to short mast configuration by replacing mast, pull down cylinder, kelly bar and wire rope.

|                         |                     |                 |
|-------------------------|---------------------|-----------------|
| <b>Torque:</b>          | <b>94000 lbf-ft</b> | <b>130 kNm</b>  |
| <b>Max depth:</b>       | <b>120 ft</b>       | <b>36.5 m</b>   |
| <b>Weight:</b>          | <b>80000 lb</b>     | <b>36300 Kg</b> |
| <b>Fly Wheel Power:</b> | <b>167 hp</b>       | <b>124 kW</b>   |

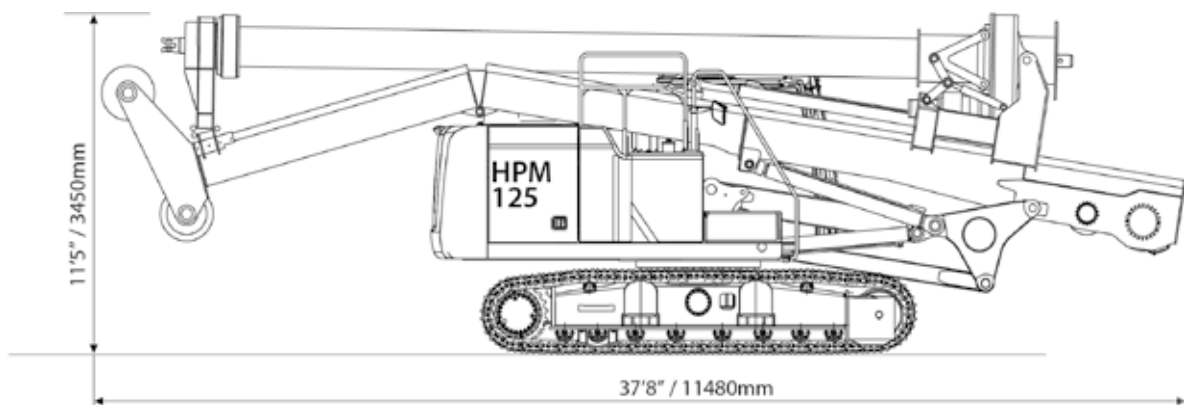
## WORKING AREA



## TECHNICAL DATA

| UNDERCARRIAGE                   | US             | METRIC          |
|---------------------------------|----------------|-----------------|
| Track Length                    | 15 ft 2 in     | 4600mm          |
| Shoes Width                     | 23 in 5/8      | 600 mm          |
| Overall Width (extended)        | 11 ft 10 in    | 3600 mm         |
| Overall Width (retracted)       | 8 ft 4 in      | 2540 mm         |
| ROTARY                          |                |                 |
| Maximum Torque (effective)      | 94000 lbf-ft   | 130 kNm         |
| Working Speed                   | 7-28 rpm       | 7-28 rpm        |
| Spin-off Speed                  | 40-120 rpm     | 40-120 rpm      |
| CROWD SYSTEM                    |                |                 |
| Cylinder Stroke                 | 8 ft 4 in      | 2550 mm         |
| Pull Force                      | 54000 lbf      | 240 kN          |
| Push Force                      | 40000 lbf      | 178 kN          |
| MAIN WINCH                      |                |                 |
| Maximum Pull Force (1st layer)  | 40000 lbf      | 178 kN          |
| Starting Pull Force (1st layer) | 46000 lbf      | 205 kN          |
| Line Speed                      | 230 ft/min     | 70 m/min        |
| Cable Diameter                  | 15/16          | 24 mm           |
| AUXILIARY WINCH                 |                |                 |
| Maximum Pull Force              | 22000 lbf      | 98 kN           |
| Line Speed                      | 180 ft/min     | 55m/min         |
| Cable Diameter                  | 3/4"           | 19 mm           |
| WORKING DIMENSION               |                |                 |
| Max Diameter (front mast)       | 6 ft           | 1800 mm         |
| Max Diameter (under mast)       | 10 ft          | 3000 mm         |
| Height                          | 45 ft 5 in     | 13850 mm        |
| Width                           | 11 ft 10 in    | 3600 mm         |
| Operative Weight                | 80000 lbf      | 36300 kg        |
| Working Radius                  | 10 ft to 13 ft | 3050 to 4000 mm |
| Depth with 4/120 Kelly Bar      | 120 ft         | 36.5 m          |
| Depth with 3/90 Kelly Bar       | 90 ft          | 27.5 m          |

