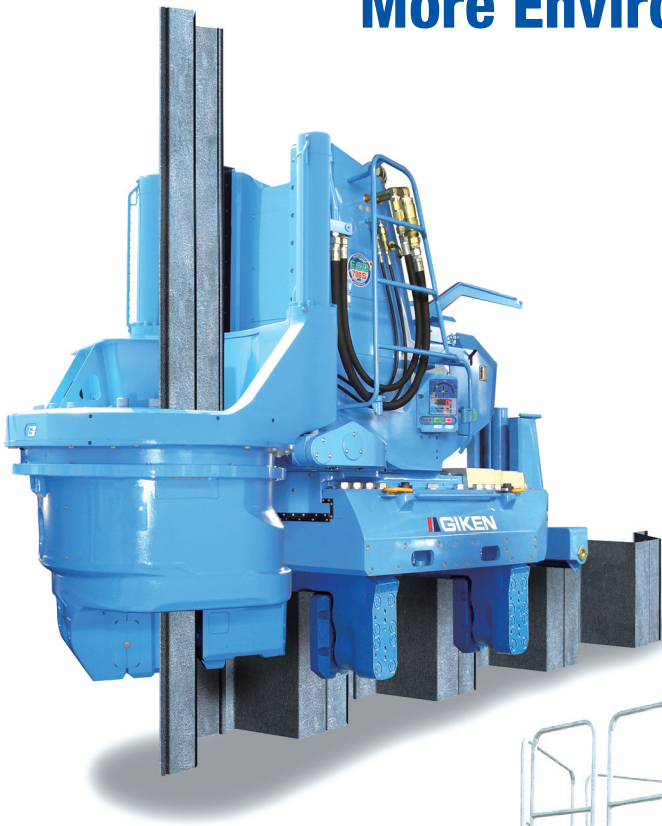


New

SILENT PILER[®]

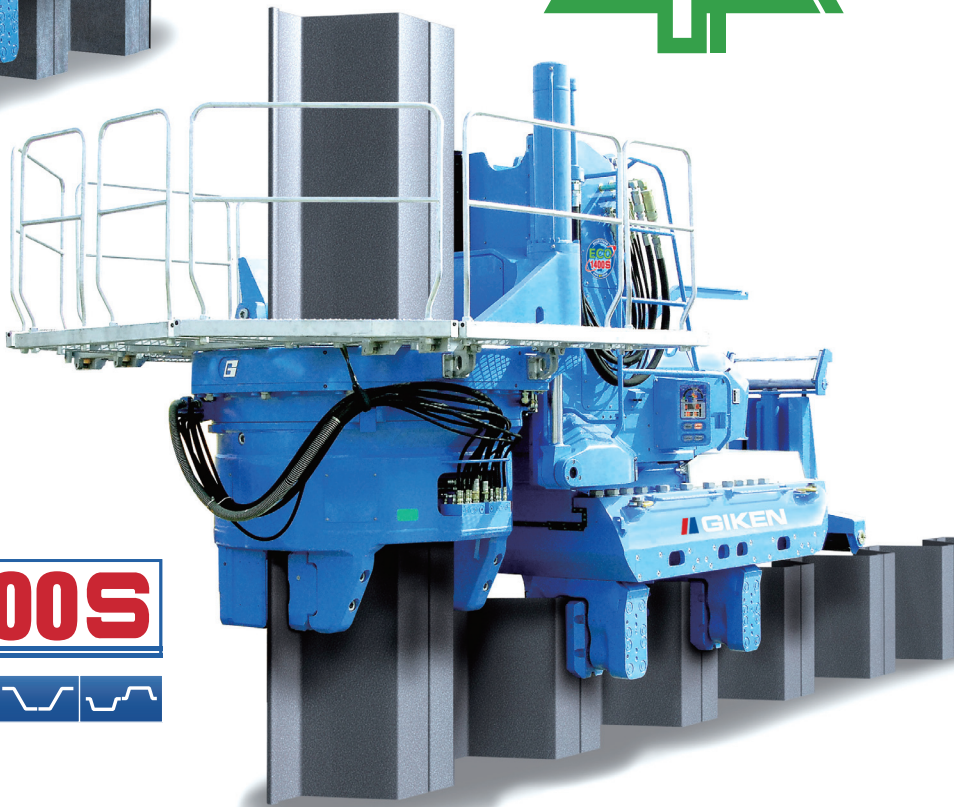
for Wider Z & U Sheet Piles and
More Environmentally-Friendly Piling

