

# NORTH AMERICA'S DISTRIBUTER OF ORTECO PILE DRIVER MACHINES





### **ORTECO'S HISTORY**

Founded in 1971 as an earth moving machines dealer, Orteco has become the leading manufacturer of hydraulic power units and pile driver machines. From the first pile drivers built in the 1980s to date, more than 2000 pile drivers have been produced and sold all around the world.

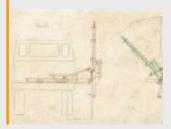
Today, Equitec innovation is continuing the traditions by supplying the North American market with the most reliable pile driver machine available.





#### 1980

First truck-mounted pile driver – Technical drawing of the first truck-mounted pile driver



#### 1985

Special application of a pile driver on an agricultural tractor equipped with an air compressor



#### 1990

Production - ORTECO pile driver for application on an Unimog truck



#### 1990

ORTECO First crawlermounted pile driver



Completed the application for the correction of the piling installation verticality, first extractor Kit



#### 2004

Creation of the first ORTECO patented Barrier Installation Machine



#### 2010

ORTECO FEX pile driver developed for photovoltaic installations

#### 2011

1000 ORTECO pile drivers produced and sold worldwide

#### 2012

First ORTECO GPS automatic Machine control system

#### 2013/2014

New ORTECO FEX pile driver with column for piles up to 6m long

#### 2015

First ORTECO Agricultural (pile driver for vineyards) ORTECO PPA

#### 2016/2017

Creation of n. 2 new pile driver models: ORTECO HD High Power 1500 and Sun 4.0 (beach pile driver). Realized the column for 5mt-long posts to mount to HD 1000 crawlermounted pile driver.



## THE ORTECO PILE DRIVER IS DESIGNED AND BUILT TO BE NO. 1 IN THE INDUSTRY

Our machines are innovative, safe, and reliable, utilizing the following technical solutions:

- We use bent sheet metal on our parts to minimize the use of welding. As a result, our structures are more resistant and flexible
- The electrical system and control panels are IP 65 rated; all electrical system wires are protected by sheathes against humidity, wear, and tear.
- Hydraulic hoses are installed in a protected position to shield the operator and prevent debris from hitting the operator.
- ♦ The power hammer works by resting on the pile. Since it is not constrained to the column, it does not transmit vibrations to the entire machine, thereby ensuring maximum performance and minimum wear on the machine.
- Our power hammers are contained in a steel housing insulated with polyurethane to limit noise and vibrations.
- We offer a wide range of accessories to facilitate the various types of work.
- Can be easily folded into its transport positions and loaded on a truck.

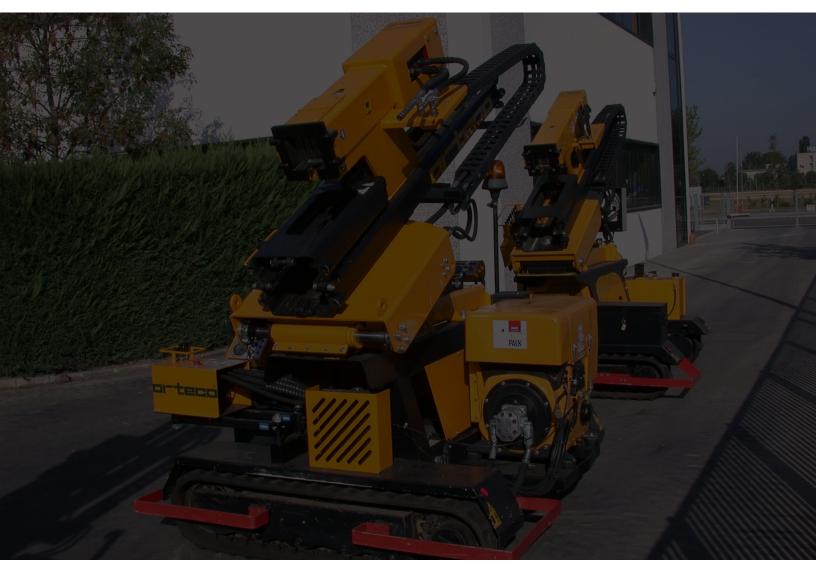




## TECHNICAL ADVANTAGES OF ORTECO PILE DRIVER MACHINES

Our pile drivers use a "free hammer" system, the result of many years of innovation and development.

