



HPM 180





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.

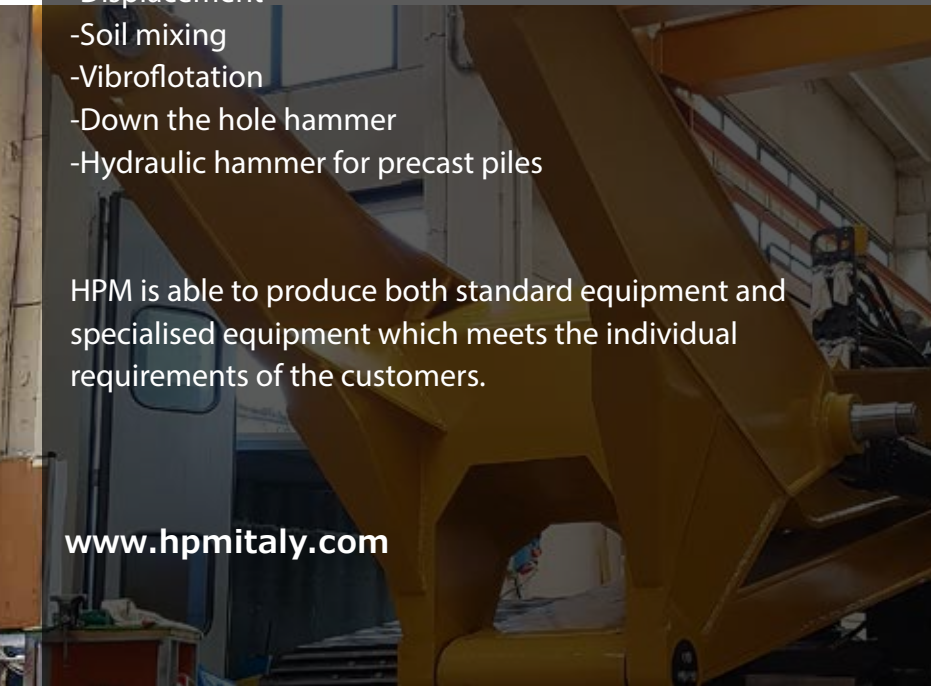
Over the past few years, HPM has become specialized in design and manufacturing low headroom drilling rigs, which they can be easily converted in long mast rigs.

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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HPM180

The hydraulic drilling rig HPM180 is mounted on CAT 330F carrier base with CAT undercarriage and has been designed for suiting the following applications:

- cased bore piles with casing driven directly through rotary head
- deep bored piles
- CFA
- displacement piles
- soil-mixing

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

The HPM180 are available in the following configuration:

HPM180 Standard Mast - HPM180 Short Mast - HPM180R

Each model can be quickly converted from standard to short-mast version and vice-versa for a true multipurpose rig.



