

STERLING TECHNOLOGY

SELLING POINTS FOR STERLING PRODUCTS

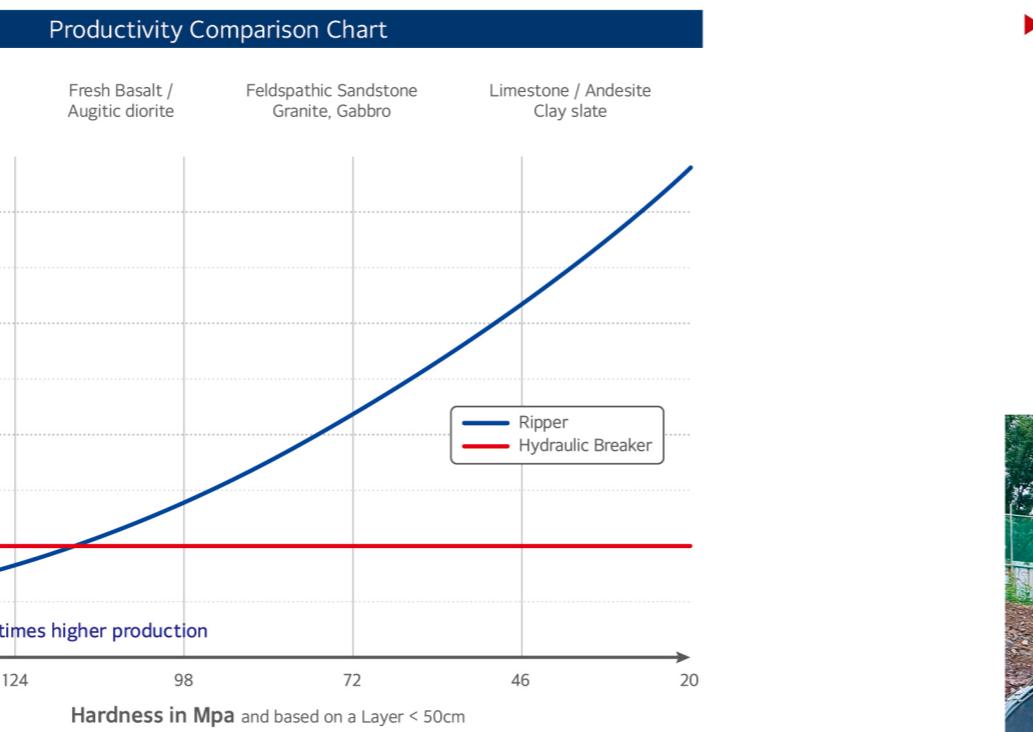
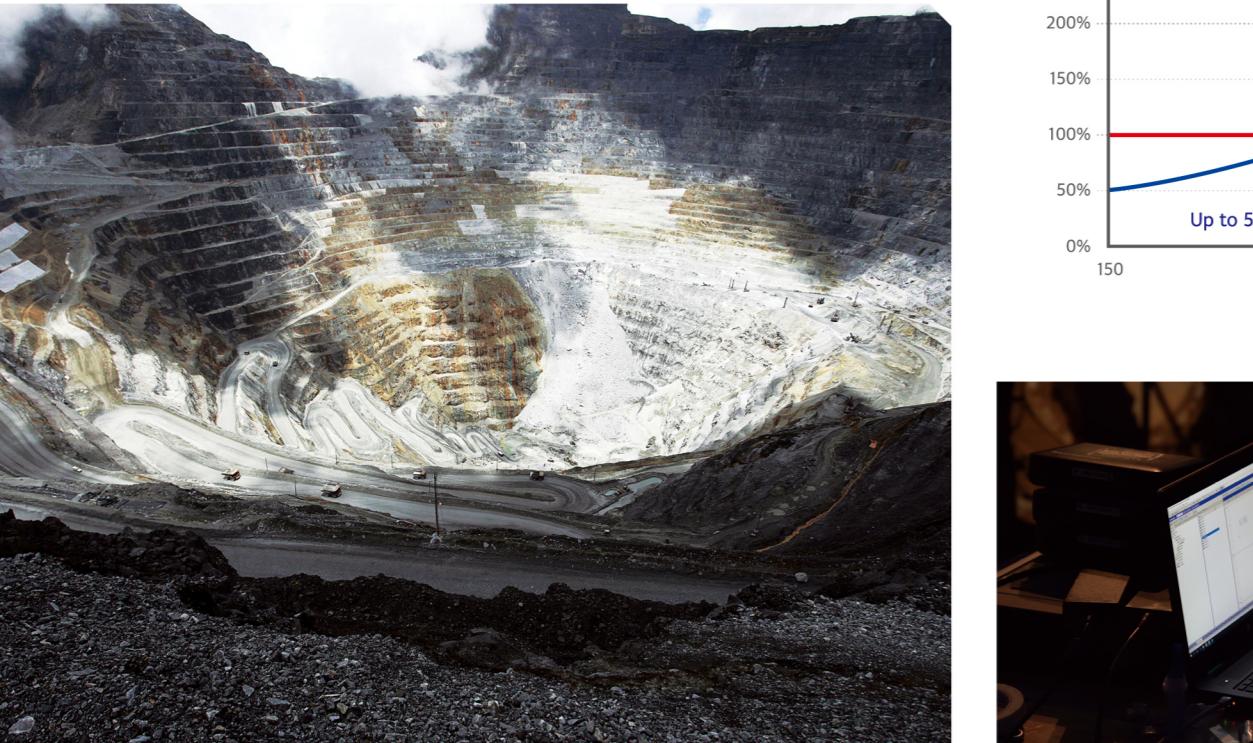