- Our hammer is kept in contact with the pile by using its own weight. This has been carefully calculated to ensure it remains in contact with the head of the pile and delivers the expected hammer power.
- Our free hammer system has been used on construction sites for years and is proven to be the best system to achieve maximum productivity while minimizing the wear and tear on the machines.
- In the early years of production, a pull/push-based system was investigated, and quickly abandoned as a result of the excessive stress it put on the pile driver structure. The hammer, as well as the rotor/down the hole hammer kit, are held in position by the vertical column. When in motion, they are free floating and therefore minimize vibrations to the structure of the machine ensuring a longer life.





### TRUCK-MOUNTED PILE DRIVERS

The pile driver mounted on the bed of a truck is primarily used for road maintenance crews. This mobile setup allows crews the ability to carry loads of piles, posts, steel beam barriers, signs, everything necessary for roadside construction or repairs. This makes the truck-mounted pile driver a winning solution. The features and accessories designed for our pile drivers can all be added and used on the truck-mounted units. The truck-mounted pile driver unit can be removed and mounted on a crawler at a later date. Therefore, customers, buying the truck-mounted pile driver for maintenance works, in the future may buy just the crawler to mount the pile driver on to have a self mobile pile driver for more demanding jobs. Orteco manufactures the BASIC, SMART, and HEAVY DUTY versions to be mounted on trucks.



TECHNICAL DATA		ВА	SIC	SMART		HEAVY DUTY	
MODELS		600	800	600	800	800	1000
Hammer driving power	Joule	590	950	590	950	950	1200
Hammer blows per minute	N°	650/1000	620/1500	650/1000	620/1500	620/1500	570/1180
Max. operating pressure	MPA	15	15	15	15	18	18
Oil flow	DM³/min	45/85	60/90	45/85	60/90	60/90	70/100
Total weight	KG/LBS	1000/2205	1150/2535	1125/2480	1275/2811	1375/3031	1525/3362





### **CRAWLER-MOUNTED PILE DRIVERS**

### **BASIC 600 / 800**

The ORTECO BASIC model was designed as a lightweight alternative to reduce costs, lowering fuel consumption and noise levels, while providing efficient and effective pile drivers.

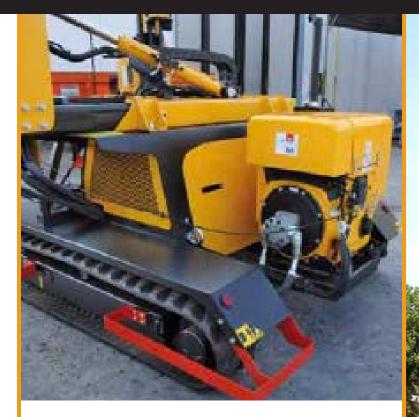
TECHNICAL DATA		BA	SIC
MODEL		600	800
Hammer driving power	Joule	590	950
Hammer blows per minute	N°	650/1000	620/1500
Tilting kit		standard	standard
Extractor connection		standard	standard
Auxiliary system for accessories		standard	standard
Hatz engine (diesel)		2L41C	2L41C
Electrical system	Volt	12	12
Noise level at the operator's console	DBA	107	112
Power (at 3000 RPM)	KW (HP)	21,3 (28,5)	21,3 (28,5)
Max. operating pressure	MPA	15	15
Oil flow	DM³/min	75	75
Oil tank capacity	DM <sup>3</sup>	110	110
Diesel fuel tank capacity	DM <sup>3</sup>	50	50
Total weight	KG/LBS	2460/5423	2610/5754





High impact resistant plates with personalized milled post profile.





### **SOUNDPROOFED ENGINE**

ORTECO pile drivers are equipped with effective soundproofing Teir4F/ EU Stage IIIB engines. (on request we can mount diesel particulate filters on the exhaust).



AUGER (accessory)

See page 26



REMOTE CONTROL (accessory) See page 31

DOWN THE HOLE HAMMER (accessory)

See page 25

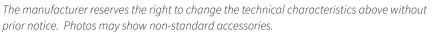


### **CRAWLER-MOUNTED PILE DRIVERS**

### **SMART 600 / 800**

ORTECO SMART pile driver on crawler is designed for agility and made to install piles efficiently and help your crews be more productive. The adopted light weight unit is ideal for smaller solar installs or guardrail crews, with its compact size allows for better maneuverability in limited space.