SILENT PILER ECO700S / 1400S



SILENT PILER **ECO700S**

 for Single piles



SILENT PILER **ECO1400S**

for Double piles



 **GIKEN**

The Evolved Silent Piling Technologies

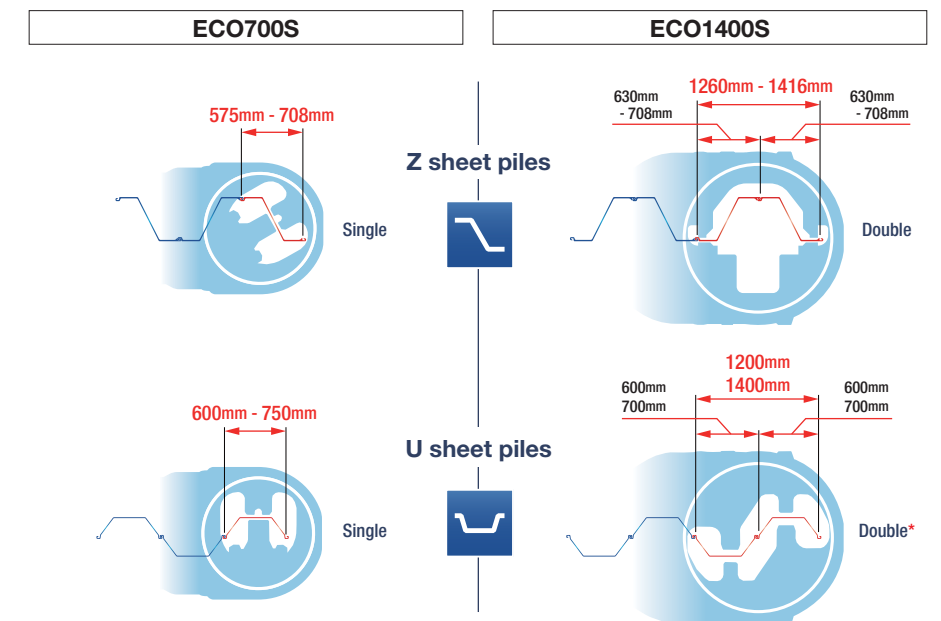
Environment Conscious Operation and Higher Performance for Sustainable Construction

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"