## TRANSPORT DATA



| TRANSPORT WEIGHTS and DIMENSIONS | US         | METRIC   |
|----------------------------------|------------|----------|
| Transport Height                 | 11 ft 5 in | 3450 mm  |
| Transport Length                 | 37 ft 8 in | 11480 mm |
| Transport Width                  | 8 ft 4 in  | 2540 mm  |
| Transport Weight                 | 80000 lbf  | 36300 Kg |

# HPM125 SHORT MAST

## GENERAL DIMENSIONS

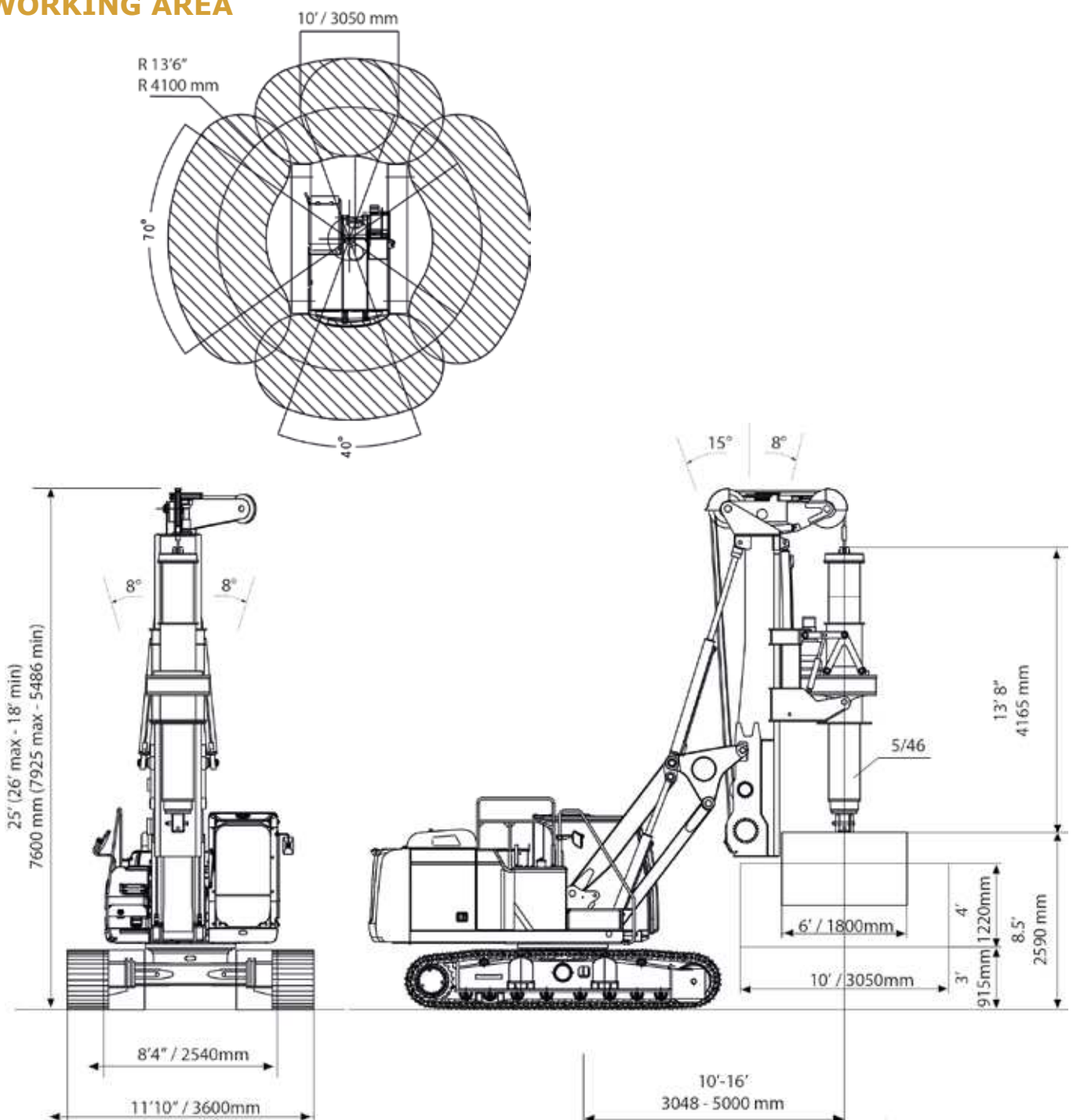
The HPM125 Short Mast has been designed for jobsides where space and height are limited.