TECHNICAL DATA		SMART	
MODEL		600	800
Hammer driving power	Joule	590	950
Hammer blows per minute	N°	650/1000	620/1500
Tilting kit		standard	standard
Extractor connection		standard	standard
Auxiliary system for accessories		standard	standard
Hatz engine (diesel)		2L41C	2L41C
Electrical system	Volt	12	12
Noise level at the operator's console	DBA	112	112
Power (at 3000 RPM)	KW (HP)	21,3 (28,5)	21,3 (28,5)
Max. operating pressure	MPA	15	15
Oil flow	DM³/min	75	75
Oil tank capacity	DM <sup>3</sup>	110	110
Diesel fuel tank capacity	DM <sup>3</sup>	50	50
Total weight	KG/LBS	3000/6614	3150/6945







**IMPACT PLATES**High impact resistant plates with personalized milled post profile.











### **REAR VIEW**

The layout of the hydraulic hoses behind the main frame provides safety for the operator in case of an oil leak from the high-pressure hydraulic system.

### **SOUNDPROOFED ENGINE**

ORTECO pile drivers are equipped with effective soundproofing Teir4F/ EU Stage IIIB engines. (on request we can mount diesel particulate filters on the exhaust).

### **CONTROLS**

The ORTECO SMART tracked pile driver was designed with the operator's safety and ergonomics in mind, which is why the drive controls are separated from the pile driver controls.



### **CRAWLER-MOUNTED PILE DRIVERS**

### **HEAVY DUTY 800 / 1000 / 1500**

ORTECO "HD" pile drivers are designed and produced to meet the "heavy" demands of commercial solar and guard rail construction jobs. A stronger, solid structure and an increased power gives the "HEAVY DUTY" models can deliver longer, quicker, accurate pile installation demands.

TECHNICAL DATA		HEAVY DUTY		
MODEL		800	1000	1500
Hammer driving power	Joule	950	1200	1500
Hammer blows per minute	N°	620/1500	570/1180	450/980
Tilting kit		standard	standard	standard
Extractor connection		standard	standard	standard
Auxiliary system for accessories		standard	standard	standard
Hatz engine (diesel)		3L41C	3L41C	3L41C
Electrical system	Volt	12	12	12
Noise level at the operator's console	DBA	112	112	112
Power (at 2600 RPM)	KW (HP)	32,5 (43,6)	32,5 (43,6)	32,5 (43,6)
Max. operating pressure	MPA	18	18	18
Oil flow	DM³/min	95	110	110
Oil tank capacity	$DM^3$	160	160	160
Diesel fuel tank capacity	DM <sup>3</sup>	60	60	60
Total weight	KG/LBS	3900/8598	4050/8929	4100/9039







**IMPACT PLATES**High impact resistant plates with personalized milled post profile.







Hydraulic system to adjust the column for vertical position.



### SOUNDPROOFED ENGINE

ORTECO pile drivers are equipped with effective soundproofing Teir4F/ EU Stage IIIB engines. (on request we can mount diesel particulate filters on the exhaust).



### **REAR VIEW**

The layout of the hydraulic hoses behind the main frame provides safety for the operator in case of an oil leak from the high-pressure hydraulic system.



### **CONTROLS**

The ORTECO HD pile driver on crawlers was designed with the operator's safety and ergonomics in mind, which is why the drive controls are separate from the pile driver controls.



#### TRANSPORT POSITION

Orteco HD crawlers are compact enough to be loaded onto a transport truck for delivery to and from site.



### **CRAWLER-MOUNTED PILE DRIVERS**

### **HEAVY DUTY 1500 5mt. (16.4ft)**

The ORTECO HD 1500 pile driver delivers increased power using a hammer strength of 1500 Joules of impact energy. This increased hammer size was adopted for customers with the need to drive large piles in hard and difficult soils. This model features a maximum pile length of 5m (16.4ft).