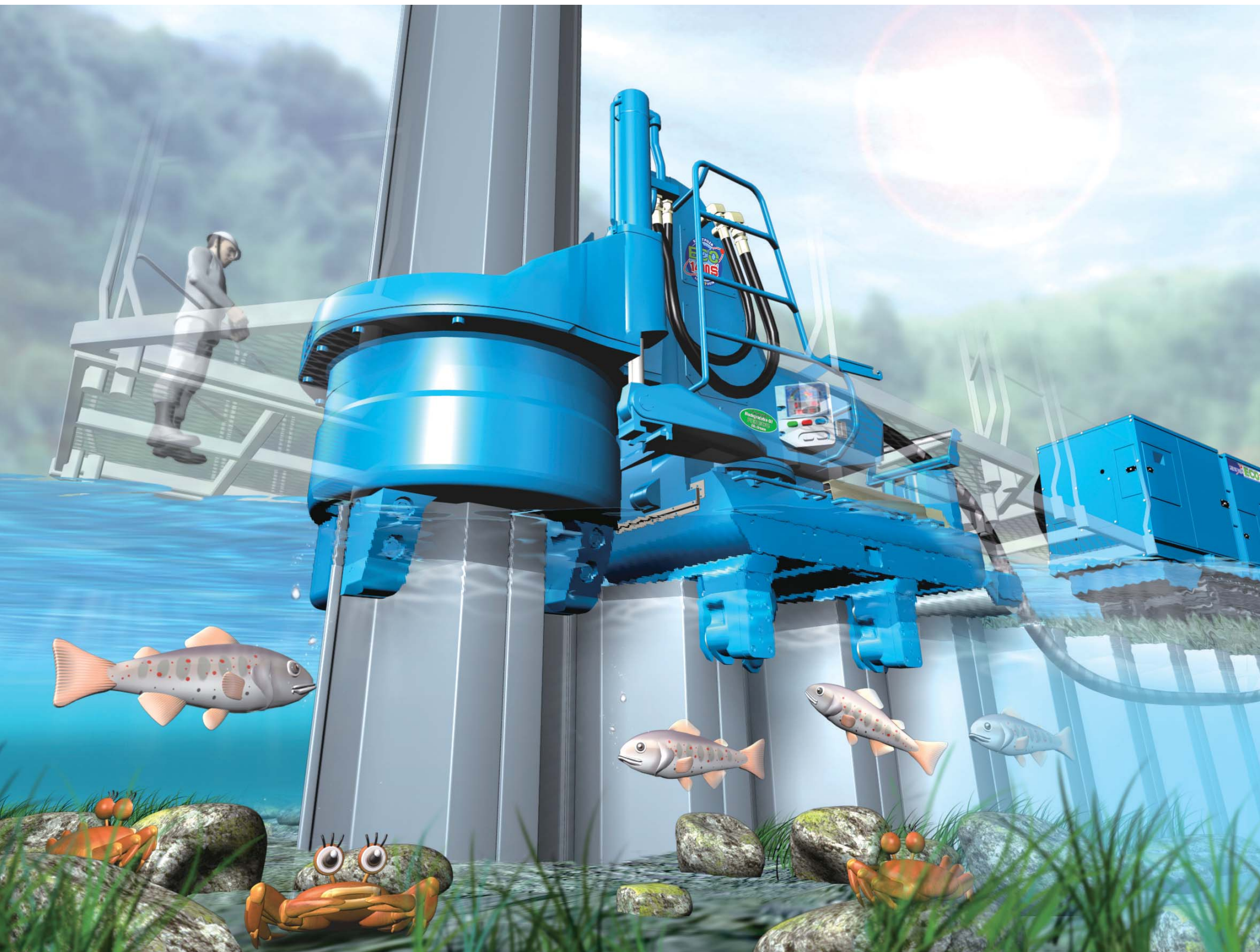
In order to protect the environment Giken has co-developed a biodegradable hydraulic oil and grease with one of the leading Japanese oil companies, called Piler ECO Oil and Piler ECO Grease. The Piler ECO Oil and Grease are made mainly from a fatty acid vegetable oil. They both exhibit not only high 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.