The minimum overall height of just 18 feet (5.5m) allows the operator to work in low head room areas under bridges, power lines inside buildings, etc.

The HPM125 Short Mast can be easily converted to standard mast configuration by replacing mast, pull down cylinder, kelly bar and wire rope.

|                         |                     |                 |
|-------------------------|---------------------|-----------------|
| <b>Torque:</b>          | <b>94000</b> lbf-ft | <b>130</b> kNm  |
| <b>Depth:</b>           | <b>46</b> ft        | <b>14</b> m     |
| <b>Weight:</b>          | <b>71430</b> lb     | <b>32400</b> Kg |
| <b>Fly Wheel Power:</b> | <b>167</b> hp       | <b>124</b> kW   |

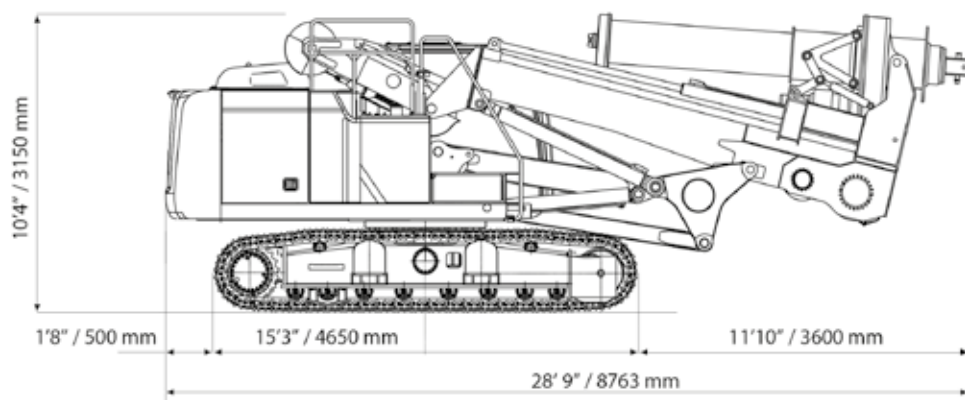
### WORKING AREA



## TECHNICAL DATA

| UNDERCARRIAGE                   | US             | METRIC          |
|---------------------------------|----------------|-----------------|
| Track Length                    | 15 ft 2 in     | 4600mm          |
| Shoes Width                     | 23 in 5/8      | 600 mm          |
| Overall Width (extended)        | 11 ft 10 in    | 3600 mm         |
| Overall Width (retracted)       | 8 ft 4 in      | 2540 mm         |
| ROTARY                          |                |                 |
| Maximum Torque (effective)      | 94000 lbf-ft   | 130 kNm         |
| Working Speed                   | 7-28 rpm       | 7-28 rpm        |
| Spin-off Speed                  | 40-120 rpm     | 40-120 rpm      |
| CROWD SYSTEM                    |                |                 |
| Cylinder Stroke                 | 6 ft 6 in      | 1900 mm         |
| Pull Force                      | 54000 lbf      | 240 kN          |
| Push Force                      | 40000 lbf      | 178 kN          |
| MAIN WINCH                      |                |                 |
| Maximum Pull Force (1st layer)  | 40000 lbf      | 178 kN          |
| Starting Pull Force (1st layer) | 46000 lbf      | 205 kN          |
| Line Speed                      | 230 ft/min     | 70 m/min        |
| Cable Diameter                  | 15/16          | 24 mm           |
| AUXILIARY WINCH                 |                |                 |
| Maximum Pull Force              | 22000 lbf      | 98 kN           |
| Line Speed                      | 180 ft/min     | 55m/min         |
| Cable Diameter                  | 3/4"           | 19 mm           |
| WORKING DIMENSION               |                |                 |
| Max Diameter (front mast)       | 6 ft           | 1800 mm         |
| Max Diameter (under mast)       | 10 ft          | 3000 mm         |
| Height                          | 24 ft          | 7315 mm         |
| Width                           | 11 ft 10 in    | 3600 mm         |
| Operative Weight                | 71430 lbf      | 32400 kg        |
| Working Radius                  | 10 ft to 13 ft | 3050 to 4100 mm |