HYD. BREAKER vs VIBRATORY RIPPER

► Vibratory Ripper's advantages compared to Hyd. Breaker

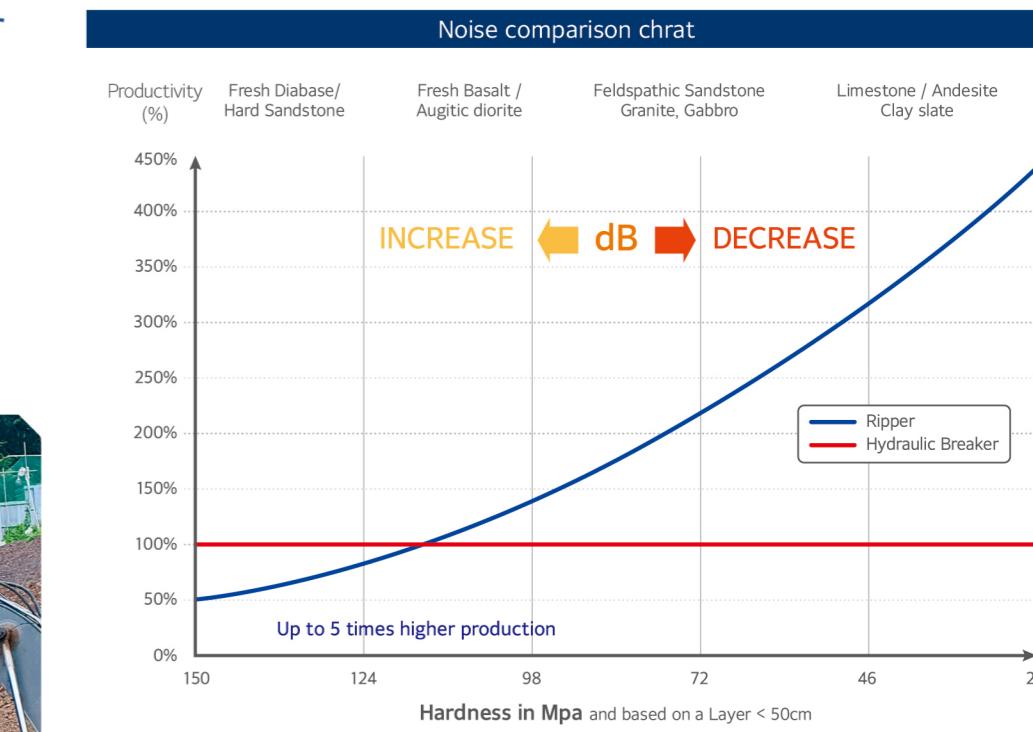
- Higher productivity than hydraulic breaker
 - Up to 5 times higher productivity than hyd. breaker at less hardness rock formation
 - The bigger class of Ripper, the higher productivity
 - The less hard rock formation, the higher productivity
 - Constant high bpm by vibratory power



HYD. BREAKER vs VIBRATORY RIPPER

► Vibratory Ripper's advantages compared to Hyd. Breaker

- Higher productivity than hydraulic breaker
 - 10~30% less noise than hyd. Breaker
 - Less noise (under 90dB) than silent hyd. Breaker
 - The less hard rock formation, the less noise
 - Minimizing noise at job site allows demolition work in downtown or noise restricted area



HYD. BREAKER vs VIBRATORY RIPPER

► Vibratory Ripper's advantages compared to Hyd. Breaker

- Under water operation without special devices
 - All kinds of work under water can be done without any expensive and complicated preparations.
 - No need to invest on renting or purchasing air compressors. ex) USD150 ~ 450 per day
 - No need to spend fuel cost for air compressors. ex) 50liter diesel per hour x 8 hours = USD400 ~ 500 per day

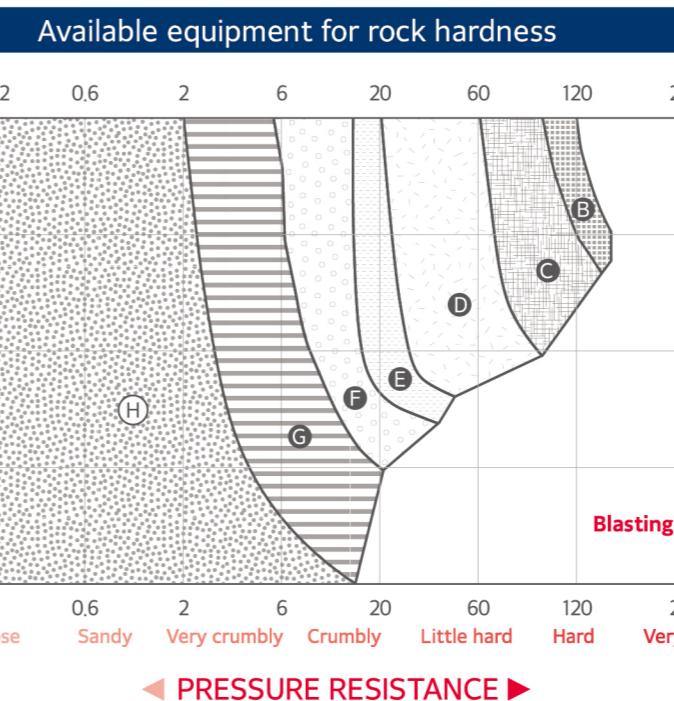


Air Compressor

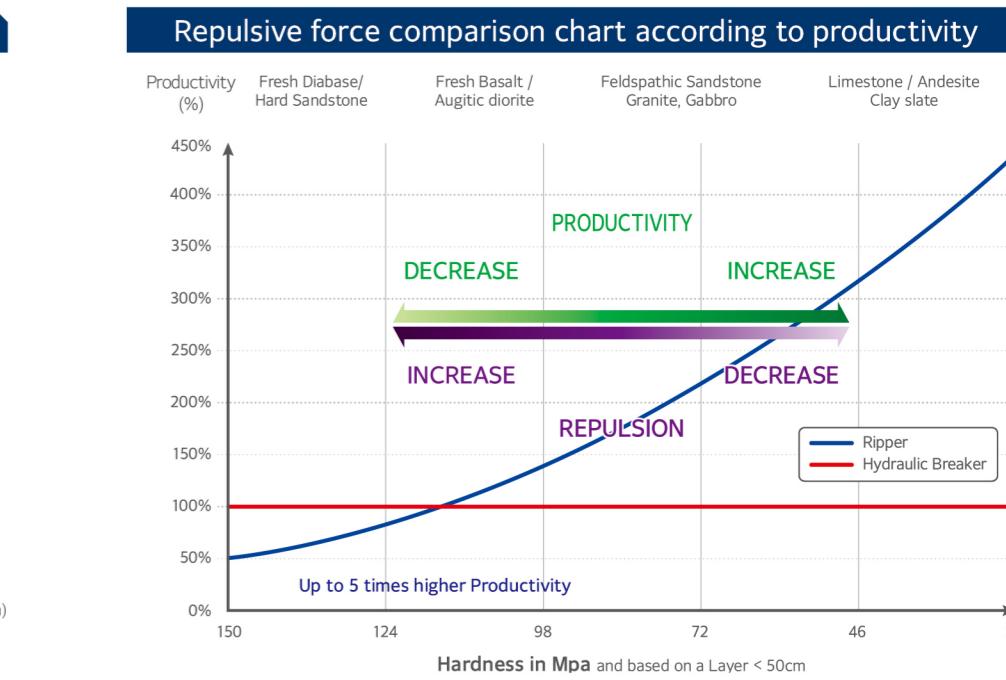
HYD. BREAKER vs VIBRATORY RIPPER

► Vibratory Ripper's draw back compared to Hyd. Breaker

- Lower productivity than hydraulic breaker at hard-rock job sites
- Frequent breakdown in operation at hard-rock job sites due to repulsion energy and constant fatigue to links and bearings of Ripper
- Impact or damage to excavator and increasing operator's fatigue due to vibration and repulsion transmitted to the excavator and the operator