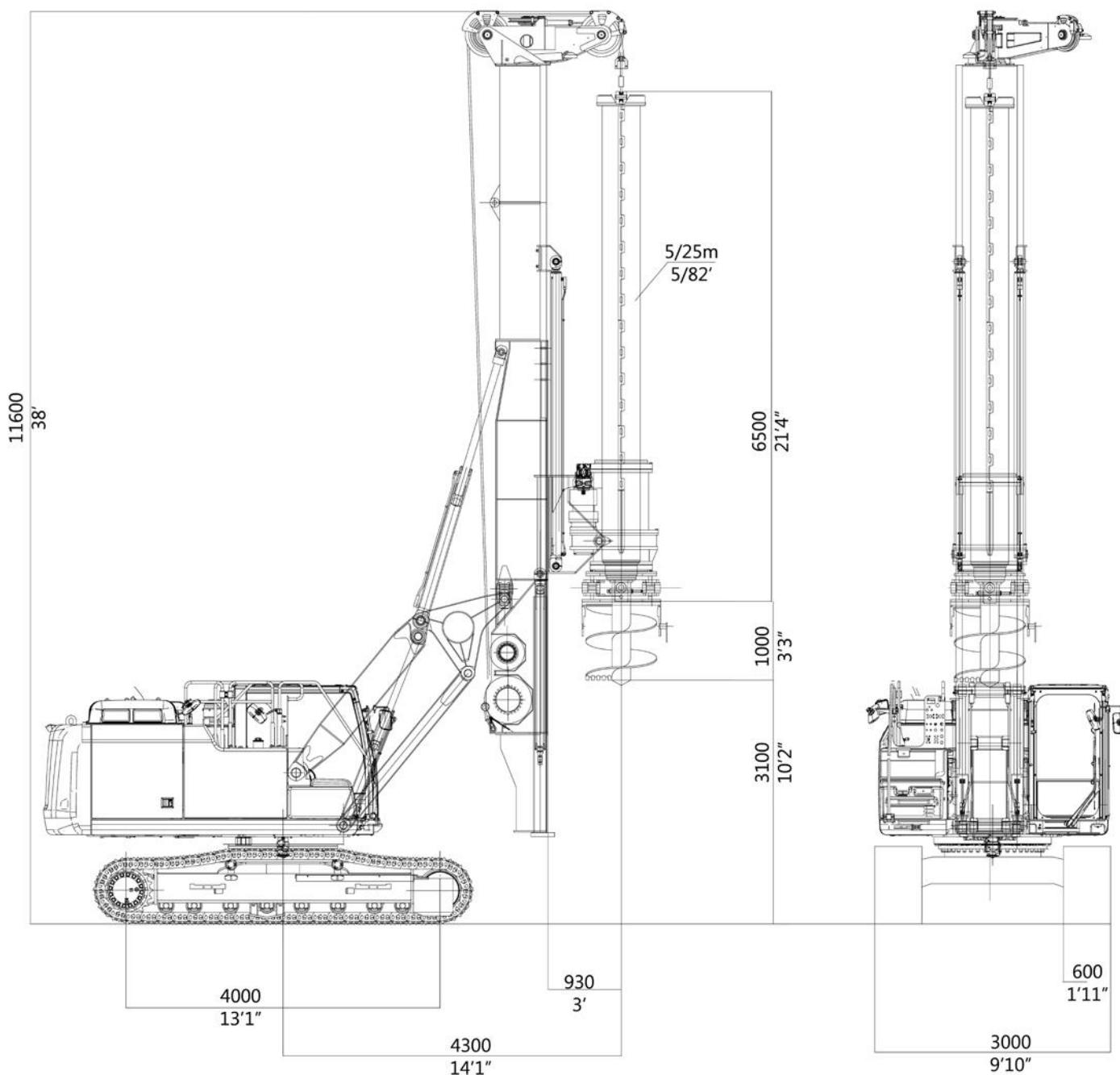
HPM180

GENERAL DIMENSIONS

The hydraulic drilling rig HPM180 configured on standard mast has been specially designed for suiting the following applications:

- Cased bore piles with casing driven directly by rotary head;
- Uncased bored piles;
- Large diameter bored piles;
- CFA (Continuous Flight Auger).

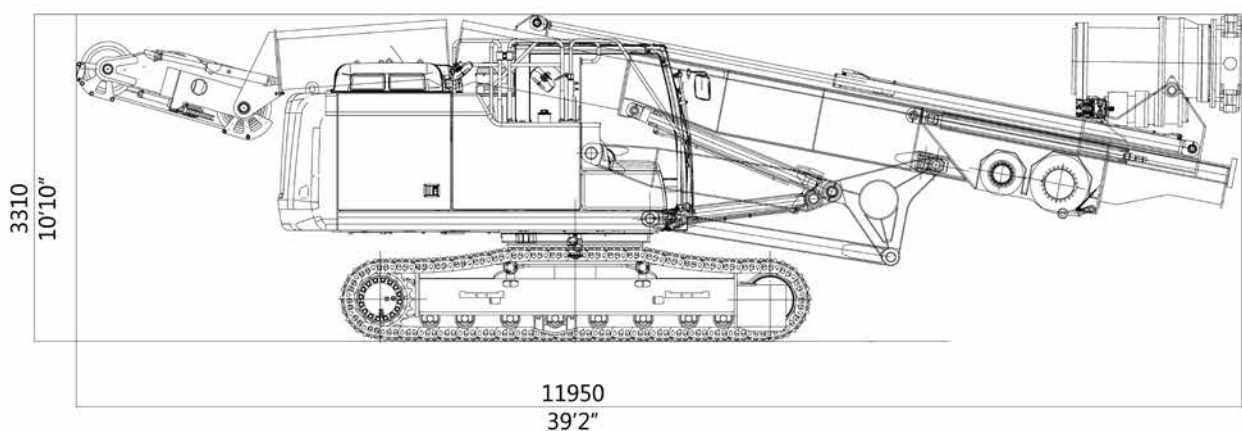
Effective Torque:	13200 lF-ft	180 kNm
Max depth:	82 ft	25 m
Weight:	90400 lb	41 ton
Fly Wheel Power:	239 hp	175 kW