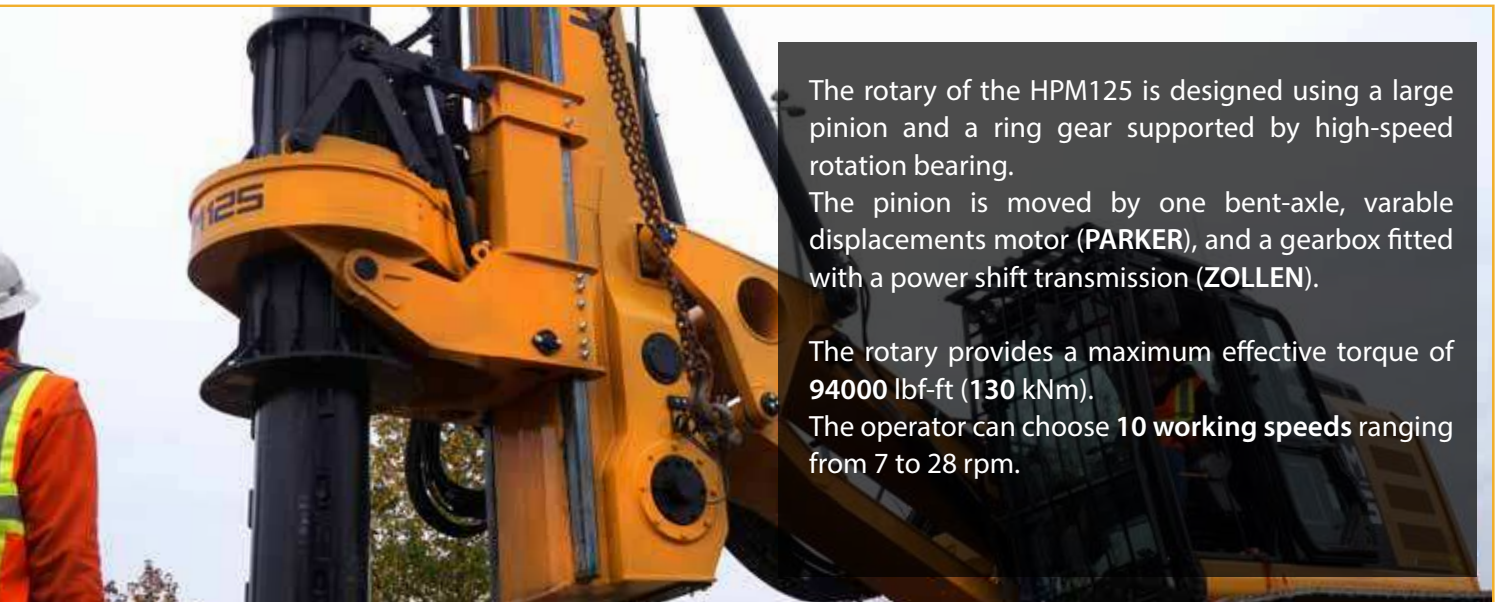
## TRANSPORT DATA



| TRANSPORT WEIGHTS and DIMENSIONS | US         | METRIC   |
|----------------------------------|------------|----------|
| Transport Height                 | 10 ft 4 in | 3150 mm  |
| Transport Length                 | 28 ft 9 in | 8763 mm  |
| Transport Width                  | 8 ft 4 in  | 2540 mm  |
| Transport Weight                 | 71430 lbf  | 32400 Kg |