Model	B	C	D	E	F	G
Hyd. Breaker	•	•	•	•	•	•
Sterling Ripper	•	•	•	•	•	•
Vibro Ripper		•	•	•	•	•
Dozer			•	•	•	•
Bucket						•





HYD. BREAKER vs VIBRATORY RIPPER

► Solution of Sterling Ripper for Vibratory Ripper's drawback

- Solution for lower productivity than hydraulic breaker at hard-rock job sites

Solution	How to do & Effect
Maximize vibration power	<ul style="list-style-type: none"> - Change the size of eccentric weights and hyd. motor to maximize centrifugal force - Change the shape of eccentric weights to maximize centrifugal force - Optimize correlation between hyd. motor and eccentric weights - Maximize durability of components which can withstand extra impact due to power increase
Selective tool options -Two tools for one Ripper	<ul style="list-style-type: none"> - Chisel type for hard rock and Tooth type for Soft & mid hard rock - Two optional tools enables Sterling Ripper to offer wider selections of application than competitors at rock breaking job sites



STERLING RIPPER'S ROBUST
GENUINE BEARINGS



VIBRATORY RIPPER vs STERLING RIPPER

► Solution of Sterling Ripper for Vibratory Ripper's drawback

- Solution for frequent breakdown in operation at hard-rock job sites due to repulsion energy and constant fatigue to links and bearings of Ripper
- Solution for impact or damage to excavator and increasing operator's fatigue due to vibration and repulsion transmitted to the excavator and the operator

Solution	How to do & Effect
Cartilage-link structure	<ul style="list-style-type: none"> - Use damper cushions with a link instead of bearings with the links to get less repulsion, less noise and no chance of link bearing break & easy on-site maintenance
Centered double eccentric weights	<ul style="list-style-type: none"> - Unique design of centered double eccentric weights allow better durability of bearings



VIBRATORY RIPPER vs STERLING RIPPER

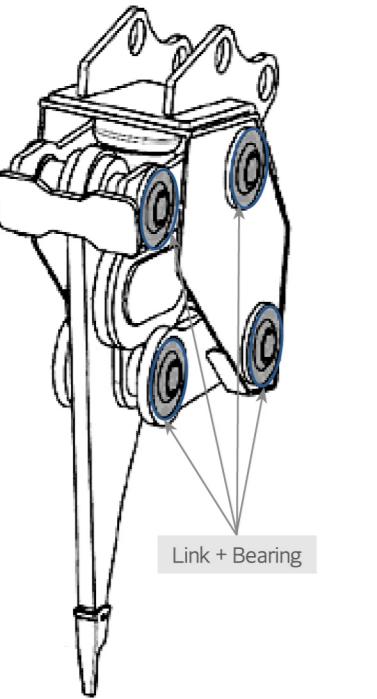
► Solution of Sterling Ripper for Vibratory Ripper's drawback

Solution	How to do & Effect
Cartilage-link structure	- Use damper cushions with a link instead of bearings with the link to get less repulsion, less noise and less chance of link bearing broken & easy on-site maintenance

Conventional Ripper

Main drawback of the link bearing structure

The links and bearings break easily working at hard-rock job sites and Ripper should be sent to maintenance shop to fix it. It takes a lot time and cost which affect total operating cost eventually

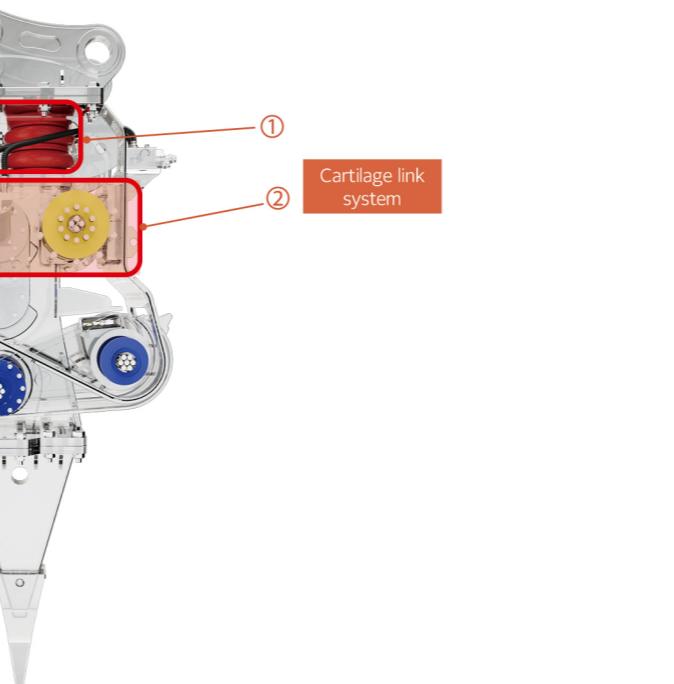


VS

Sterling Ripper

Main advantage of the cartilage link type

Sterling Ripper has adopted damper cushions with a link type instead of link bearing type. It is a very simple process of replacing cushions by simple unscrewing and screwing covers on-site, which allows can save a huge down time and maintenance cost



