

# AF 300

## HYDRAULIC DRILL RIG



**INT**  
INTERNATIONAL®



**IMT** International S.p.A. was founded in 1974 by Mr. Giulio Accorroni. Since then, the Company has concentrated on the acquisition of specific know-how for the planning and construction of hydraulic drill rigs, in constant search of high quality products and customer satisfaction.

IMT has always invested in technology and design. This policy has given life to a new plant that is on the cutting edge and whose objective is that of raising production quality even more.

In 1999, IMT International S.p.A. was certified ISO 9001. This important, official recognition was given to IMT International S.p.A. following strict inspections carried out by authorised institutions. This confirms the quality level, which has already been appreciated over the years, all over the world.

IMT International S.p.A., like very few other companies in the field, has a global commercial and assistance network, present in over 30 countries in the world. From anywhere in the world, IMT customers know they can always count on fast and efficient 24-hours service, which ensures that all inquiries are taken care of immediately. Furthermore, all IMT models are mounted on the best known bases in the field, which gives our products reliability as well as the guarantee that spare parts can be easily found all over the world.

IMT's main goal, today, is not only to improve technology, but also to make our growing family of customers satisfied for have chosen IMT.

# AF 300



THE PERFECT BLEND  
OF TECHNOLOGY  
AND PERFORMANCE

The AF 300 is a drill rig that can easily overcome any kind of problem on the job site, even the most difficult ones.

The rig has been conceived for foundation piles, and even cased piles, for diameters up to 2300mm and a depth up to 75m.

The AF 300 is mounted on Caterpillar 349 D HHP hydraulic excavator with lowers undercarriages extensible from 3,5m to 4,9m. IMT has studied every part in detail to ensure maximum reliability and performance.

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# OPERATOR STATION

Besides the comforts available on the CAT base (adjustable seat, air conditioning, etc.) the rig controls in the cabin of the AF 300 are rationally distributed. The main controls, such as main winch, upper rotation, rotary, pull down, speed change, foot mast are operated by means of two main joysticks. The controls for the crawler track opening, auxiliary winch, articulation moving and mast turnover are located on the control panel. The vertical position of the mast can be obtained automatically with a button situated above the cylinder joystick. It is possible to check verticality of the mast on the computer at any moment.

The new computer supplies all the useful information pertaining to the rig and also gives the possibility of preparing a certificate relating to ground resistance.

The computer also shows the upper rotation position with respect to the rig. It is also possible to rotate the upper automatically to go back to the exact drilling position by using a button located on the upper rotation joystick.



# BASE

The AF 300 uses a CAT 349 D HHP base. Caterpillar installs a CAT C 13-type motor on this base which is set to supply a power of 440 HP (328 KW) at 1800 rpm. In order to utilize the power of the diesel to the most so as to guarantee maximum performance, IMT installs a load sensing hydraulic system, together with the Caterpillar original for pull down (as well as for services); this translates into extremely high productivity.

# UNDERCARRIAGE

Manufactured by Caterpillar on the basis of our specifications, the crawler track undercarriage used on the AF 300 has the following characteristics:

- It has a central, "H"-type frame which can widen the lowers from 3.5 (for transportation) to 4.9 (working phase) and guarantees maximum operation and resistance.
- The lowers have a length of 6.44m and a width of 4.9m which guarantee exception stability in any type of ground.
- It has considerable pulling force (640 KN, effective) which allows easy movement even in the most difficult job sites (maximum superable gradient 75%).





## KELLY BAR

The standard Kelly bar is 4/45, The 3/35, 4/50, 5/64 and 6/75 types are also available. The square joint is available with sides of 150, 177, 200mm. All kelly bars have automatic blocking patented by IMT; this allows the blocking of the telescopic elements in any position, permitting the transfer of pull down, pull back and torque very quickly.

## ROTARY

The rotary of the AF 300 was conceived for unlimited duration. To the side of the rotary, three transmission groups, formed by hydraulic motor, gear and reducer moves the two pinions. The rotary is capable of transmitting an effective torque of 280 kNm to the tool (the nominal torque is 310 kNm). The operator can change speeds from inside the cabin; there are six different speeds to choose from. The working speeds vary from 6.5 to 28 rpm. The unloading speed is 110 rpm. During the drilling phase, the rotary has the entire power of the diesel at its complete disposal. The rotation speed and effective torque on the tool are continuously recorded by the on-board computer. The rotary is equipped with a universal joint for the direct installation of casings.



4300

H  
M  
H





## MAST

It is built with high-resistance material, capable of supporting considerable stress with reduced weights (and therefore inertial force). The verticalization of the mast can be obtained automatically at any moment.