TECHNICAL DATA

BASE			
Model		CAT 330F	
Engine		C 7.1 Tier IV Final	
Power		239 hp	175 kW
UNDERCARRIAGE			
Model		CAT 330	
Track Length		4855 mm	15 ft 11 in
Shoe Width		600 mm	1 ft 10 in
Overall Width		3000 mm	9 ft 10 in
ROTARY			
Maximum Effective Torque		180 kNm	132800 lbf-ft
Working Speed		9-27 rpm	9-27 rpm
Discharge Speed		120 rpm	120 rpm
CROWD SYSTEM			
Cylinder Stroke		3300 mm	10 ft 10 in
Pull Force		310 kN	70000 lbf
Push Force		180 kN	40000 lbf
MAIN WINCH			
Maximum Pull Force(1st Layer)		180 kN	40000 lbf
Starting Pull Force(1st Layer)		205 kN	46000 lbf
Line Speed		70 m/min	230 ft/min
Cable Diameter		24 mm	15/16
AUXILIARY WINCH			
Maximum Pull Force		100 kN	22500 lbf
Line Speed		60 m/min	200 ft/min
Cable Diameter		15 mm	19/32
WORKING DIMENSION			
Max Diameter		1800 mm	6 ft
Height		11600 mm	38 ft
Width		3000 mm	9 ft 10"
Operative Weight		41000 ton	90400 lbf
Depth with 5/25 kelly bar		25 m	82 ft

TRANSPORT DATA



TRANSPORT WEIGHTS / DIM.	METRIC	IMPERIAL
Transport Height	3310 mm	10 ft 11 in
Transport Length	11950 mm	39 ft 2"
Transport Width	3000 mm	9 ft 10 in
Transport Weight	36.4 ton	80250 lbf