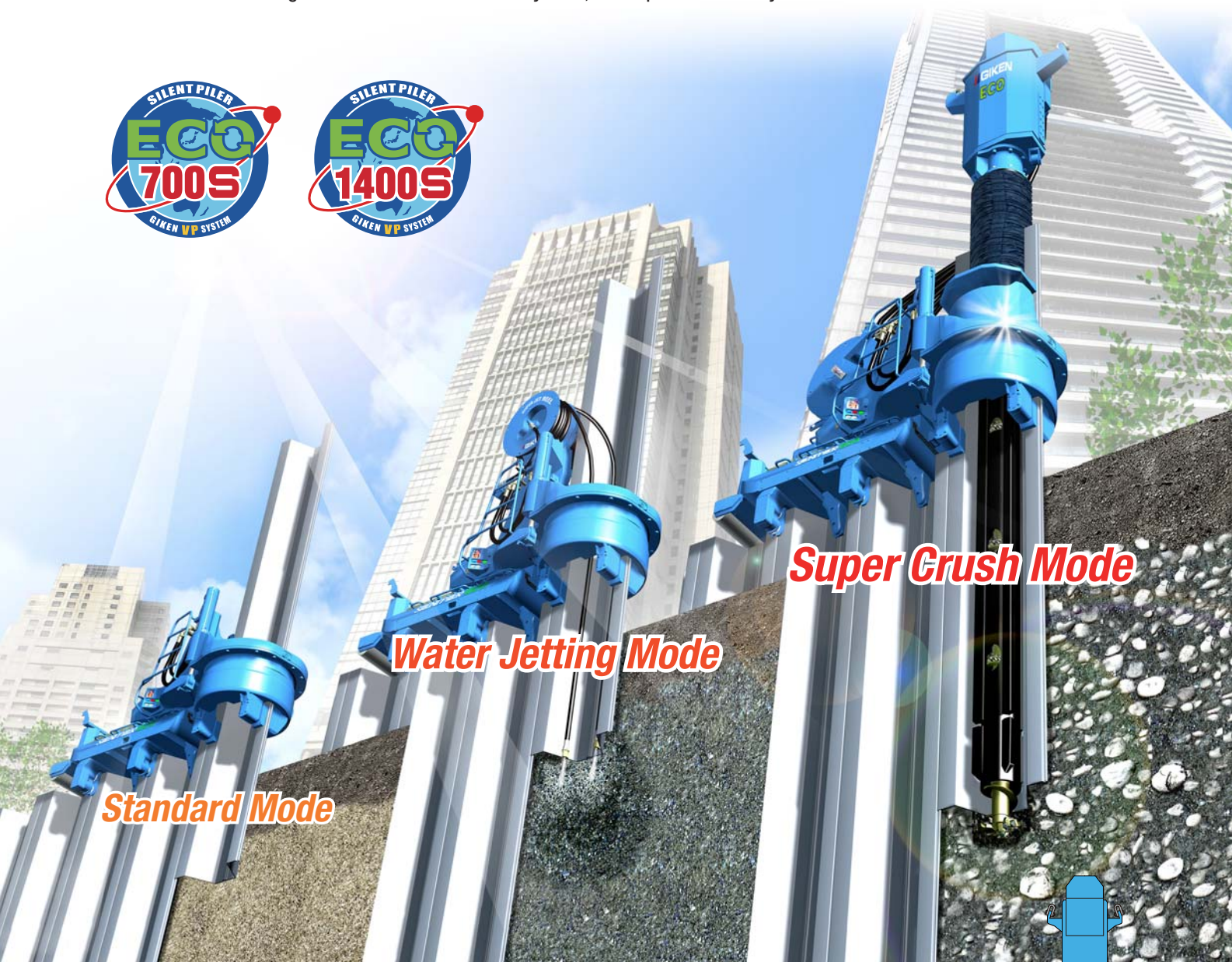
Use of Environmentally-friendly Paint

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



GIKEN VP SYSTEM (Versatile Penetration)

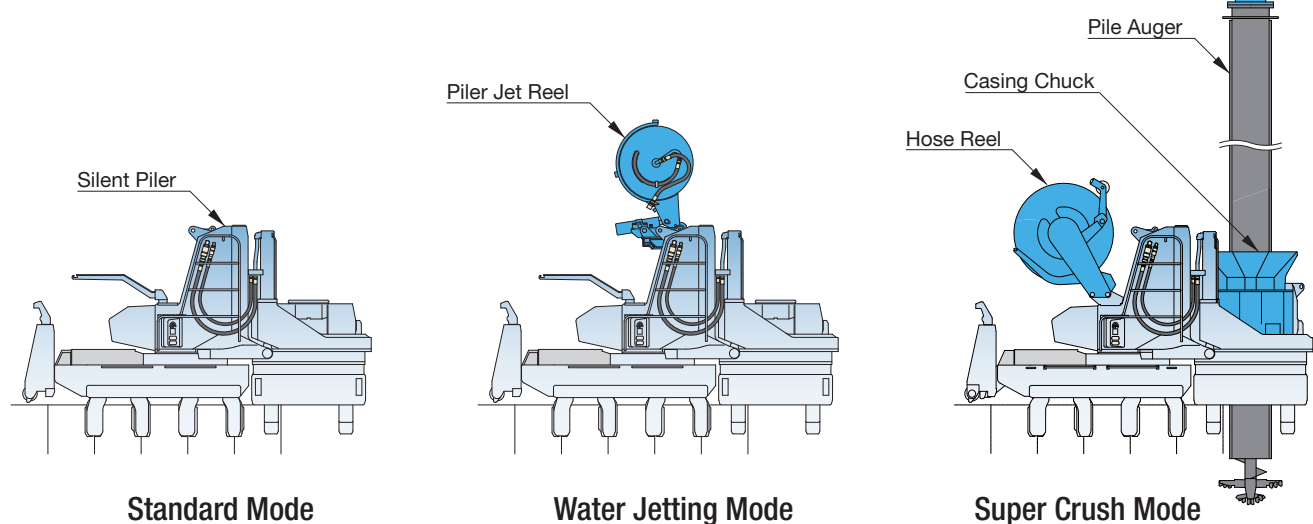
The new Silent Piler EC0700S and EC01400S provide greater performance in various ground conditions and site environments through the Versatile Penetration system, with optional auxiliary accessories.