The head of the mast is positioned at the top and has a "Y" shape for the pulleys of the main and secondary winches. The upper end is hydraulically articulated to change into the transportation phase. The lower extremity (articulated for the transportation phase) can be disassembled when working with casing oscillators of considerable size. The mast housing cylinder is positioned on the lower part.

## ARTICULATION

The AF 300 utilizes a parallelogram type articulation. All the articulations of the machine use casehardened pins and bushings of large dimensions which guarantee maximum precision in time. The parallelogram type articulation offers the following advantages:

- possibility of moving the working axis accurately without losing the verticality of the mast.
- possibility of working in a large range (essential when working with casing oscillator).
- correct anchoring of the mast by means of a hinge and tilting cylinder anchored at the top.
- correct division of the machine weight in transportation configuration.

# WINCHES

The winches are positioned in the lower part of the mast, in front of the cabin, so that the operator can constantly check the proper operation. During the lifting and lowering phase, the main winch has the entire power of the diesel at its disposal; this gives the machine considerable speed and therefore maximum productivity. It has a hydraulic "down the hole" system which prevents the unwinding of the cable when the tool reaches the ground. Another system, called "free flow", allows the cable to advance in the drilling phase when the rotary advances. The on-board computer constantly displays pullback, speed and tool position. The main winch has a maximum pull of 300 kN and a speed of 70 m/min. The auxiliary winch has a maximum pull of 150kN and a speed of 80m/min.



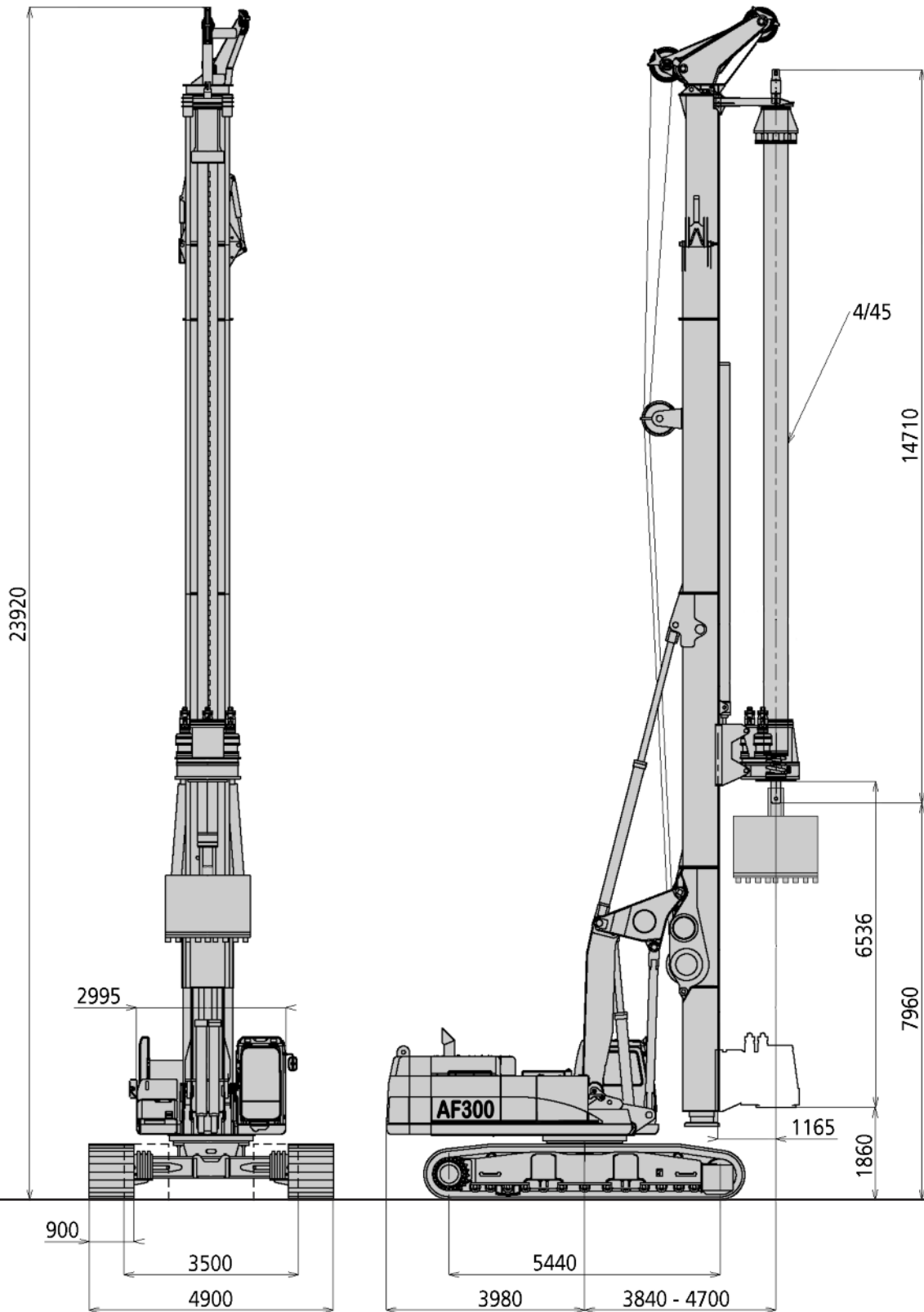
# CROWD SYSTEM

The crowd system of the AF 300 is positioned on the mast and it is used to transfer push and pull on the rotary. Thanks to the automatic blocking system patented by IMT, the push of 350 KN and pull of 390 KN are transferred directly to the tool.