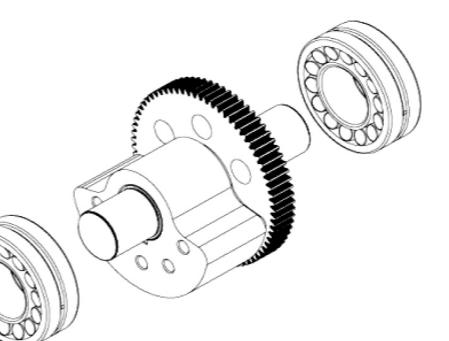
Cartilage link system

Component 1	Double Air Spring
Component 2	Rubber Thrust

VIBRATORY RIPPER vs STERLING RIPPER

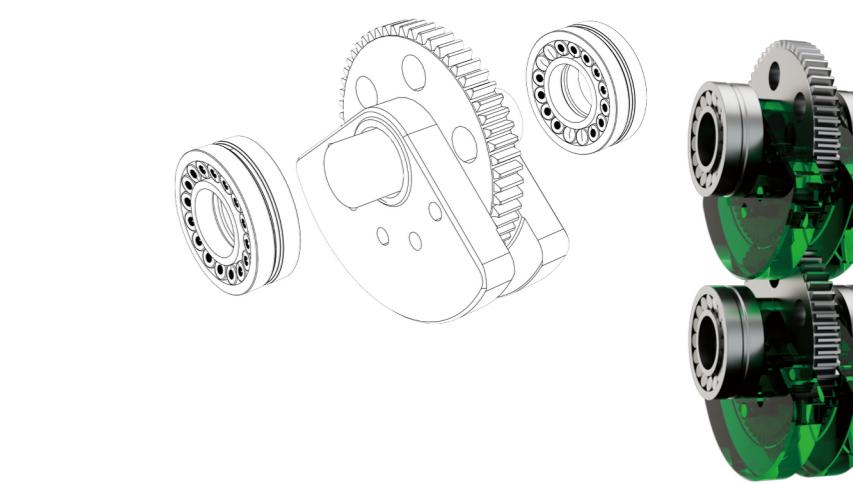
► Solution of Sterling Ripper for Vibratory Ripper's drawback

Conventional Ripper's bearings



VS

Sterling Ripper's bearings



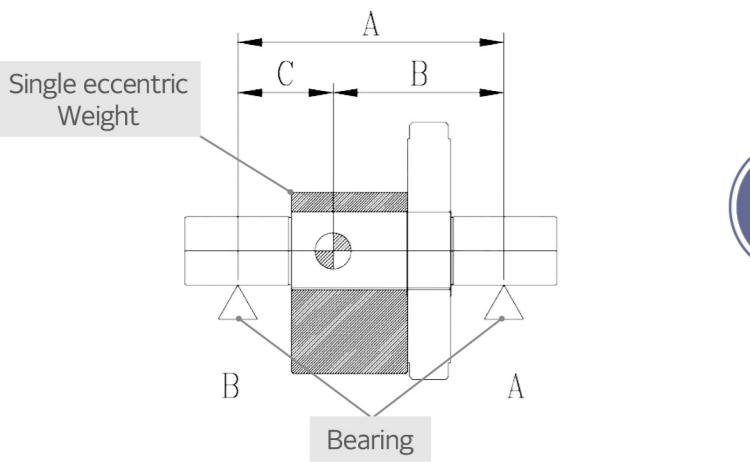
	Conventional Ripper's bearings	Sterling Ripper's bearings
Advantages	-	<ul style="list-style-type: none"> High vibratory power at the same size of bearing At least two times longer lifetime of bearings Higher durability at hard-rock job site

VIBRATORY RIPPER vs STERLING RIPPER

► Solution of Sterling Ripper for Vibratory Ripper's drawback

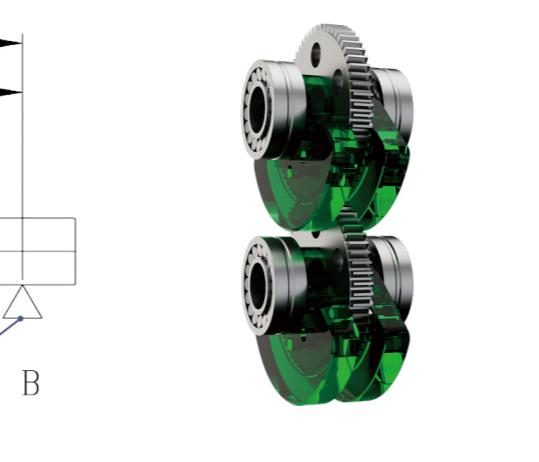
Solution	How to do & Effect
Centered double eccentric weights	- Unique design of centered eccentric weights allow better durability of bearings

Conventional Ripper's eccentric weights



VS

Sterling Ripper's eccentric weights



	Conventional Ripper's bearings	Sterling Ripper's bearings
Distance from axis A	$A=B+C$, $B > C$	$A=B+C$, $B = C$
Center of gravity	B and $C \neq A/2$	B and $C = A/2$
Weight distribution	"Bearing B" has more weight than "bearing A"	Weight of "A bearing" and "B bearing" is the same
Effect	Life time of both "A bearing" and "B bearing" is shorten due to imbalance of their weight	Longer life time of both "A bearing" and "B bearing"

VIBRATORY RIPPER vs STERLING RIPPER

► Solution of Sterling Ripper for Vibratory Ripper's drawback

- Solution for lower productivity than hydraulic breaker at hard-rock job sites - By Chisel type of SterlingRipper
- Sterling Ripper offers three options in **Tooth type** for soft & medium hard-rock, **Chisel type** for hard-rock, and **Compactor type** for compacting ground. You can simply change it at site any time depending on rock types and various application!

Tooth Type



Chisel type



Tip type



Compactor Type



VIBRATORY RIPPER vs STERLING RIPPER

► Summary of Sterling Ripper's selling point

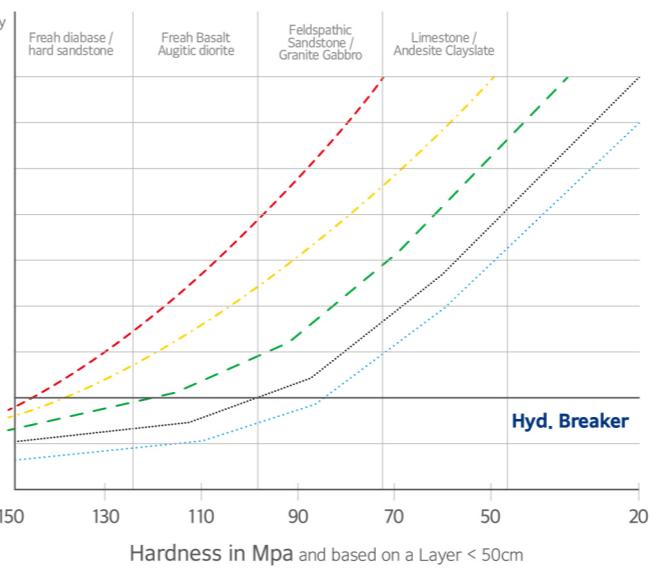
Feature	How to do & Effect
Optimum shape and size of Sterling Ripper's eccentric weights	- Maximize vibration power by optimizing centrifugal force
Selective tool options - Three tools for one Ripper	- Chisel type for hard rock, Tooth type for Soft & mid hard rock and Compactor type for compacting ground - Three optional tools enables Sterling Ripper to offer wider selections of application than competitors at rock breaking job sites and compacting ground - It can be simply replaced on site as occasion demands
Unique Cartilage-link structure of Sterling Ripper	- Easy maintenance - On site parts replacement - Concise structure of components - Maximize vibration power by optimizing centrifugal force - Minimizing vibration transmitted to excavator and operator even at hard-rock - Minimizing noise (15% ~ 20% lower noise than traditional vibratory ripper) - Low maintenance
Centered double eccentric weights	- Unique design of centered double eccentric weights allow better durability of bearings