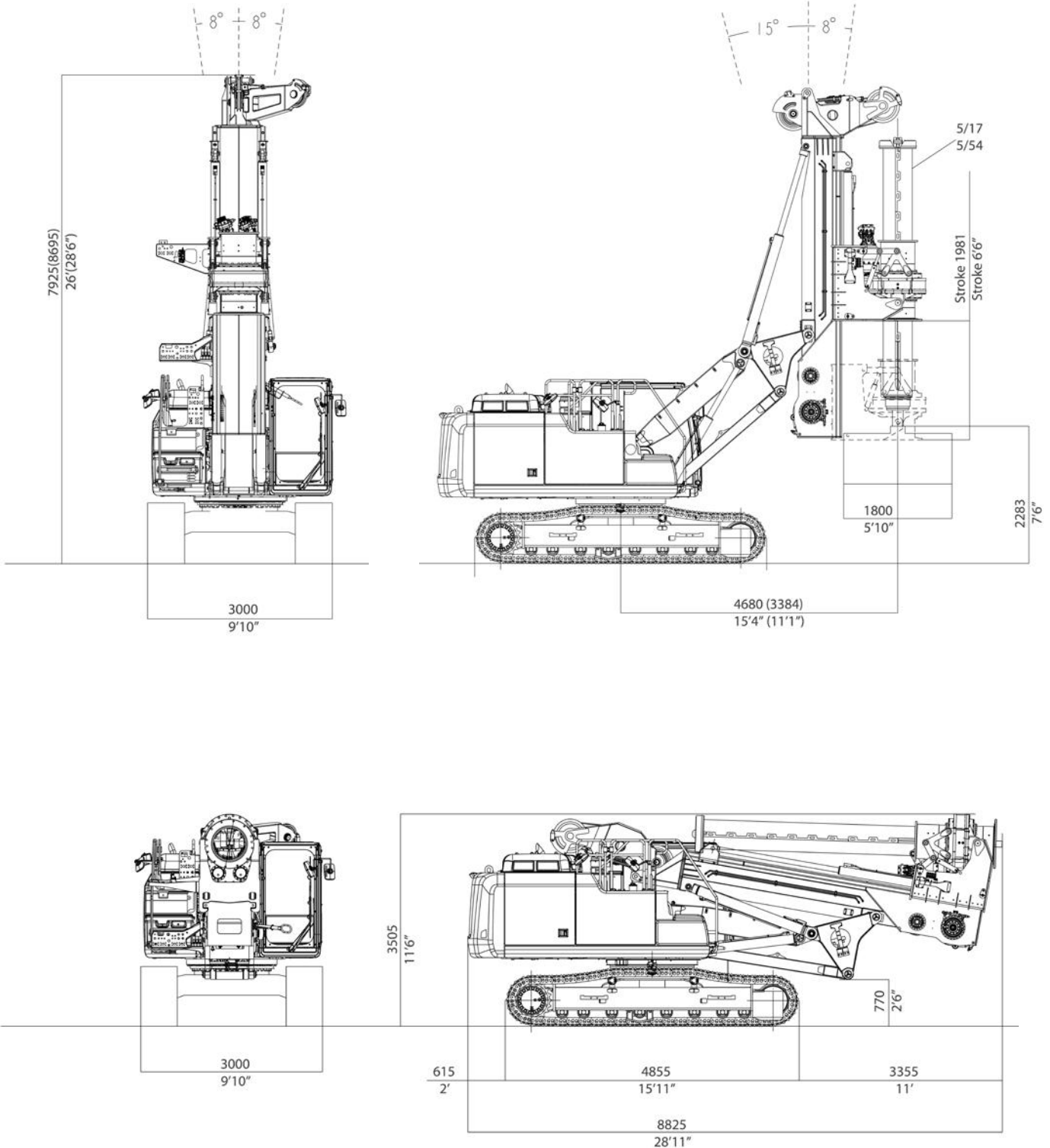
HPM180 SHORT MAST

GENERAL DIMENSIONS

The hydraulic drilling rig HPM180 configured in short mast version has been specially designed for to work in narrow spaces and where the headroom is limited.

It is the ideal machine to drill under bridges, powerlines and inside buildings.

Effective Torque:	13200 lf-ft	180 kNm
Max depth:	70 ft	21 m
Weight:	84200 lb	38 ton
Fly Wheel Power:	239 hp	175 kW



TECHNICAL DATA

BASE		
Model	CAT 330F	
Engine	C 7.1 Tier IV Final	
Power	239 hp	175 kW
UNDERCARRIAGE		
Model	CAT 330	
Track Length	4855 mm	15 ft 11 in
Shoe Width	600 mm	1 ft 10 in
Overall Width	3000 mm	9 ft 10 in
ROTARY		
Maximum Effective Torque	180 kNm	132800 lbf-ft
Working Speed	9-27 rpm	9-27 rpm
Discharge Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	1981 mm	6 ft 6 in
Pull Force	310 kN	70000 lbf
Push Force	180 kN	40000 lbf
MAIN WINCH		
Maximum Pull Force(1st Layer)	180 kN	40000 lbf
Starting Pull Force(1st Layer)	205 kN	46000 lbf
Line Speed	70 m/min	230 ft/min
Cable Diameter	24 mm	15/16
AUXILIARY WINCH		
Maximum Pull Force	100 kN	22500 lbf
Line Speed	60 m/min	200 ft/min
Cable Diameter	15 mm	19/32
WORKING DIMENSION		
Max Diameter	1800 mm	6 ft
Height	7925-8695	26'-28'6"
Width	3000 mm	9 ft 10"
Operative Weight	38200 kg	84200 lbf
Working Radius	3384-4680	11'1"-15'4"
Depth with 5/54 kelly bar	17 m	54 ft
Depth with 6/70 kelly bar*	21 m	70 f

*with mast extension of 457mm(1,5')

TRANSPORT DATA

TRANSPORT WEIGHTS / DIM.		
Transport Height	3505 mm	11 ft 6 in
Transport Length	8825 mm	28 ft 11"
Transport Width	3000 mm	9 ft 10 in
Transport Weight	38,2 ton	84200 lbf