Standard Mode

Water Jetting Mode

Super Crush Mode



Standard Mode

Water Jetting Mode

Super Crush Mode

Optional Functions for Difficult Ground Conditions

■ Super Crush System

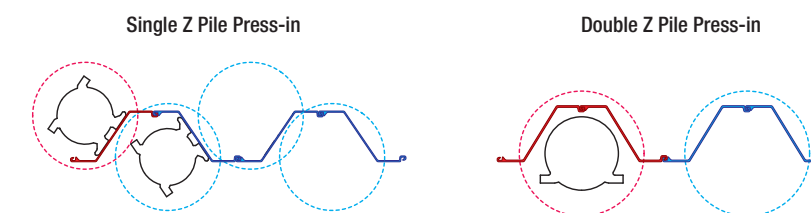
The new Silent Piler can be equipped with an integral auger system to enable all the advantages of the Press-in Method to be adopted in difficult subsoil conditions. Gripping the auger casing along with a set of press-in piles, hard soil just below the pile toe is loosened by augering. Effective reduction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

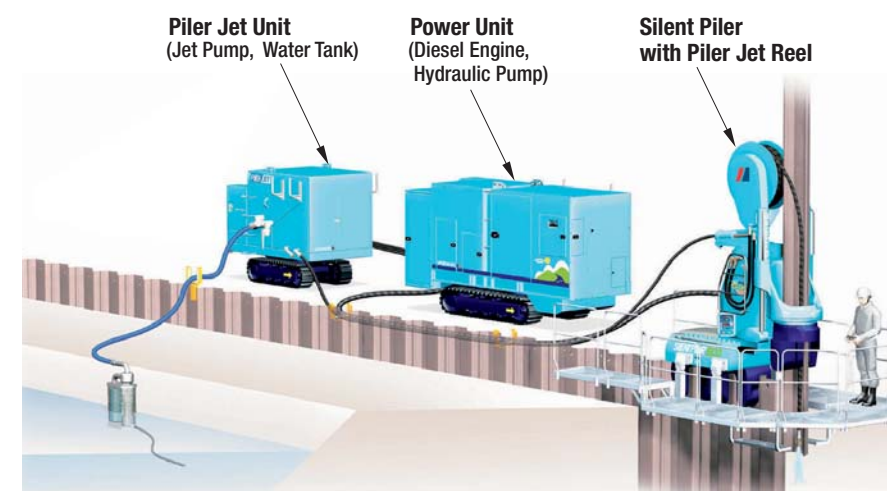


Augering Dimension



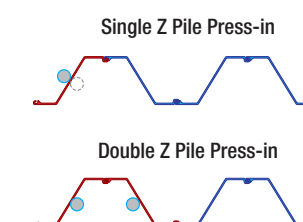
■ Piler Jet System

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

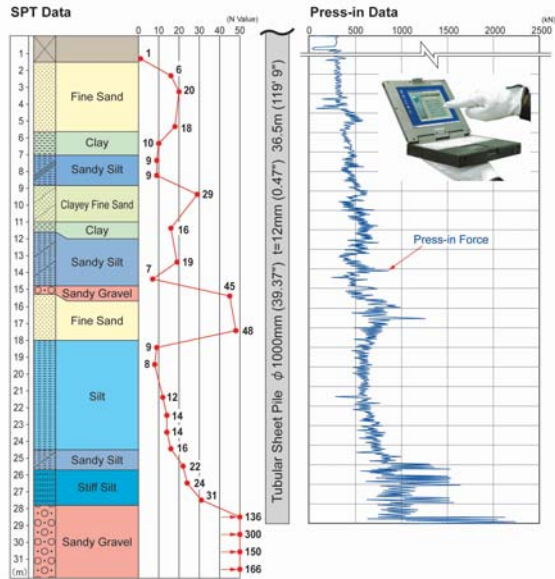
Using the Press-in Quality Control System, any valuable information for quality assurance, such as press-in force, skin friction, toe resistance, penetration depth and performance time, is available from an on-board computer in real time. All measurements are useful to recognize abnormal factors underground 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