VIBRATORY RIPPER vs STERLING RIPPER

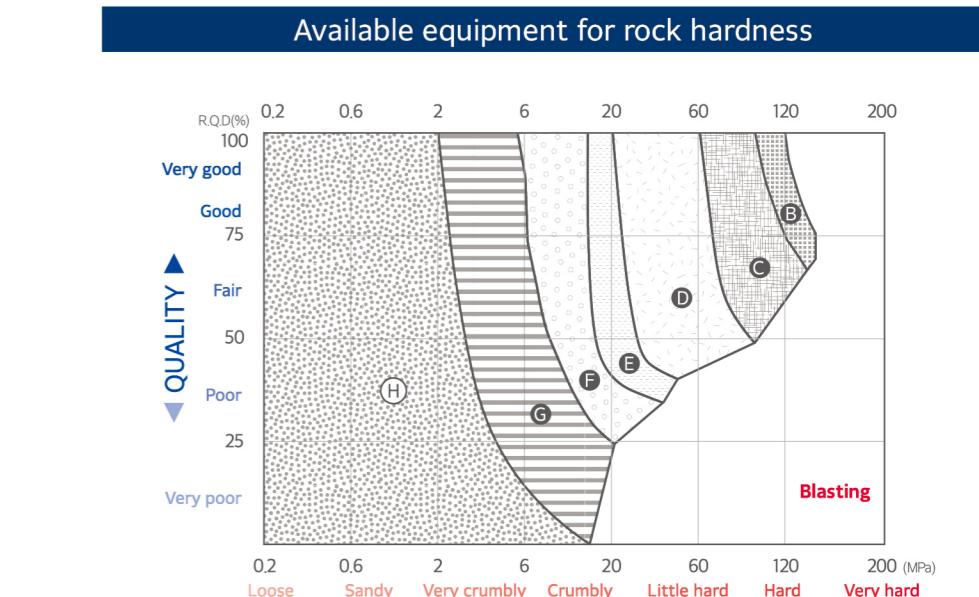
► Summary of Sterling Ripper's selling point

Sterling Ripper vs Hydraulic breaker



The bigger class of Sterling Ripper, the much higher productivity and hydraulic breaker up to soft medium hard-rock and perform well at hard-rock job site compared to hyd. breaker

SR80
SR50
SR40
SR30
SR25



Big class Sterling Ripper can work well at hard-rock without problems most vibratory ripper have, thanks to its cutting-edge technology, Damper+Link structure

Model	B	C	D	E	F	G
Hyd. Breaker	•	•	•	•	•	•
Sterling Ripper	•	•	•	•	•	•
Vibro Ripper	•	•	•	•	•	•
Dozer		•	•	•	•	•
Bucket				•	•	•

STERLING TECHNOLOGY
**SELLIN POINTS FOR
 STERLING SIDE GRIP**



sterling  technology

CONVENTIONAL PILE DRIVER VS STERLING SIDE GRIP

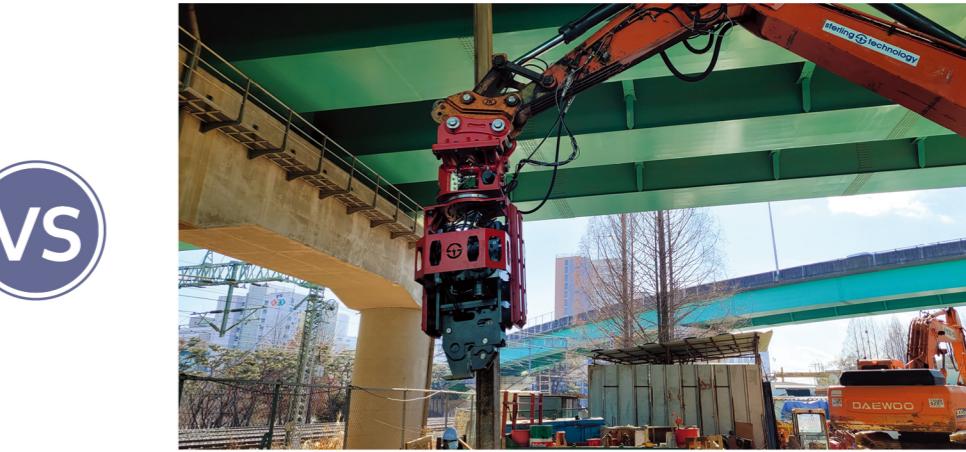
Conventional pile driver



Auxiliary extended arm



Sterling Side grip pile driver



Conventional pile driver

- Auxiliary extended arm required
- Fixed type mounting adapter or hydraulic revolving mounting adapter
- No hydraulic tilt function of mounting adapter

Strong point

- Low price

Weak point

- Impossible piling at headroom job site, and at confined space job site
- A ground crew or assistant required besides an excavator operator

Sterling Side grip pile driver

- No auxiliary extended arm required
- Hydraulic revolving mounting adapter ± 30 degree
- Hydraulic tilt function of mounting adapter ± 30 degree

- Cost effective : Quicker piling up to by 30% than conventional pile driver
- Versatile :

- Piling at headroom construction site and piling at confined space job site
- Wide ranges of piles Sheet piles, H beams, I beams, and round piles

- Safe :

