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**PILING RIGS  
AND EQUIPMENT**

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# **Giken ECO700S & Giken ECO1400S Specification**

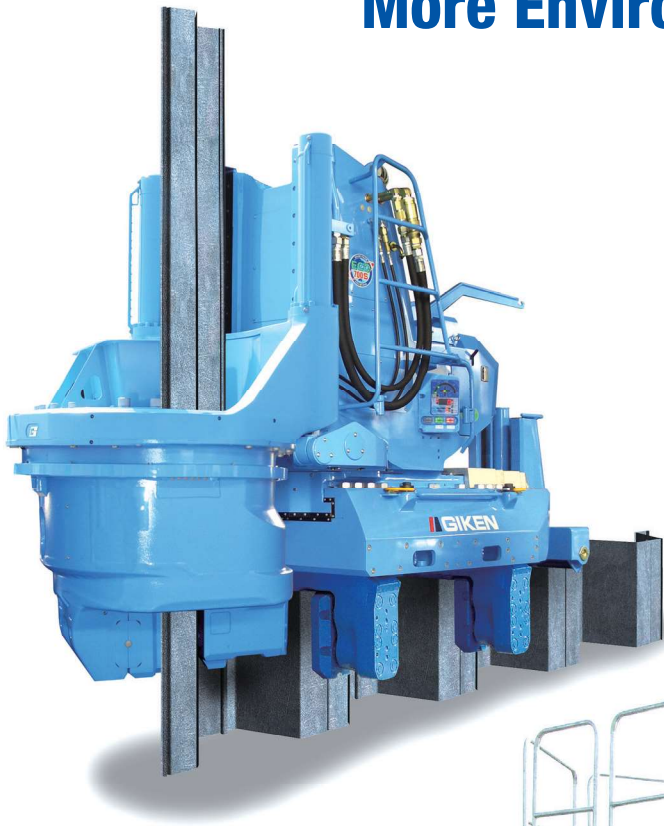
[www.agd-equipment.co.uk](http://www.agd-equipment.co.uk)

New

# SILENT PILER<sup>®</sup>

for Wider Z & U Sheet Piles and  
More Environmentally-Friendly Piling

SILENT PILER ECO700S / 1400S



SILENT PILER **ECO700S**

 for Single piles



SILENT PILER **ECO1400S**

for Double piles 

 **GIKEN**

# The Evolved Silent Piling Technologies

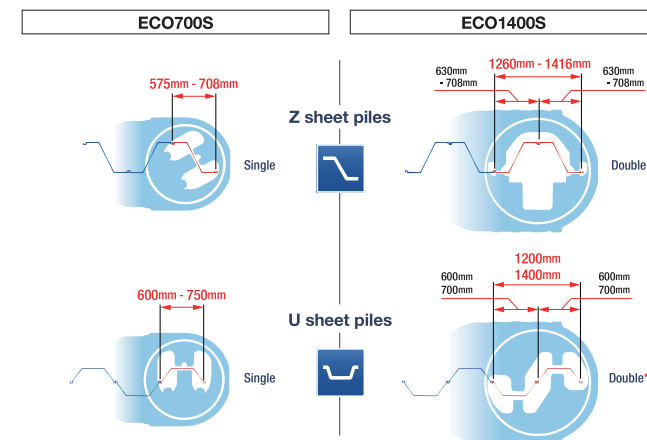
## Environment Conscious Operation and Higher Performance for Sustainable Construction

Since development of the first Silent Piler in 1975, numerous projects have been completed. The newest press-in machines have been developed based on scientific empirical analysis and feedback collected from project sites. These Silent Pilers have higher productivity with wider sheet piles, and can minimize overall environmental impact with the most advanced Press-in Operation System and environmentally-friendly design.



## For Wider Z & U Sheet Piles

The ECO700S has been designed to press-in Z piles up to 708mm wide and U piles up to 750mm wide. The ECO1400S has been designed to press-in 2 piles simultaneously up to a total width of 1416mm.



\*Remark: ECO1400S is designed to Press-in a pair of 600mm and 700mm U sheet piles in pairs by exchanging with optional Chuck and Clamps.