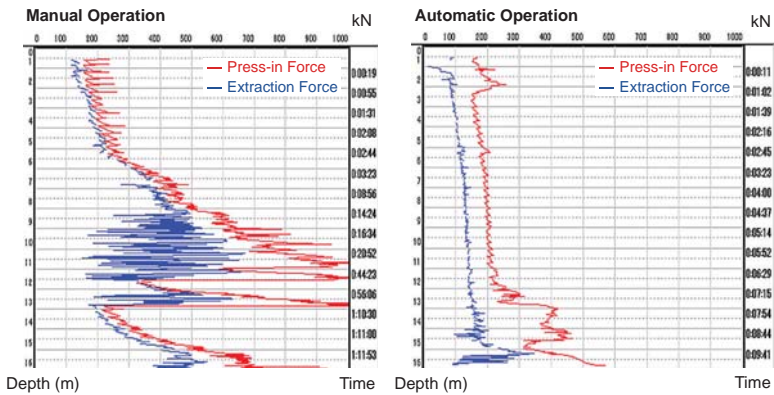


Automatic monitoring of piling conditions by an on-board computer



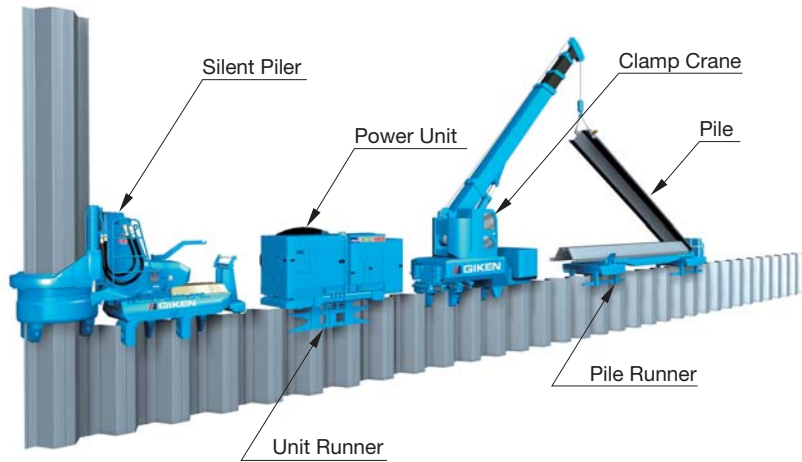
■ Automatic Press-in Operation System for the Most Efficient Performance

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.



Standard Equipment

Silent Piler ECO700S ECO1400S	Power Unit EU300G3	Reaction Stand
Pile Laser Survey Point Fixing Pole	Hose Roller 	Chuck Step
Press-in Monitoring System 	Chucking Attachment for U piles for ECO700S only 	

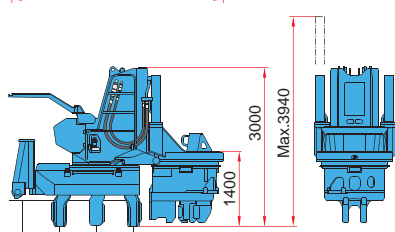
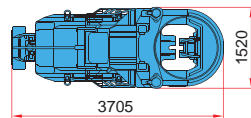
Optional Accessories

Super Crush System Pile Auger Casing Chuck Hose Reel Auger Head	Piler Jet Reel for ECO700S: JR22 for ECO1400S: JR26 	Operation Deck
Piler Jet Unit PJ3	Washing Apparatus 	WU Chuck for ECO1400S only

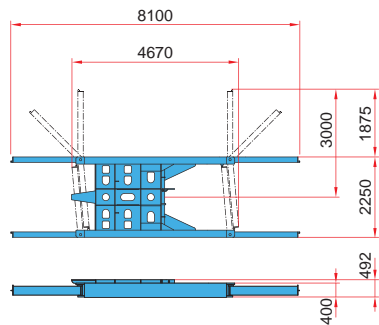
Specifications

Standard Mode

SILENT PILER



Reaction Stand



SILENT PIER ECO700S

SILENT PILER	GV-ECO700S
Max. Press-in Force	1100 kN (112 t)
Max. Extraction Force	1200 kN (122 t)
Stroke	1100 mm
Pressing-in Speed	2.8 - 37.3 m/min
Drawing-out Speed	1.0 - 29.8 m/min
Operation	Radio Control
Movement	Self-Moving
Weight	15500 kg
Power Unit Type	EU300G3

Reaction Stand	
Weight	2800 kg

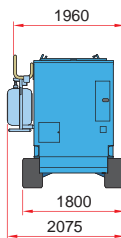
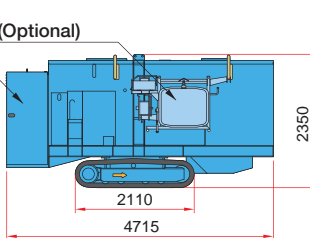
Power Unit	EU300G3
Power Source	Diesel Engine
Rated Output	Power Mode 230 kW / 1800 min ⁻¹ Eco Mode 204 kW / 1600 min ⁻¹
Fuel Tank	500 L
Piler Eco Oil	630 L
Moving Speed	1.4 km/h
Weight	7780 kg