TECHNICAL DATA	HEAVY DUTY	
MODEL		1500 5mt.
Hammer driving power	Joule	1500
Hammer blows per minute	N°	450/980
Tilting kit		standard
Extractor connection		standard
Auxiliary system for accessories		standard
Hatz engine (diesel)		3L41C
Electrical system	Volt	12
Noise level at the operator's console	DBA	109
Power (at 2600 RPM)	KW (HP)	32,5 (43,6)
Max. operating pressure	MPA	18
Oil flow	DM³/min	110
Oil tank capacity	DM <sup>3</sup>	160
Diesel fuel tank capacity	DM <sup>3</sup>	60
Total weight	KG/LBS	5050/11133

The manufacturer reserves the right to change the technical characteristics above without prior notice. Photos may show non-standard accessories.











IMPACT PLATES

High impact resistant plates with personalized milled post profile.





**CORRECTION OF VERTICALITY**Hydraulic system to adjust the column for vertical position.







### **TRANSPORT POSITION**

Orteco HD crawlers are compact enough to be loaded onto a transport truck for delivery to and from site.



### **CRAWLER-MOUNTED PILE DRIVERS**

### **FEX 1000 / 1500**

The ORTECO FEX 1000 and FEX 1500 pile drivers are designed to drive piles in uneven and sloping terrains, commonly found when working on photovoltaic solar farm installations.

TECHNICAL DATA		FI	EX
MODEL		1000	1500
Hammer driving power	Joule	1200	1500
Hammer blows per minute	N°	570/1180	450/980
Tilting kit		standard	standard
Extractor connection		standard	standard
Auxiliary system for accessories		standard	standard
Two-speed track		standard	standard
Hatz engine (diesel)		3L41C	3L41C
Electrical system	Volt	12	12
Noise level at the operator's console	DBA	112	112
Power (at 2600 RPM)	KW (HP)	32,5 (43,6)	32,5 (43,6)
Max. operating pressure	MPA	18	18
Oil flow	DM³/min	110	110
Oil tank capacity	DM <sup>3</sup>	160	160
Diesel fuel tank capacity	DM <sup>3</sup>	60	60
Total weight	KG/LBS	4800/10582	4850/10692





**IMPACT PLATES**High impact resistant plates with personalized milled post profile.







#### **MACRO INCLINATION**

Manual system to adjust the inclination of the pile driver while working in sloped conditions.



**EXTENDED CRAWLER** 



### **REAR VIEW**

The layout of the hydraulic hoses behind the main frame provides safety for the operator in case of an oil leak from the high-pressure hydraulic system.



PILE DRIVER WITH HYDRAULIC AUGER



ACTIVE LASER AND AUXILIARY HYDRAULIC CIRCUIT



DOWN THE HOLE HAMMER IN "STAND-BY" POSITION

See page 25



### **CRAWLER-MOUNTED PILE DRIVERS**

### FEX 1500 6mt. (19.7ft)

The main feature of the ORTECO FEX 1500 pile driver is its capacity to drive piles with a total maximum length of 6m (19.7ft), on surfaces with a maximum inclination of 8°. This model is equipped with expandable steel tracks for greater stability on any terrain and with the power of the 1500 Joule hammer is ideal for driving piles in hard and difficult soils.

TECHNICAL DATA		FEX
MODEL		1500 6mt.
Hammer driving power	Joule	1500
Hammer blows per minute	N°	450/980
Tilting kit		standard
Extractor connection		standard
Auxiliary system for accessories		standard
Two-speed track		standard
Hatz engine (diesel)		3L41C
Electrical system	Volt	12
Noise level at the operator's console	DBA	109
Power (at 2600 RPM)	KW (HP)	32,5 (43,6)
Max. operating pressure	MPA	18
Oil flow	DM³/min	110
Oil tank capacity	DM <sup>3</sup>	160
Diesel fuel tank capacity	DM <sup>3</sup>	60
Total weight	KG/LBS	6200/13669

The manufacturer reserves the right to change the technical characteristics above without prior notice. Photos may show non-standard accessories.





### **IMPACT PLATES**High impact resistant

plates with personalized milled post profile.







### MAGNET (accessory)

When installing long and heavy posts the electric-power magnet is the ideal safe and productive lifting solution for pile lengths above 14 ft (4m).