## More Environmentally-Friendly Piling

### Advanced Power Unit with Stage IIIA / Tier 3 Solution.

#### Cleaner, Quieter and More Responsive

Cummins Inc., one of the top international diesel manufacturers, new generation engines have been adopted for the latest Silent Piler. The advanced diesel engine conforms to the new exhaust emission standard EEC97/68EC Stage IIIA and EPA/CARB Tier 3, offers a more responsive power delivery, and a major reduction in noise with minimal maintenance requirements.



Power Unit (EU300G3)

### Biodegradable Hydraulic Oil and Grease for the Environmental concerns.

#### Biodegradable Hydraulic "Piler ECO Oil" and "Piler ECO Grease"

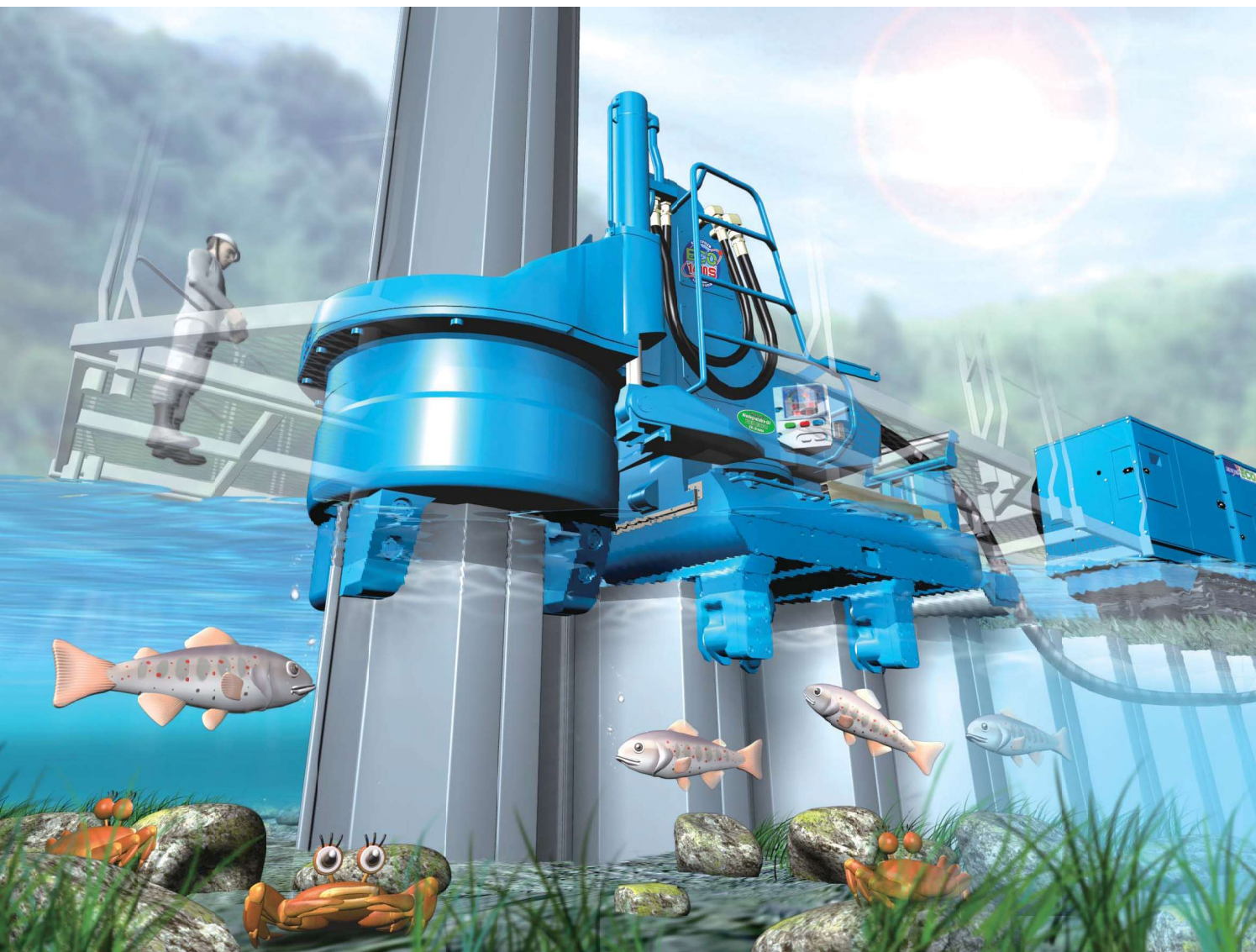
In order to protect the environment Giken has co-developed a biodegradable hydraulic oil and grease with one of the leading Japanese oil companies, called Piler ECO Oil and Piler ECO Grease. The Piler ECO Oil and Grease are made mainly from a fatty acid vegetable oil. They both exhibit not only high lubricating ability and long operating life, but also safer quality. They have been adopted as the standard specification of Silent Piler 2002 and later models. This is the first adoption in construction equipment in Japan.