Washing Apparatus	
Water tank	200 L
Weight	320 kg

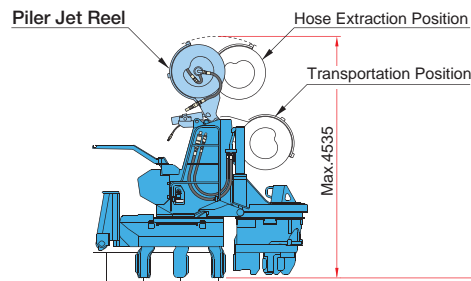
Power Unit

Washing Apparatus (Optional)

Multi Box (Optional)

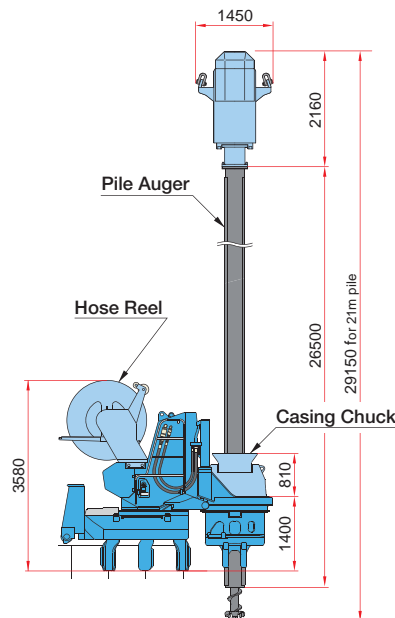


Water Jetting Mode



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 ²)
Weight (including the standard length of Piler ECO Hose)	780 kg

Super Crush Mode



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 & HoseReel)	18300 kg

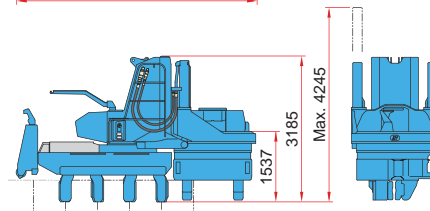
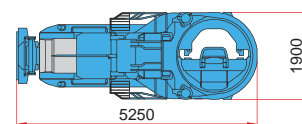
Pile Auger	PA16
Auger torque	28 - 62 kN·m
Rotation Speed	10 - 35 min ⁻¹
Sheet pile length	Max. 21 m
Auger Motor Weight	2000 kg
Total Pile Auger Weight (for 21 m pile)	11000 kg

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

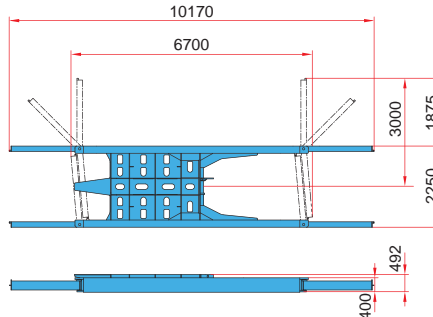
Hose Reel	HR10
Weight	2600 kg

Standard Mode

SILENT PILER



Reaction Stand

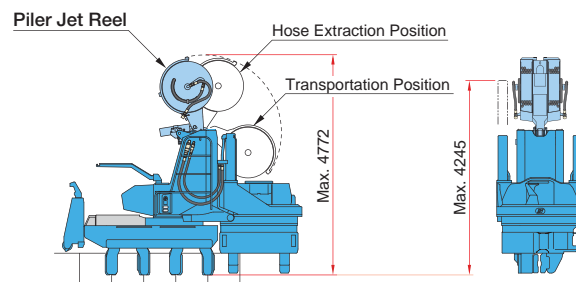


SILENT PIER ECO1400S

SILENT PILER	GV-ECO1400S
Max. Press-in Force	1500 kN (153 t)
Max. Extraction Force	1600 kN (163 t)
Stroke	1200 mm
Pressing-in Speed	2.1 - 23.2 m/min
Drawing-out Speed	1.7 - 18.9 m/min
Operation	Radio Control
Movement	Self-Moving
Weight	22000 kg
Power Unit Type	EU300F3