 - A single excavator operator required, no need ground crew or assistant needed

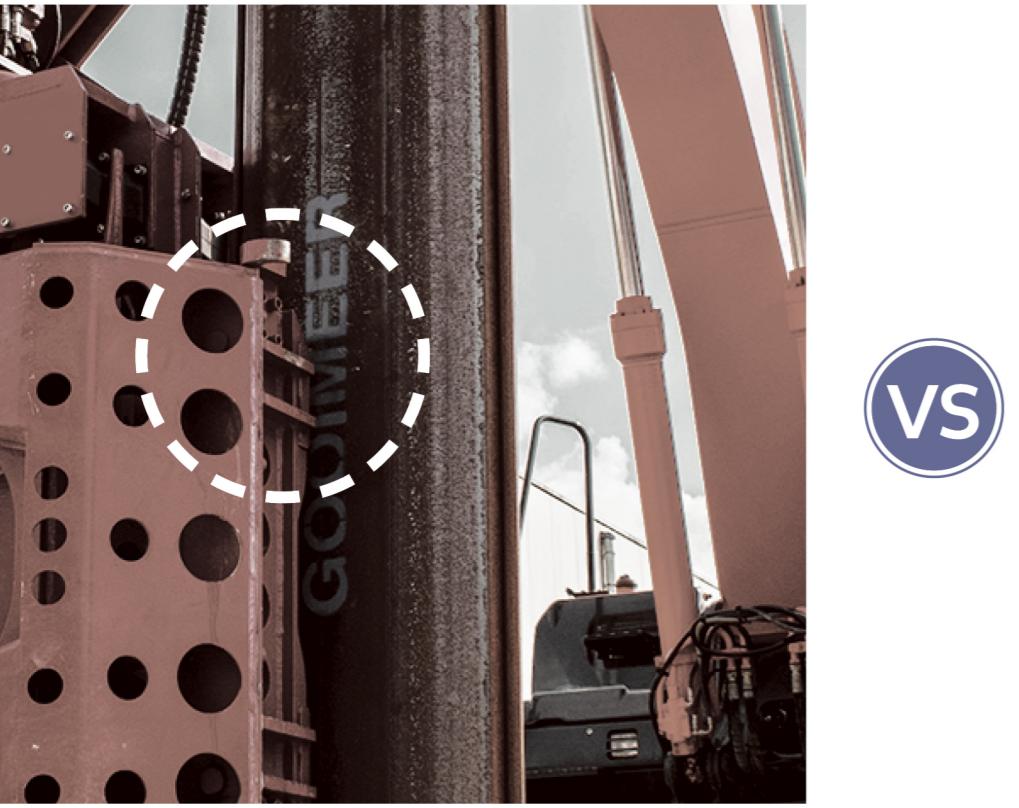
- Relatively high initial investment due to high purchase price

CONVENTIONAL PILE DRIVER vs STERLING SIDE GRIP

► Sterling Side clamping

- 360-degree Swivel rotatable grip pads enable precisely and accurately clamping - Precise and accurate side clamping clamping

Conventional Side grip clamping unit



VS

Sterling Side grip clamping unit



Four clamping pads with two separate arm structure may cause inaccurate clamping. Frequent inaccurate clamping may lead to crack or damage of clamping cylinder and clamp arm

The jaws 360-degree swivel, which enable to grab as pile in the corner it pivots and holds. It results in precise and accurate clamping

STERLING TECHNOLOGY

SELLIN POINTS FOR

**STERLING AUTO TILT
& HAMMERS**



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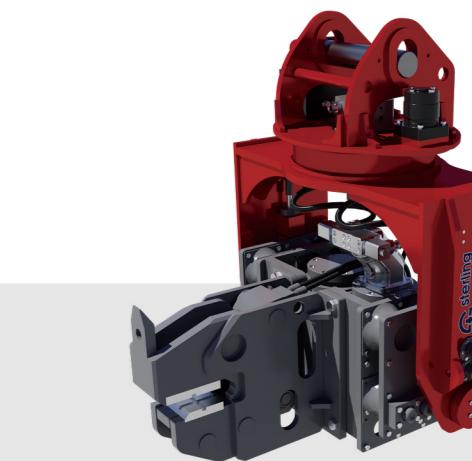
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sterling technology

COMPARISON AND TYPE OF VIBRATORY HAMMERS

Sterling Auto Tilt



Conventional Hydraulic Tilt type



"N" Company type



COMPARISON AND TYPE OF VIBRATORY HAMMERS

► Sterling Hammer's advantage : 15% higher efficiency than the same class hammer

Conventional Hammer



Sterling Hammer



VS

15% higher efficiency

	Sterling Auto Tilt	Conventional Hydraulic Tilt type	"N" Company type
Feature	<ul style="list-style-type: none"> - 90-degree tilt / 360° hydraulic rotation function - "Auto Hold" function on 90-degree tilt position 	<ul style="list-style-type: none"> - 90-degree tilt / 360° hydraulic rotation function - Tilt function by hydraulic cylinders 	<ul style="list-style-type: none"> - 90-degree tilt / 360° rotation function
Strong point	<ul style="list-style-type: none"> - More efficient and safer works - Compact design with no failure-prone cylinders of tilt function - Low maintenance 	<ul style="list-style-type: none"> - More efficient and safer works than non-tilt type vibro hammers 	<ul style="list-style-type: none"> -
Weak point	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Failure-prone cylinders for tilt function - Higher maintenance costs - Relatively expensive 	<ul style="list-style-type: none"> - Low vibratory power - Many hydraulic lines forward to excavator

VIBRATORY HAMMER VS STERLING AUTO TILT HAMMER

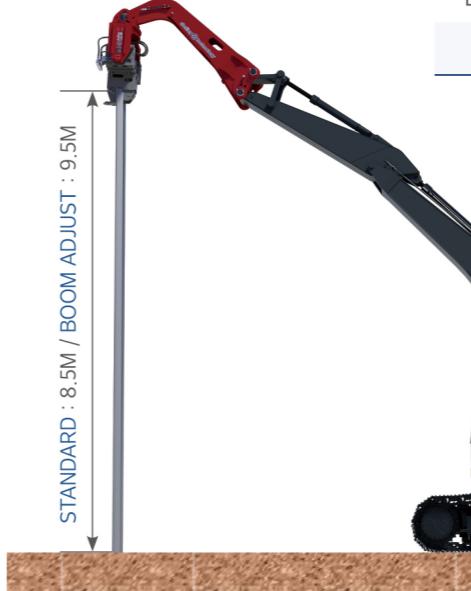
► Summary of Sterling Hammer's selling point

Feature	How to do & Effect
"Auto Hold" function of Sterling Auto Tilt	<ul style="list-style-type: none"> - "Auto Hold" function on 90-degree tilt position - Compact design with no failure-prone cylinders of tilt function
Most powerful hammer in class	<ul style="list-style-type: none"> - Bigger and heavier eccentric weights make Sterling Hammer most powerful in class. - One class higher productivity and efficiency (15% higher than traditional vibratory hammers.)
Centered eccentric weights	<ul style="list-style-type: none"> - Unique design of centered eccentric weights allow better durability of bearings
Low maintenance cost	<ul style="list-style-type: none"> - Concise structure of components - Longer durability