The Piler ECO Oil and Grease have passed the biochemical oxygen demand test and rapid toxicity test. They are certified "Eco Mark" by the Japan Environment Association (<http://www.ecomark.jp>) as an Environmentally-friendly Product.



### Use of Environmentally-friendly Paint

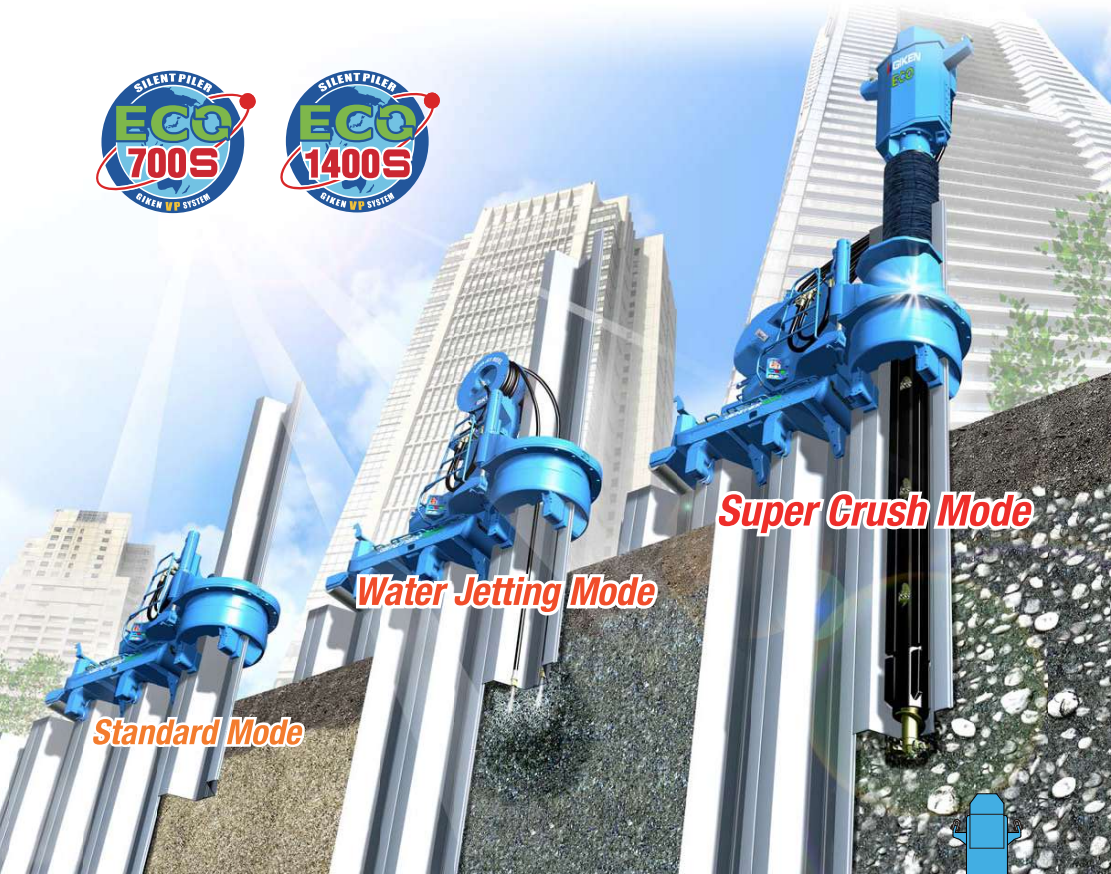
By using Environmentally-friendly paint, which is free from toluene and lead based pigment, reduces the overall environmental impact.