#### **MACRO INCLINATION**

Manual system to adjust the inclination of the pile driver while working in sloped conditions.



#### **REAR VIEW**

The layout of the hydraulic hoses behind the main frame provides safety for the operator in case of an oil leak from the high-pressure hydraulic system.



PILE DRIVER WITH HYDRAULIC AUGER



ACTIVE LASER
AND AUXILIARY
HYDRAULIC CIRCUIT



DOWN THE HOLE HAMMER IN "STAND-BY" POSITION

See page 25



### **CRAWLER-MOUNTED PILE DRIVERS**

### **PILE DRIVER FOR VINEYARDS (PPA)**

Our crawler-mounted pile driver for vineyards is equipped with a GPS guided system for accuracy and precision. While the technology is advanced, it is a simple machine that is small and easy to use.

The geo-location made possible through the GPS Machine Control System guides the machine from post-to-post. It automatically positions the arm and hammer and drives the pile in a perfectly vertical position, exactly to design height/depth specification.



TECHNICAL DATA		Narrow	Wide
Hammer driving power	Joule	230	230
Hammer blows per minute	N°	800/1200	800/1200
Max. speed	KM/H	2,3 - 4,4	2,3 - 4,4
Hatz engine (diesel)		2L41C	2L41C
Electrical system	Volt	12	12
Noise level at the operator's console	DBA	99	99
Power (at 3000 RPM)	KW (HP)	21,3 (28,5)	21,3 (28,5)
Max. operating pressure	MPA	15	15
Oil flow	DM³/min	75	75
Oil tank capacity	DM <sup>3</sup>	110	110
Diesel fuel tank capacity	DM <sup>3</sup>	50	50
Total weight	KG/LBS	2800/6173	2900/6393





### **CRAWLER-MOUNTED PILE DRIVERS**

### **SUN 4.0 600 / 800**

The ORTECO SUN 4.0 pile driver was especially designed to install beach umbrella poles with the help of the GPS Machine Control System. The machine moves from one pole to the next with ease, despite difficult beach or lake-side terrains.

TECHNICAL DATA		600	800
Hammer driving power	Joule	590	830
Hammer blows per minute	N°	650/1000	620/1500
Tilting kit		standard	standard
Extractor connection		standard	standard
Auxiliary system for accessories		standard	standard
Hatz engine (diesel)		2L41C	2L41C
Electrical system	Volt	12	12
Noise level at the operator's console	DBA	112	112
Power (at 3000 RPM)	KW (HP)	21,3 (28,5)	21,3 (28,5)
Max. operating pressure	MPA	15	15
Oil flow	DM³/min	75	75
Oil tank capacity	DM <sup>3</sup>	110	110
Diesel fuel tank capacity	DM <sup>3</sup>	50	50
Total weight	KG/LBS	3000/6614	3150/6945







## PILE DRIVER FOR EXCAVATOR, BACKHOE AND CRANE

The excavator/backhoe pile driver was designed for customers who already have an excavator/backhoe and need to carry out less demanding pile driving operations.

This solution takes advantage of the off-road abilities to maneuver in difficult conditions using the stability and traction of a tracked excavator/backhoe.

Our pile driver provides excellent performance at an affordable price.

Crane-mounted pile drivers are special machines designed for customers who have trucks equipped with large cranes or articulating booms and want to use them in combination with the pile drivers. This combination enables the pile driver to be mounted as easily as if it were mounted on a truck.

TECHNICAL DAT	A	600	800	1000
Hammer driving power	Joule	590	950	1200
Hammer blows per minute	N°	650/1000	620/1500	570/1180
Max. operating pressure	MPA	15	15	18
Oil flow	DM³/min	45/85	60/90	70/100
Max. pile diameter	MM	180	180	200
Total weight	KG/LBS	970/2138	1120/2469	1270/2800

The manufacturer reserves the right to change the technical characteristics above without prior notice. Photos may show non-standard accessories.





The assembly of the equipment on self-mobile vehicles requires special connection systems which are excluded from the total weight of the machine.