# ROTARY



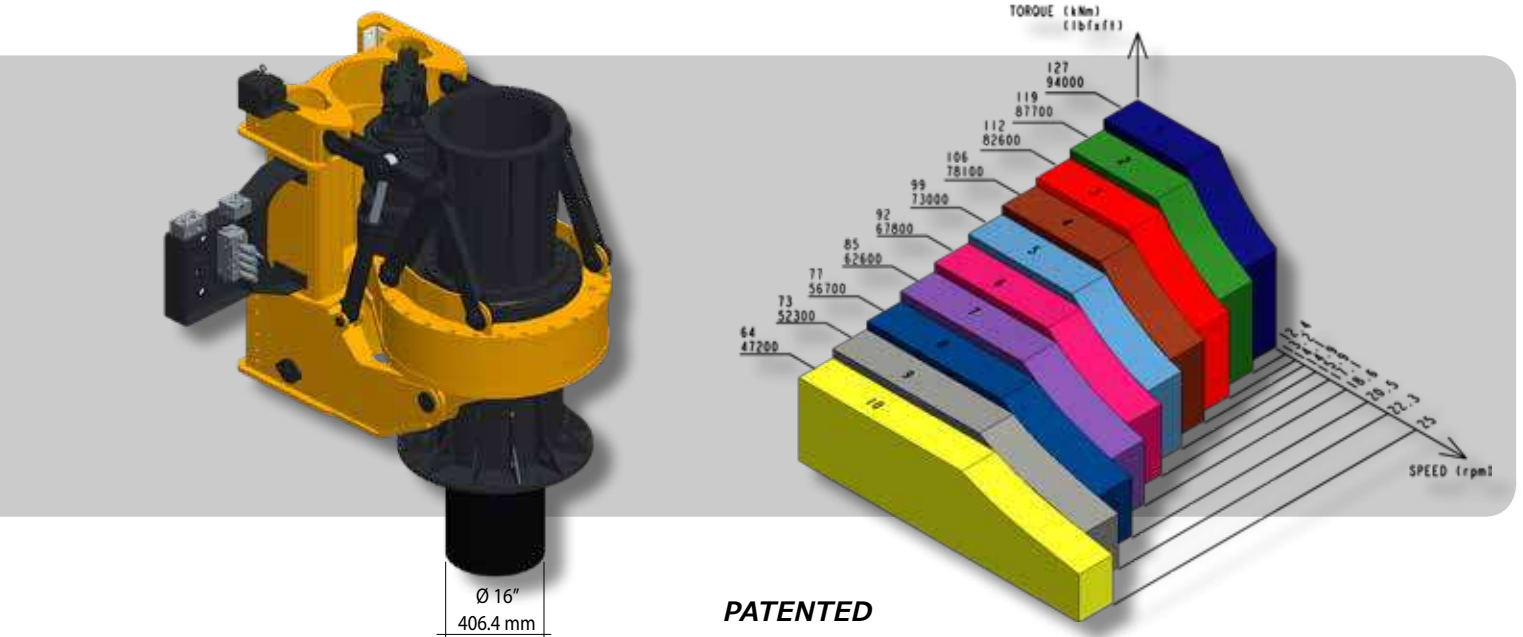
The rotary of the HPM125 is designed using a large pinion and a ring gear supported by high-speed rotation bearing.

The pinion is moved by one bent-axle, variable displacements motor (**PARKER**), and a gearbox fitted with a power shift transmission (**ZOLLEN**).

The rotary provides a maximum effective torque of **94000 lbf-ft (130 kNm)**.

The operator can choose **10 working speeds** ranging from 7 to 28 rpm.

## WORKING SPEED DIAGRAM



Ø 16"  
406.4 mm

### 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 54000 lbf (240 kN), and a push force of 40000 lbf (178 kN).

The cylinder stroke is 8'4" (2550mm) on the standar mast and 6'6" (1900mm) on the short mast version.





The HPM125 is mounted on a CAT 323FN Tier IV base, this reliable drilling rig result extremely friendly and efficient operation and maintenance.

The HPM base, equipped with a CAT C4.4 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 fully use the CAT hydraulic plan for the rotary rotation and the main winch pull.