# GIKEN VP SYSTEM (Versatile Penetration)

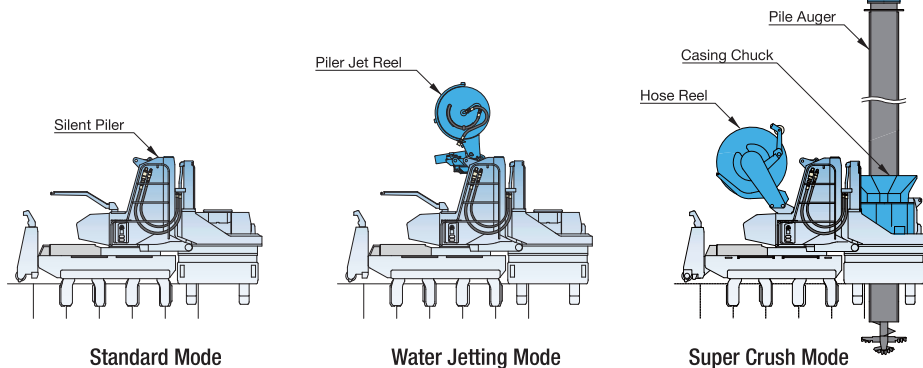
The new Silent Piler EC0700S and EC01400S provide greater performance in various ground conditions and site environments through the Versatile Penetration system, with optional auxiliary accessories.



**Super Crush Mode**

**Water Jetting Mode**

**Standard Mode**



Standard Mode

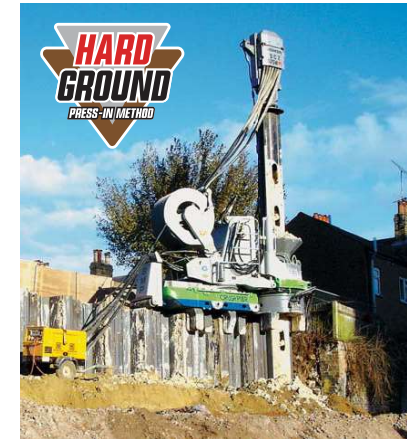
Water Jetting Mode

Super Crush Mode

## Optional Functions for Difficult Ground Conditions

### ■ Super Crush System

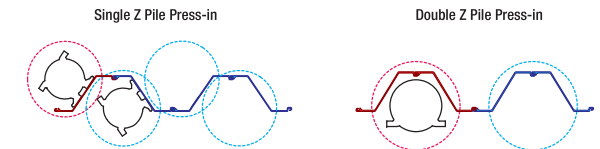
The new Silent Piler can be equipped with an integral auger system to enable all the advantages of the Press-in Method to be adopted in difficult subsoil conditions. Gripping the auger casing along with a set of press-in piles, hard soil just below the pile toe is loosened by augering. Effective reduction of toe resistance allows the piles to be pressed-in with minimum soil disturbance and limited soil removal.



Crushing boulders and rock with wedging effects

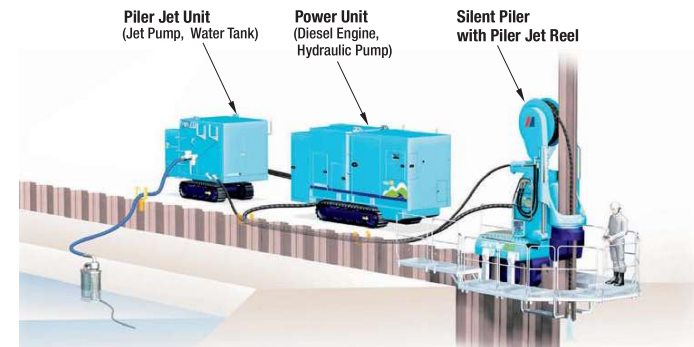


### Augering Dimension



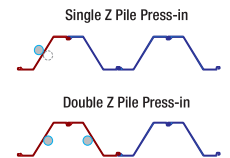
### ■ Piler Jet System

With the highly automated operation of the Piler Water-Jetting System, water flow is controlled in accordance with the press-in movement of the new Silent Piler. Thus the system can save labour and water usage. Moreover, the entire operation is carried out by one power source (Power Unit) in the most economical and ecological mode.