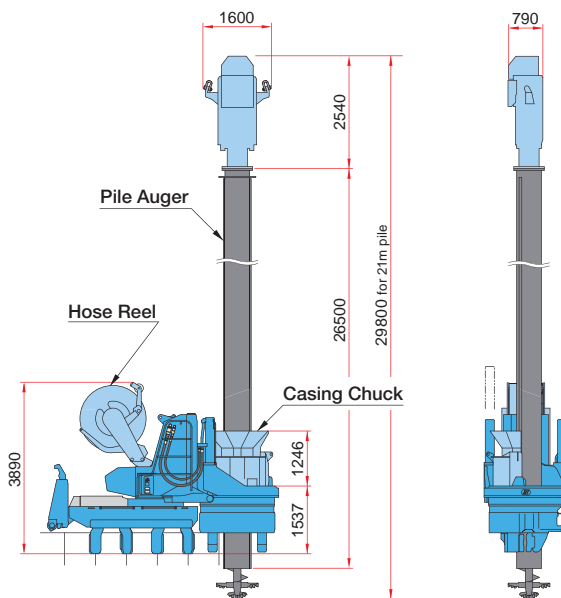
Reaction Stand	
Weight	3800 kg

Water Jetting Mode



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 ²)
Weight (including the standard length of Piler ECO Hose)	1350 kg

Super Crush Mode



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 & HoseReel)	26950 kg

Pile Auger	PA12
Auger torque	70 - 100 kN·m
Rotation Speed	4 - 22 min ⁻¹
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

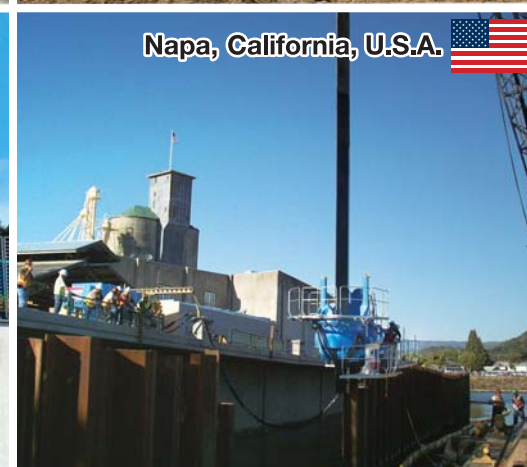
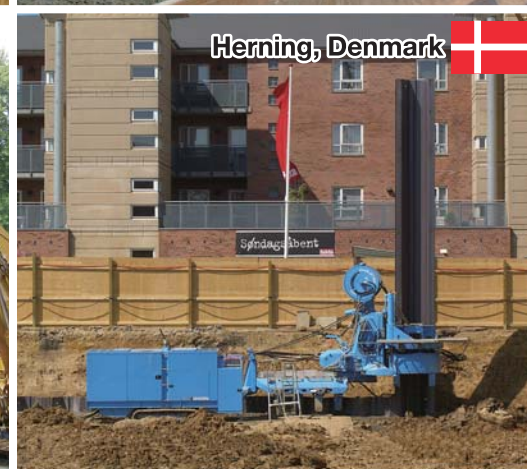
Hose Reel	HR6
Weight	2700 kg

PILER JET

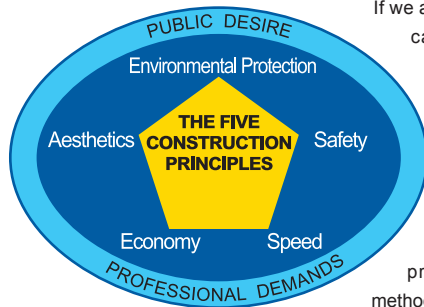
Piler Jet	PJ3
Power source	EU300G3
Jet pump feed volume	Max. 600 L/min
Jet pump feed pressure	Max. 10 MPa
Tank capacity	1800 L
Generator	25 KVA
Crawler	1.4 km/h
Weight (when Tank is empty)	4000 kg

Specifications are subject to alteration without prior notice.

Press-in Achievement



THE FIVE CONSTRUCTION PRINCIPLES



If we analyse all the parties involved in any construction work, we can categorise them into three main groups: the client, the contractor and the general public. The ideal situation is when all three parties are in agreement and satisfied with the successful outcome of the construction work. Problems arise when one of the parties becomes a victim of imbalance in this relationship. The conventional construction methods based upon principles that "more is paid for less efficient work" are no longer appropriate to present-day society. Universally acceptable construction methods must embody the Five Construction Principles.

Environmental Protection	Construction work should be environmentally friendly and free from pollution.
Safety	Construction work has to be carried out in safety and comfort with a method implementing the highest safety criteria.
Speed	Construction work should be completed in the shortest possible period of time.
Economy	Construction work must be done rationally with an inventive mind to overcome all constraints at the lowest cost.
Aesthetics	Construction work must proceed smoothly and the finished product should portray cultural and artistic flavour.

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