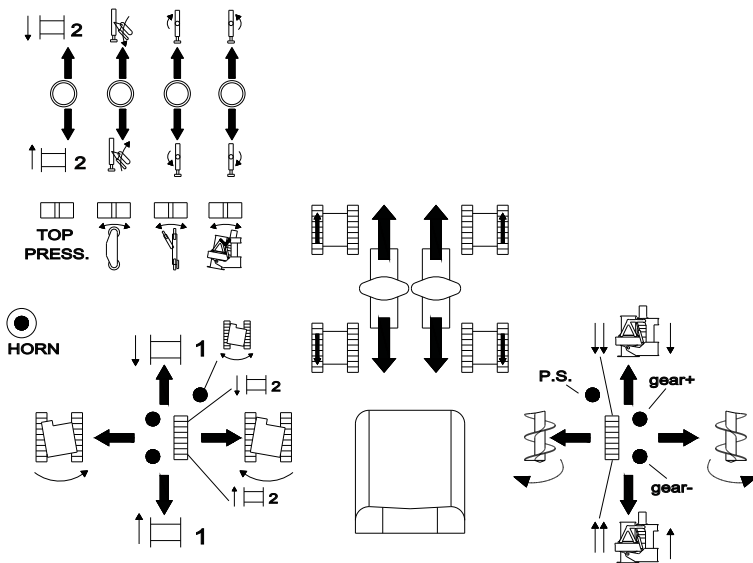
## CABIN

The HPM125 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.



## OPERATOR STATION



## 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:

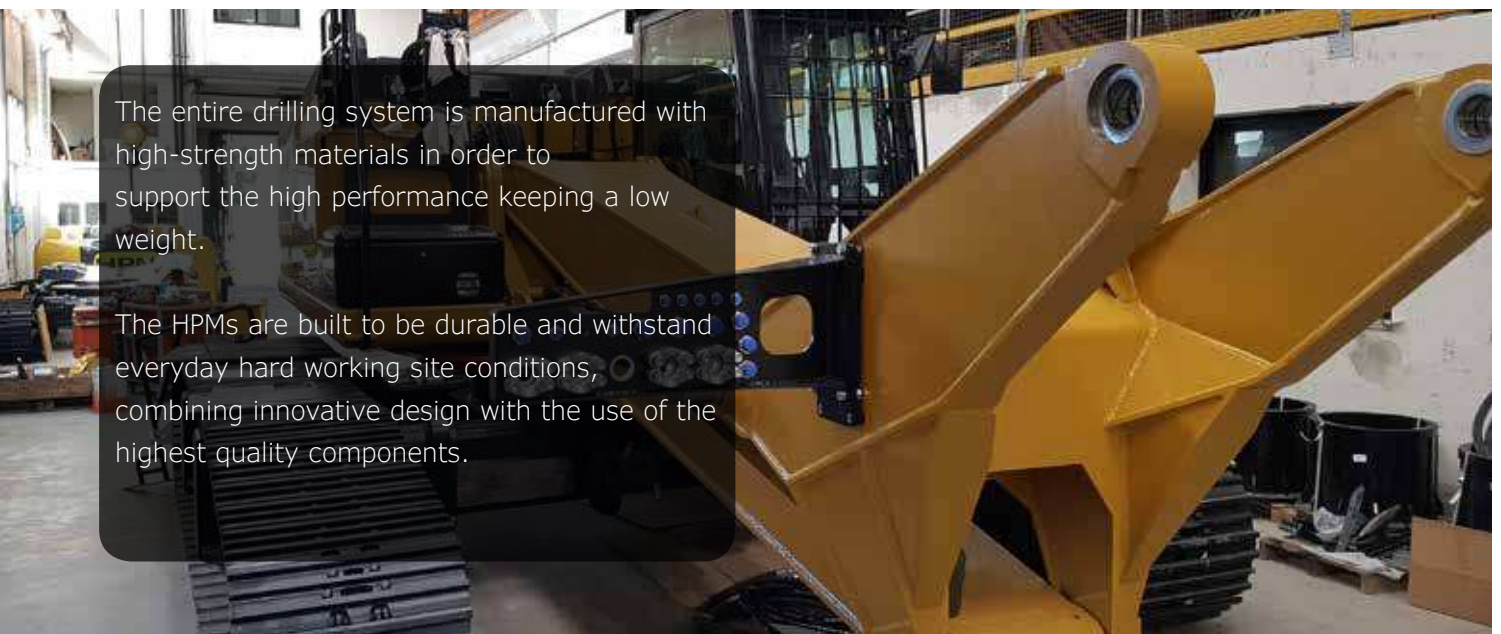
- Verticality of the mast
- Depth
- Crowd cylinder push force
- Main winch data
- Rotary data
- Kelly bar position
- Filter and oil change warnings
- Rear and side camera view.

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.







**HPM125 Standard Mast**



**HPM125 Short Mast**

### HPM125 Standard Equipment:

- 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

### HPM125 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 (5/154 Std Mast, 6/51 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.



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