Piler Jet Unit (PJ3)

### Nozzle Layout





# Scientific Press-in Operations

## ■ Press-in Quality Control System for Precise Execution

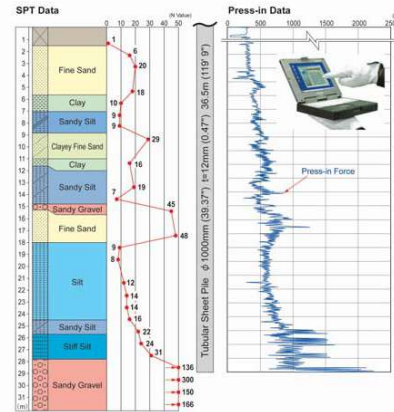
Using the Press-in Quality Control System, any valuable information for quality assurance, such as press-in force, skin friction, toe resistance, penetration depth and performance time, is available from an on-board computer in real time. All measurements are useful to recognize abnormal factors underground and certify the quality of the completed structure. Load tests which are normally carried out after piling is completed, are being executed during pile installation without extra equipment. The Press-in Quality Control System makes the performance related design of structures possible.



Providing proof of bearing capacity for bridge foundations

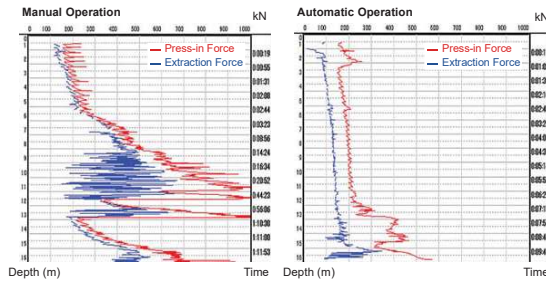


Automatic monitoring of piling conditions by an on-board computer



## ■ Automatic Press-in Operation System for the Most Efficient Performance

With the Press-in Method, use of the down-stroke / up-stroke procedure is the essential way of press-in operations. By the Automatic Press-in Operation System, an operator inputs the best variables of press-in force, press-in stroke and extraction stroke to the Silent Piler. The system enables the machine to maintain the most efficient press-in performance. Press-in piling work has been shifted from a physically trained experience field to a logically progressed scientific field. The difference between manual operation and automatic operation is illustrated in the press-in data to the right.

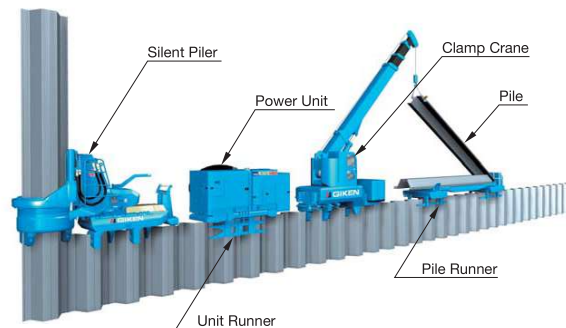


# GRB System (GIKEN Reaction Base System)

Utilizing the principle of reaction force, all necessary equipment for the piling operation can be supplied on the pile line and the press-in work progresses along the pile line from the start to finish without the need for external staging. Specialized machinery was designed, developed and systemized into the integrated GRB System, which enables the piling operation to be carried out with ease over water, on embankment slopes and along very confined or restricted sites where normal piling rigs or service cranes can not gain access.



Huntington beach, California, U.S.A.