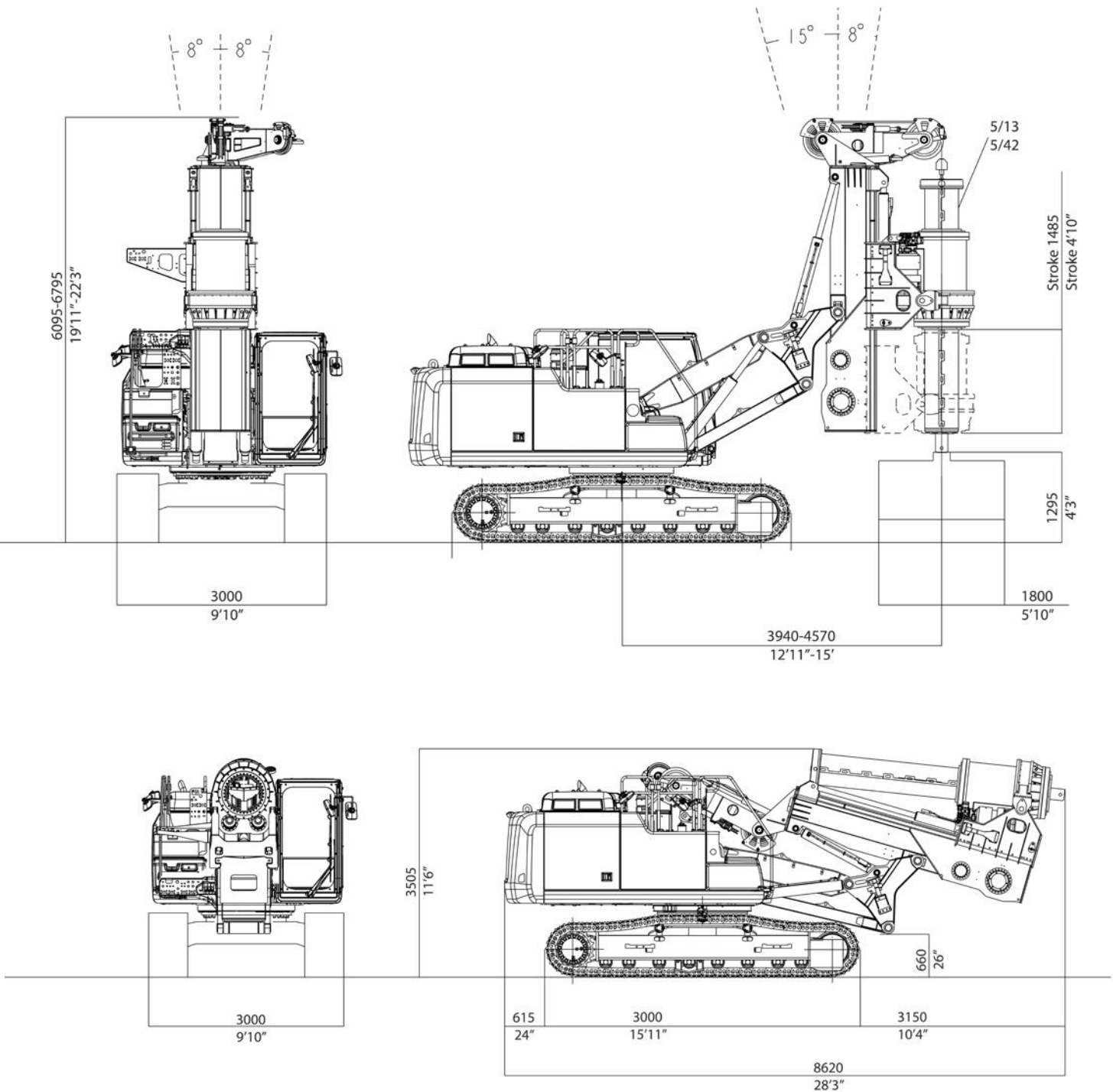
HPM180R

GENERAL DIMENSIONS

The HPM180R has been designed to work in narrow space with low headroom.
 At maximum reach this compact rig has a working height of only 19ft / 6 m and drill up to 42' / 13m of depth.

Torque:	132800 lf-ft	180 kNm
Max depth:	42 ft	13 m
Fly Wheel Power:	239 hp	175 kW

The HPM180 drill rig is totally self-erecting and can be transported as one load with the Kelly bar mounted.



TECHNICAL DATA

BASE		
Model	CAT 330F	
Engine	C 7.1 Tier IV Final	
Power	239 hp	175 kW
UNDERCARRIAGE		
Model	CAT 330	
Track Length	4855 mm	15 ft 11 in
Shoe Width	600 mm	1 ft 10 in
Overall Width	3000 mm	9 ft 10 in
ROTARY		
Maximum Effective Torque	180 kNm	132800 lbf-ft
Working Speed	9-27 rpm	9-27 rpm
Discharge Speed	120 rpm	120 rpm
CROWD SYSTEM		
Cylinder Stroke	1485 mm	4 ft 10 in
Pull Force	310 kN	70000 lbf
Push Force	180 kN	40000 lbf
MAIN WINCH		
Maximum Pull Force(1st Layer)	180 kN	40000 lbf
Starting Pull Force(1st Layer)	205 kN	46000 lbf
Line Speed	70 m/min	230 ft/min
Cable Diameter	24 mm	15/16
AUXILIARY WINCH		
Maximum Pull Force	100 kN	22500 lbf
Line Speed	60 m/min	200 ft/min
Cable Diameter	15 mm	19/32
WORKING DIMENSION		
Max Diameter	1800 mm	6 ft
Height	6095-6795	19'11"-22'3"
Width	3000 mm	9 ft 10"
Operative Weight	37000 kg	81500 lbf
Working Radius	3384-4680	11'1"-15'4"
Depth with 5/42 kelly bar	13 m	42 ft

