

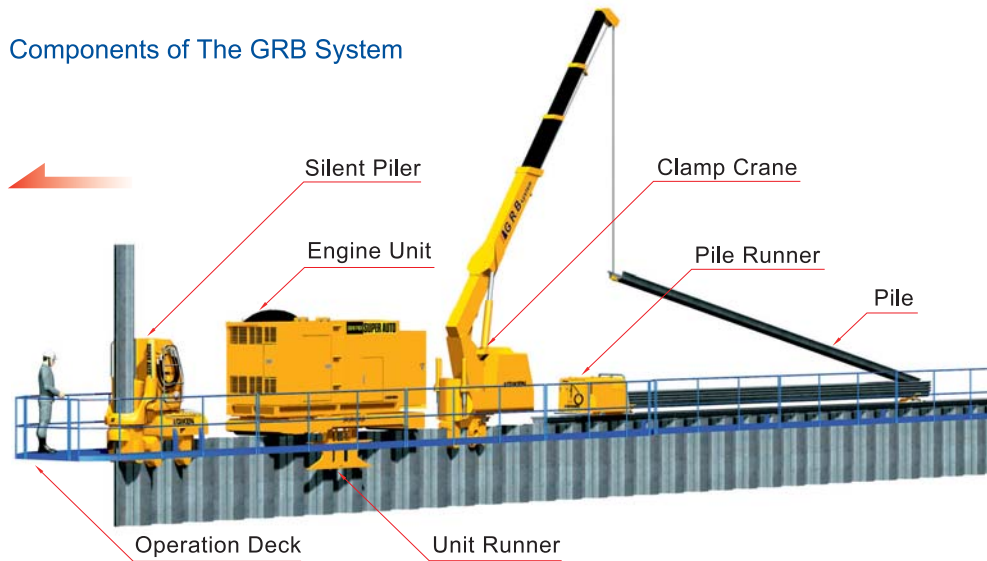


# GRB System (Giken Reaction Base System)

## Utilizing Superiority of The Reaction Based Principle

Utilizing the principle of reaction force, all equipment for the piling operation can be supplied and operated from the top of the pile wall without the need for external staging. Specialized machinery was designed, developed and systemized into the integrated GRB System, which enables the whole 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. It is possible to reduce the overall costs of a project significantly by eliminating the enormous cost of temporary facilities and works as well as shortening the project duration and reducing labour costs. The GRB System provides solutions most beneficial to the overall planning of construction projects due to the advantages of the press-in principle and systemized silent piling technologies even under various site restrictions and adverse conditions, such as limited access, overhead obstruction and geological difficulties.

### Main Components of The GRB System



## GRB Equipment

With the GRB equipment and devices, all moving, pitching, and pressing-in of piles is systematically carried out from the top of fully installed piles. Thereby the GRB System completely abolishes problems associated with the necessity for temporary facilities and works once and for all. The most common GRB equipment out of a full range of the systemized machinery is shown below.

### Clamp Crane



Capacity	2.9 t	7 t	10 t	20 t	25 t	50 t	160 t
<b>U Profile</b>	CB1A CB1-6 CB1-7	CB2-3 CB2-4 CB2-5	CB2-6 CB2-8				
<b>Tubular</b>	CB1-7	CB2-3	CB2-6	CB3-1 CB3-2		CB4-1	CB5-1
<b>Zero</b>	CB1-7						
<b>H Profile</b>					CB3-3		
<b>Concrete (Flat)</b>	CB1-6						

### Pile Runner



5 t
TB3 PR1
TB4
TB3 PR1

### Auxiliary GRB Equipment



Operation Deck

Unit Runner

Y Boom

Clamp Clamshell

Clamp Shovel

Pile Loading Base

Rail Safe System