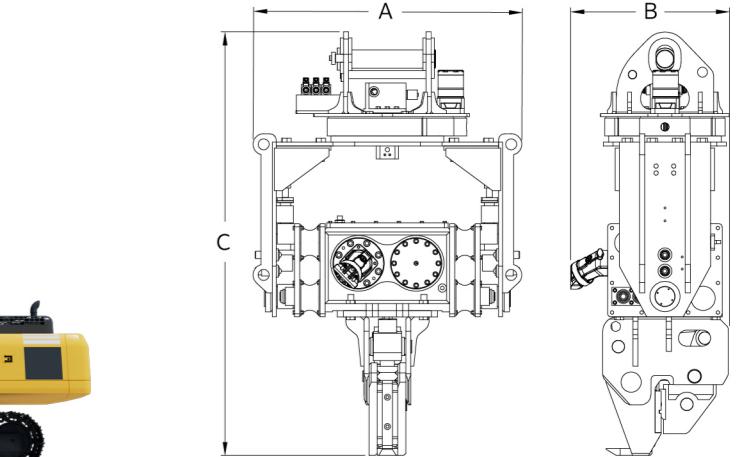
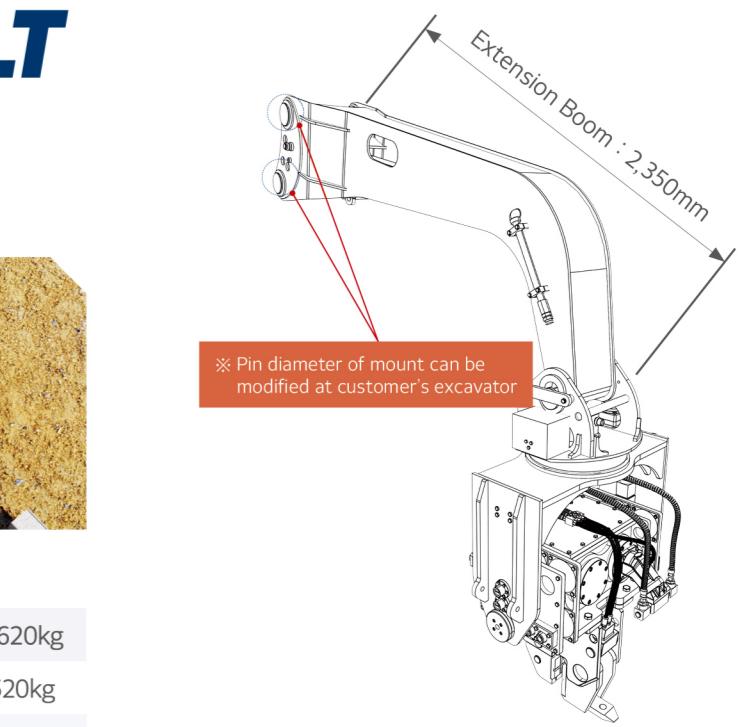


WORKING RANGE - SH25 TILT

► Suitable Excavator : 20 ~ 26 ton



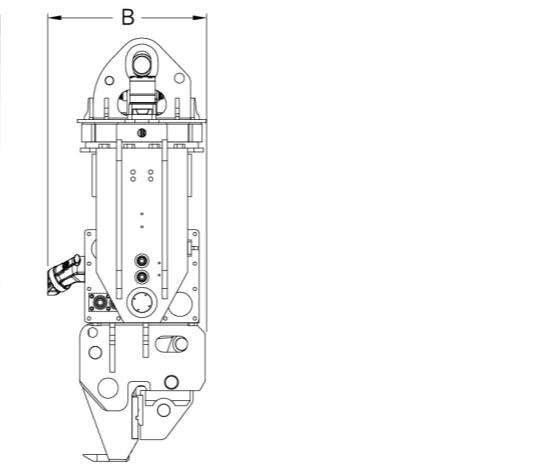
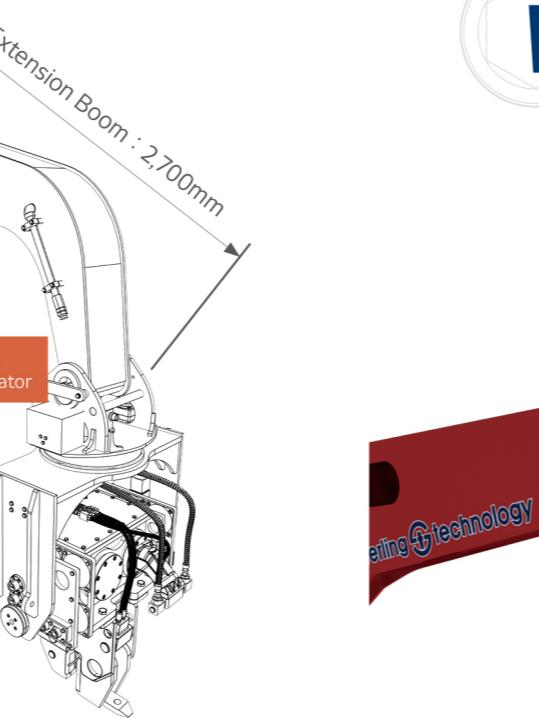
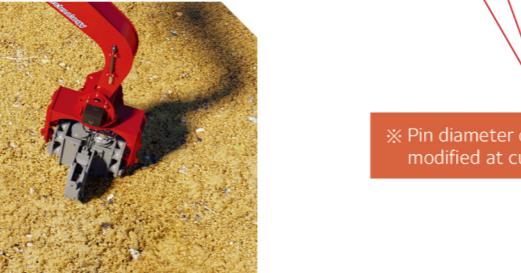
Main Body	1,620kg
Ext. Boom	520kg
TOTAL	2,140kg