### **CRAWLER-MOUNTED BARRIER INSTALLERS**

### P.B. ONE

The barrier installation machine is designed to transport heavy steel beam barriers. The operator offloads one at a time, placing it on two positioning arms which move the barrier towards the installed piles, with precise and independent movements enabling the operator to insert the bolts and tighten them without having to lift the barrier itself. The machine is remote controlled enabling the operator to be in the best possible position with maximum visibility during operation. This machine eliminates the need for crews to manually lift these heavy beams of approximately 200 lb (90 kg) reducing labour while increasing safety and productivity.

TECHNICAL DATA		P.B. One
Hatz engine (diesel)		3L41C
Electrical system	Volt	24
Max. pump capacity	DM³/min	110
Electrical system	KW	5
Max. operating pressure	MPA	15
Max. allowed load	KG/LBS	2000/4409
Oil tank capacity	DM <sup>3</sup>	75
Diesel fuel tank capacity	DM <sup>3</sup>	75
Total weight	KG/LBS	3500/7716





### **PIPELAYERS**

### P.T. ONE

Orteco can produce a self-mobile machine with a loading platform and hydraulic arm for handling materials, such as piping. Our first unit was dedicated to the handling, welding, and laying of metal and PVC pipe for gas or water infrastructure. The machine is equipped with a hydraulic arm able to lift 400 kg (882 lbs) to 7 meters from the centre of the machine. It is also equipped with an 8 Kw engine generator.

TECHNICAL DATA	P.T. One
Tracked carriage	<b>~</b>
Load capacity	2000 KG / 4409 LBS
Limited footprint	<b>~</b>
Proportional remote control	<b>✓</b>
Hydraulic arm for loading/unloading operations	<b>~</b>
Safe and environmentally friendly	<b>~</b>
Welding machine Engine generator	<b>~</b>
Sliding load/work platform	<b>~</b>
Hydraulic stabilizers	<b>~</b>





### **ORTECO GPS MACHINE CONTROL SYSTEM**

The ORTECO GPS Machine Control System is the most advanced system for a pile driver on the market. As the name implies, this system incorporates not only the GPS function to determine the location of the posts but also a Machine Control function which automatically moves the machine to the location of the next post based on the project data uploaded into the system. It enables the fully automatic control of the machine, with an accuracy within +/- 1 cm on the X and Y axis and +/- 2 cm on the Z axis. Using this system increases productivity while significantly reducing the margin of error.



#### THE GPS "RUGGED" COMPUTER

CHARACTERISTICS:

- ♦ 10.4" High Quality 1024 x 768 Resolution TFT-LCD Panel
- Intel Atm Dual Core N2800 1.86 GHz with Intel NM10 Chipset
- Brightness up to 700 nit enhanced visibility
- ♦ Bulit-in Wireless/Bluetooth/GPS module
- Support 3 G (optional)
- ♦ Low power consumption CPU only 3.5 W



#### **DOUBLE ANTENNA**

Orteco uses two-antennas base GPS system to collect information about position in real time.

### GPS FOR DOUBLE ANTENNA

The GPS radio navigation system + RTK technique (double frequency @ 20 Hz) provides centimeterlevel accuracy.



### **CORRECTION OF VERTICALITY**

Hydraulic system to adjust the column for vertical position.









### **DOWN THE HOLE HAMMER KIT**

The "Down the Hole Hammer" kit positions the hydraulic rotor between the pile driver hammer and the vertical sliding column and can be used to drill in rock, concrete (without reinforcement) or highly compact conglomerates easily and effectively.

When the rotor/Down the Hole Hammer KIT is not used, it can be released from the hammer and left in stand by position, ready for use. This system allows drilling and driving use independently without having to dismantle, offering crew efficiency, safety and reducing the need to dismantle/mount heavy parts when both applications are needed.









### **HYDRAULIC AUGER**

The hydraulic soil auger is an effective tool used to carry out excavation in mixed terrain and soil types, with auger rotation of both clockwise or counter-clockwise.