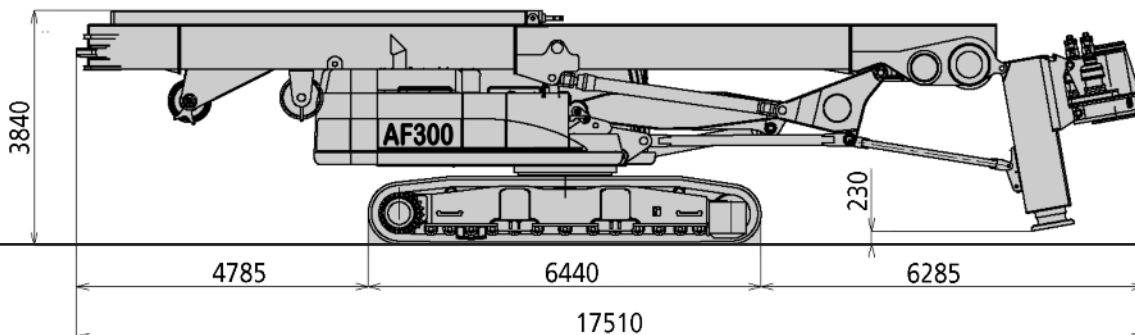
# AF 300

TECHNICAL DATA



|  |           |                             |        |                            |
|--|-----------|-----------------------------|--------|----------------------------|
| <b>Base</b>                                  |           | CAT 349D HHP                |        | CAT 349D HHP               |
| Undercarriage length / widening range / shoe | mm        | CAT 6440/3500 - 4900/900    | in     | 253/137 - 193/35,4         |
| Engine type                                  |           | CAT C13                     |        | CAT C13                    |
| Power  |           | 328 KW (440 HP) @ 1800 rpm. |        | 328 KW (440 HP) @1800 rpm. |
| <b>Rotary</b>                                |           |                             |        |                            |
| Nominal torque                               | kNm       | 310                         | lbf ft | 228645                     |
| Working speed                                | rpm       | 6,5 - 28                    | rpm    | 6,5 - 28                   |
| Discharge speed                              | rpm       | 45 - 110                    | rpm    | 45 - 110                   |
| <b>Winches</b>                               |           |                             |        |                            |
| Main winch pull force                        | kN        | 300                         | lbf    | 67500                      |
| Main winch speed                             | m/min     | 70                          | ft/min | 230                        |
| Main winch Cable diameter                    | mm        | 32                          | in     | /                          |
| Auxiliary winch pull force                   | kN        | 150                         | lbf    | 33725                      |
| Auxiliary winch Speed                        | m/min     | 80                          | ft/min | 262                        |
| Auxiliary winch Cable diameter               | mm        | 20                          | in     | /                          |
| <b>Crowd system</b>                          |           |                             |        |                            |
| Kelly crowd push                             | kN        | 350                         | lbf    | 78685                      |
| Kelly crowd pull                             | kN        | 390                         | lbf    | 87680                      |
| Stroke                                       | mm        | 6536                        | in     | 257                        |
| <b>Mast</b>                                  |           |                             |        |                            |
| Mast raking forward                          |           | 5°                          |        | 5°                         |
| Mast side raking                             |           | ±8°                         |        | ±8°                        |
| Mast raking backwards                        |           | 15°                         |        | 15°                        |
| Pile max. diameter                           | mm        | 2300                        | in     | 91                         |
| <b>Kelly bar</b>                             |           |                             |        |                            |
| Standard                                     |           | 4/45                        |        | 4/45                       |
| Options available                            |           | 3/35 - 4/50 - 5/64 - 6/75   |        | 3/35 - 4/50 - 5/64 - 6/75  |
| Operating Weight w/standard kelly bar        | t(metric) | 91                          | lbs    | 200625                     |

All technical data are indicatives and subject to change without notice



# WORLDWIDE SALES AND ASSISTANCE NETWORK



## **IMT dealers, a global network at your service**

IMT, like very few other companies in the field, has a global commercial and assistance network which is present in over 30 countries. From any part of the world, IMT clients know that they can always count on fast and efficient service.





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