TRANSPORT DATA

TRANSPORT WEIGHTS / DIM.		
Transport Height	3505 mm	11 ft 6 in
Transport Length	8620 mm	28 ft 3"
Transport Width	3000 mm	9 ft 10 in
Transport Weight	37 ton	81500 lbf

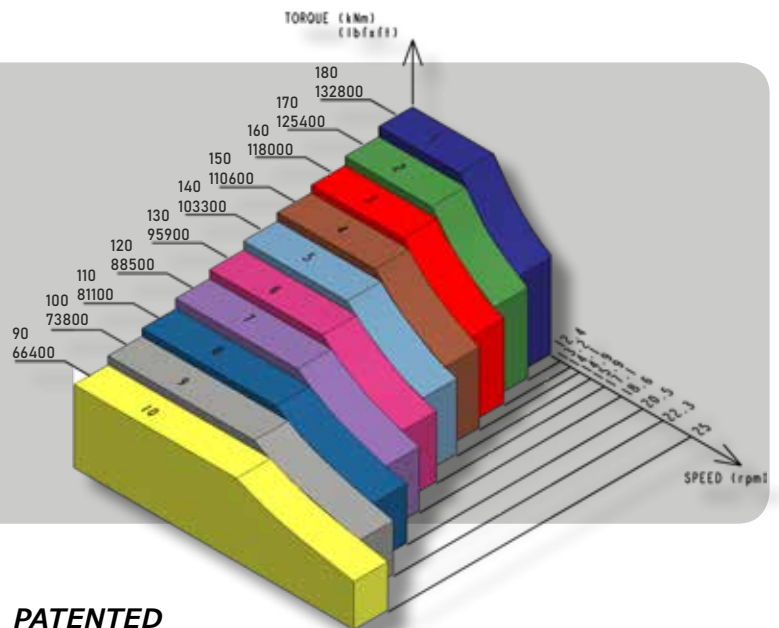
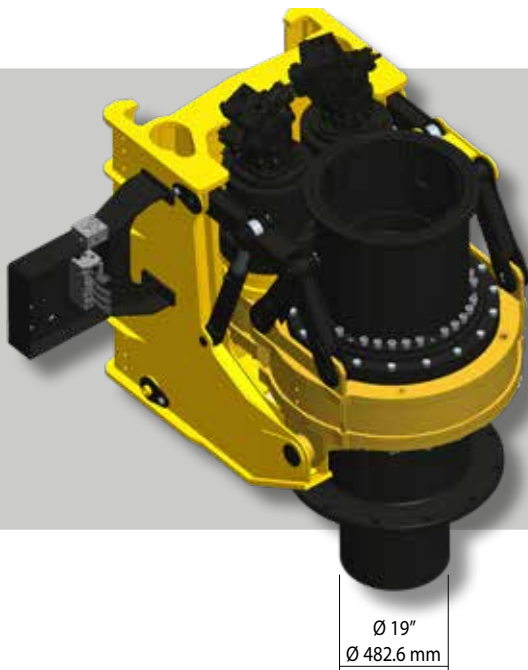
ROTARY



The rotary group of the HPM180, with an inner diameter of 482.2mm(19"), is designed using two large pinions and a ring gear supported by high-speed rotation bearings. The pinions are moved by two bent-axis, variable displacements motors (PARKER), and two gearboxes fitted with a power shift transmission (ZOLLERN).

The rotary provides a maximum effective torque of 132.000 lbf-ft (180 kNm). The operator can choose 10 working speeds ranging from 9 to 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 two hydraulic cylinders. The cylinders has a pull force of 61000 lbf (270 kN), and a push force of 36000 lbf (170 kN).

The cylinder stroke is 10'9" (3300mm) on the standar mast, 6'6" (1980mm) on the short mast and 4'10" (1485mm) on the HPM180R model.

The HPM180 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 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.

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 verticalize the mast automatically.



ARTICULATION

The entire front 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.





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