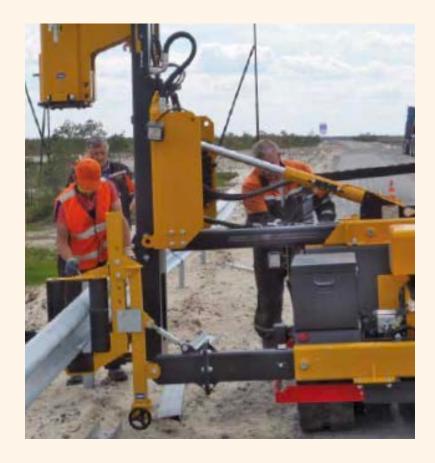






### **BLADE RAISER**

The barrier segments of steel beam guard rail must first be bolted to together and placed on the ground before handling with the Blad Raiser. The crawler-mounted pile driver equipped with the Blade Raiser then lifts the attached segments, this allows for the mounting position of the exact point and location for the pile to be installed and pounded into the ground and bolted to the rail.







### **CORE BORER**

The Hydraulic Core Borer is used in combination with a pile driver to core drill concrete, reinforced concrete, and bituminous conglomerates.

The most common use of the machine is to core drill around the pile to be extracted (previously cut), to remove it and then use the same hole to install the new pile.







### **BICAROT**

This 2-head core drilling machine can drill small holes (19-24 mm). It is commonly used to make holes in reinforced concrete to anchor piles with a plate bolted base.







### **ACTIVE LASER**

By installing the active laser system on an Orteco pile driver machine, the hammer can be stopped automatically when it reaches a present height. The height is determined by a laser emitter mounted on a tripod, which communicates with the receiver mounted on the hammer.









### **REMOTE CONTROL**

The remote control enables the operator to control both the hammering process and the transport of the machine remotely. This is made possible by the use of Danfoss electro-proportional distributors that allow for the control of the tracks to move the unit alone or to operate the pile driver to pound in posts.







MODELS	GPS Control System	Correction of Verticality	Hydraulic Auger
Truck-mounted pile drivers  BASIC 600/800			<b>♦</b>
Truck-mounted pile drivers  SMART 600/800		<b>♦</b>	<b>♦</b>
Truck-mounted pile drivers HD 800/1000		<b>♦</b>	<b>♦</b>
Crawler-mounted machines  BASIC 600/800			<b>♦</b>
Crawler-mounted machines SMART 600/800	<b>♦</b>	<b>♦</b>	<b>♦</b>
Crawler-mounted machines HD 800/1000/1500	<b>♦</b>	<b>♦</b>	<b>♦</b>
Crawler-mounted machines HD 1500 5mt.	<b>♦</b>	<b>♦</b>	<b>♦</b>
Crawler-mounted machines FEX 1000/1500	<b>♦</b>	<b>♦</b>	<b>♦</b>
Crawler-mounted machines FEX 1500 6mt.	<b>♦</b>	<b>♦</b>	<b>♦</b>
Pile driver for <b>EXCAVATOR, BACKHOE AND CRANE</b>			<b>♦</b>
Crawler-mounted machines PILE DRIVER FOR VINEYARDS (PPA)	<b>♦</b>	<b>♦</b>	
Crawler-mounted machines SUN 4.0 600/800	<b>♦</b>	<b>♦</b>	
BARRIER INSTALLATION (P.B. ONE)			
PIPELAYERS (P.T. ONE)			



ACCES	SORIES				
Active Laser	Remote Control	Core Borer/ Bicarot	Down the Hole Hammer Kit	Blade Raiser	Catalog Page
<b>♦</b>		<b>♦</b>			5
<b>♦</b>	<b>♦</b>	<b>♦</b>	<b>♦</b>		5
<b>♦</b>	<b>♦</b>	<b>♦</b>	<b>♦</b>		5
<b>♦</b>	<b>♦</b>	<b>♦</b>	<b>♦</b>		6
<b>♦</b>	<b>•</b>	<b>♦</b>	<b>♦</b>	<b>♦</b>	8
<b>♦</b>	<b>•</b>	<b>*</b>	<b>•</b>	<b>♦</b>	10
<b>♦</b>	<b>♦</b>	<b>*</b>	<b>*</b>		12
<b>♦</b>	<b>♦</b>	<b>*</b>	<b>*</b>		14
<b>♦</b>	<b>♦</b>	<b>*</b>	<b>*</b>		16
<b>♦</b>		<b>*</b>	<b>*</b>		18
	<b>♦</b>				19
<b>♦</b>	<b>♦</b>	<b>*</b>	<b>*</b>		20
	<b>♦</b>				21



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