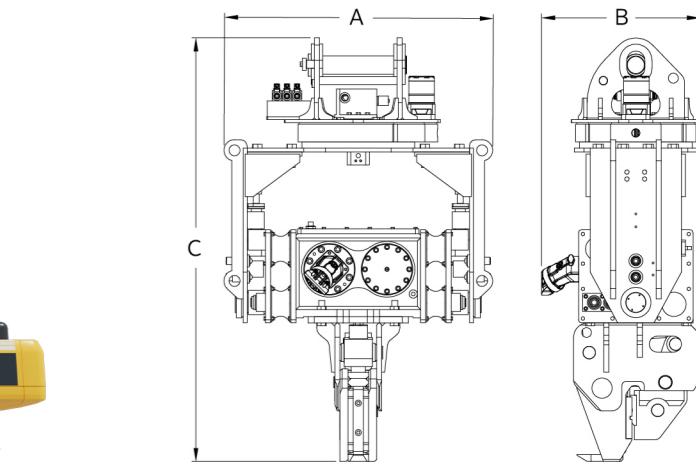
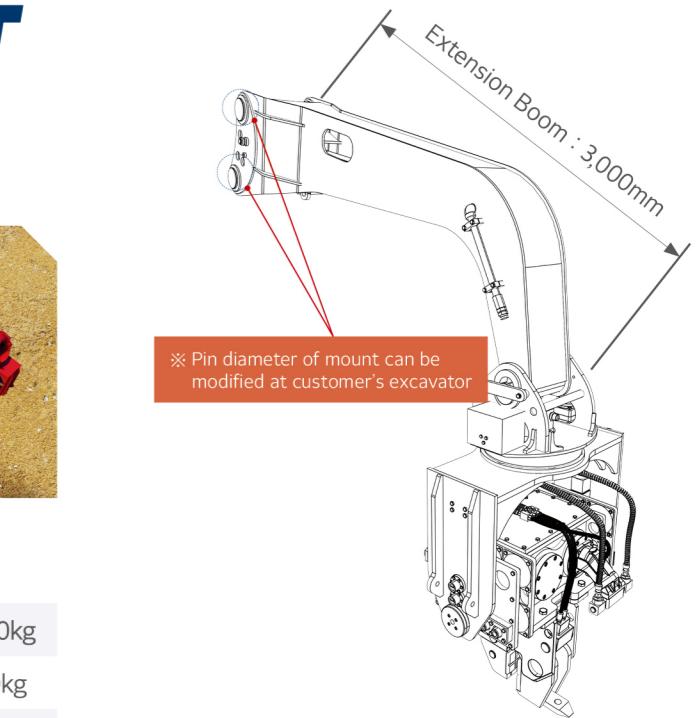
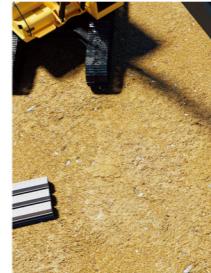
WORKING RANGE - SH30 TILT

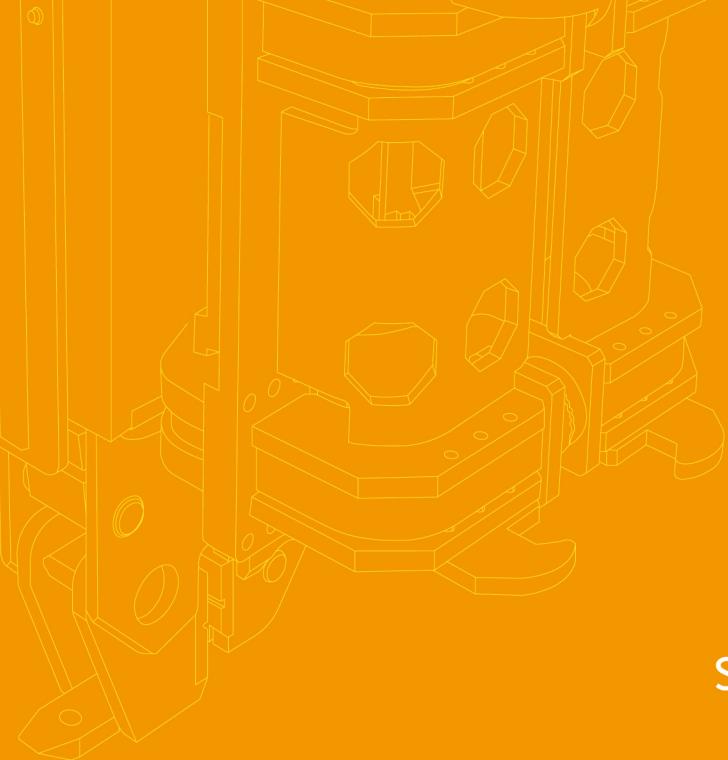
► Suitable Excavator : 28 ~ 36 ton



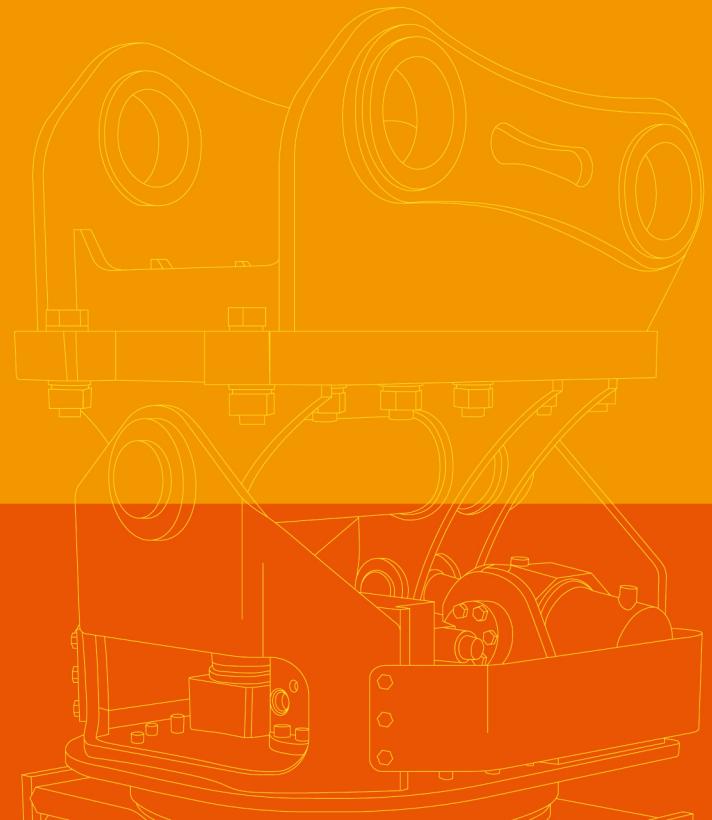
WORKING RANGE - SH40 TILT

► Suitable Excavator : 36 ~ 55 ton





STERLING PEOPLE!
STERLING PRODUCTS!
STERLING SERVICE!



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