## Standard Equipment

### Silent Piler



ECO700S



ECO1400S

### Power Unit

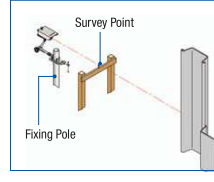


EU300G3

### Reaction Stand



### Pile Laser



### Hose Roller



### Chuck Step



### Press-in Monitoring System



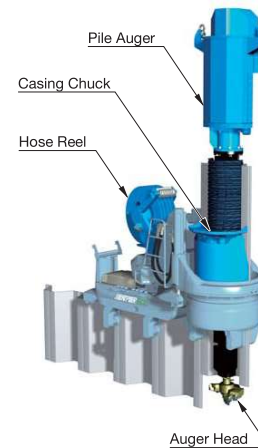
### Chucking Attachment for U piles

for ECO700S only



## Optional Accessories

### Super Crush System



### Piler Jet Reel

for ECO700S



JR22

for ECO1400S



JR26

### Operation Deck



### Piler Jet Unit



PJ3

### Washing Apparatus



### WU Chuck

for ECO1400S only



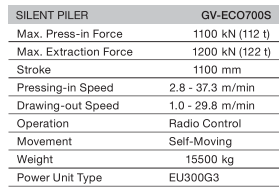
Standard Mode

Reaction Stand



### Washing Apparatus (Optional)

### Multi Box (Optional)



Power Unit	EU300G3
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Washing Apparatus	
Water tank	200 L
Weight	320 kg

Piler Jet Reel	JR22
Jet hose	Piler ECO Hose
Hose length	Standard 22 m (Max.32 m)
Sheet pile length	Standard 17 m (Max.27 m)
Jet water volume	Max. 700 L/min
Jet water pressure	Max. 15.0 MPa (153 kgf/cm <sup>2</sup> )
Weight (including the standard length of Piler ECO Hose)	780 kg

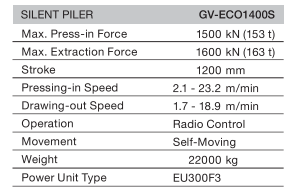
SILENT PILER	GV-ECO700S (Super Crush Mode)
Max. Press-in Force	800 kN (81t)
Max. Extraction Force	1200 kN (122 t)
Stroke	1100 mm
Pressing-in Speed	0.5 - 4.5 m/min
Drawing-out Speed	0.7 - 3.1 m/min
Weight (including Casing Chuck & Hose/Reel)	18300 kg

Pile Auger	PA16
Auger torque	28 - 62 kN.m
Rotation Speed	10 - 35 min <sup>-1</sup>
Sheet pile length	Max. 21 m
Auger Motor Weight	2000 kg
Total Pile Auger Weight (for 21 m pile)	11000 kg

Casing Chuck	OP113
Down Force	375 kN (38 t)
Up Force	500 kN (51 t)
Stroke	500 mm
Down Speed	Max. 11.3 m/min
Up Speed	Max. 8.4 m/min
Weight	800 kg

Hose Reel	HR10
Weight	2600 kg

SILENT PILER

Piler Jet Reel JR26

Jet hose	Piler ECO Hose
Hose length	Standard 22 m (Max.32 m)
Sheet pile length	Standard 16 m (Max.26 m)
Jet water volume	Max. 700 L/min×2
Jet water pressure	Max. 15.0 MPa (153 kgf/cm <sup>2</sup> )
Weight (including the standard length of Piler ECO Hose)	1350 kg

SILENT PILER	GV-ECO1400S (Super Crush Mode)
Max. Press-in Force	1200 kN (122 t)
Max. Extraction Force	1600 kN (163 t)
Stroke	1200 mm
Pressing-in Speed	0.5 - 3.1 m/min
Drawing-out Speed	0.7 - 3.0 m/min
Weight (including Casing Chuck & Hose/Reel)	26950 kg

Pile Auger	PA12
Auger torque	70 - 100 kN·m
Rotation Speed	4 - 22 min <sup>-1</sup>
Sheet pile length	Max.21 m
Auger Motor Weight	2600 kg
Total Pile Auger Weight (for 21 m pile)	18400 kg

Casing Chuck	OP109
Down Force	560 kN (57 t)
Up Force	750 kN (77 t)
Stroke	600 mm
Down Speed	Max. 7.7 m/min
Up Speed	Max. 5.8 m/min
Weight	2600 kg

Hose Reel	HR6
Weight	2700 kg

Plier Jet	PJ3
Power source	EU300G3
Jet pump feed volume	Max. 600 L/min
Jet pump feed pressure	Max. 10 MPa
Tank capacity	1800 L
Generator	25 KVA
Crawler	1.4 km/h
Weight (when Tank is empty)	4000 kg

Specifications are subject to alteration without prior notice.