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SAKAI
MASTERS OF COMPACTION

National Rural Infrastructure Development Agency
Ministry of Rural Development, Government of India
सत्यमेव जयते

WELCOME ALL DIGNITARIES

Our Sincere Thanks & Gratitude to IRC & NRRDA

Sakai Heavy Industries Limited, Tokyo, Japan .

web: https://www.sakainet.co.jp/en

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SAKAI
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SAFETY

SPEED

PRODUCTIVITY

PROFIT

QUALITY

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ROAD MAINTENANCE
RECYCLING &
REHABILITATION

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COMPACTION

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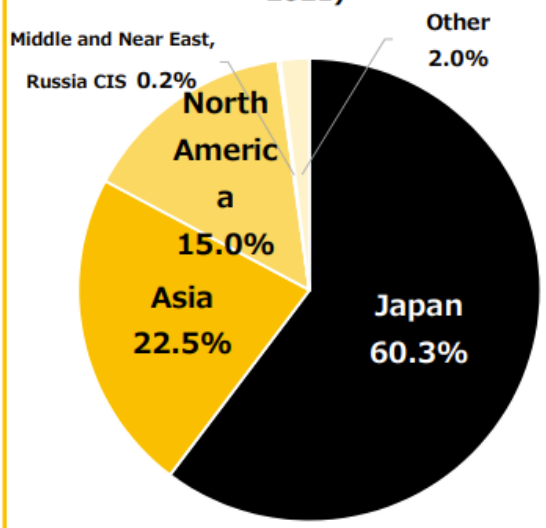
Sakai's presence in South East Asia

Global expansion of production bases

Sales ratio by region
(Fiscal year ended March 2021)



Consolidated group summary
(Fiscal year ended March 2021)

Consolidated No. of employees: 602	Japan (4 companies), overseas (5 companies)
Japan No. of employees: 338	SAKAI HEAVY INDUSTRIES, LTD. SAKAI, LTD. TOKYO FUJI CO., LTD. COMODO CO., LTD.
U.S. No. of employees: 48	SAKAI AMERICA, Inc.
Indonesia No. of employees: 162	PT. SAKAI INDONESIA PT. SAKAI ROAD MACHINERY INDONESIA PT. SAKAI SALES AND SERVICES ASIA
China No. of employees: 54	SAKAI HEAVY INDUSTRIES (SHANGHAI), LTD.

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1.Cold Milling

2.Soil stabilization

3.Soil compaction

4.Asphalt Rolling & Compaction

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SAKAI
MASTERS OF COMPACTION
Intelligent Compaction System

HOW SAKAI CAN HELP YOU ACHIEVE SPEED-QUALITY-PRODUCTIVITY & PROFIT

Ask us: contact@transasiantechno.com

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Work-place Safety –The Highest Priority in Sakai .

Sakai's little actions turn out to Big results

We design and build a **Fool-Proof** Product.

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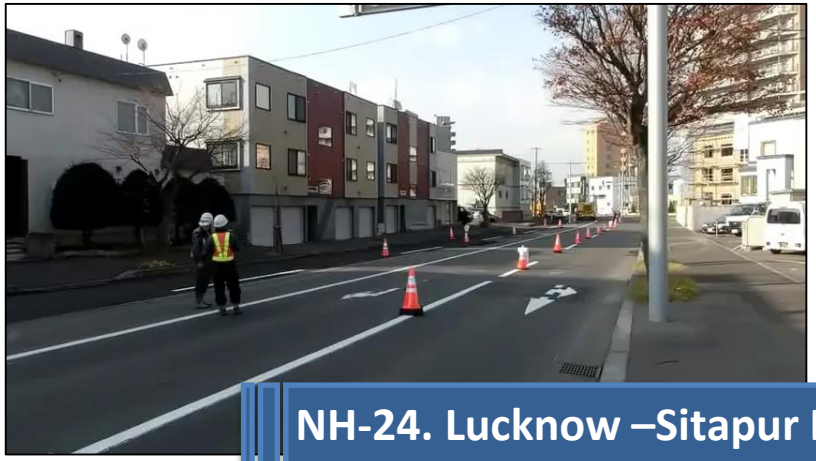
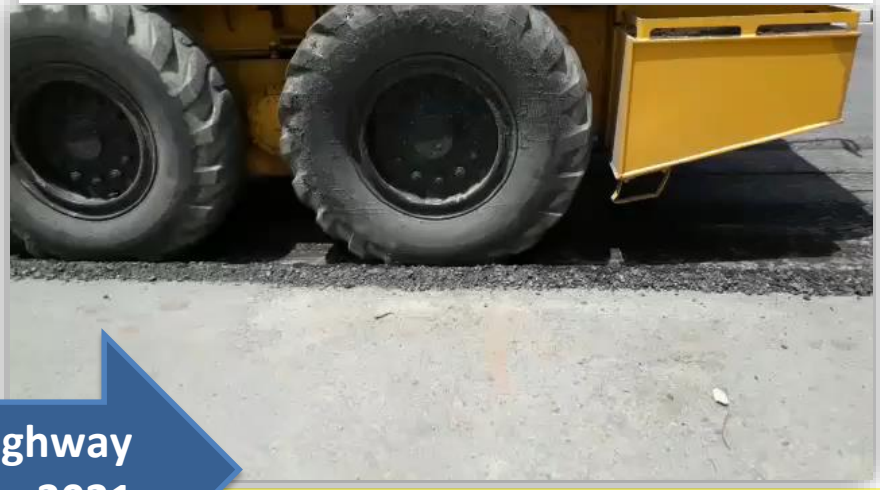
COLD MILLING MACHINE/ ROAD PLANNER





NH-24. Lucknow –Sitapur Highway
Period: July 2019 to February 2021

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RECLAIMER/ SOIL STABILISER

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Dual Hydraulic drive for the Rotor - Rotor shifts 500 mm each side-Progress: 48 x2 = 84 Sq meters per minute- 370 kW Engine- Fuel consumption: 32 liters/hour- Rear cabin with front operation-Clear process visibility -Shifting speed: 22kms/hr

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When you buy a Sakai Soil Stabilizer

- 65 Years of Expertise from The Global Leader
- The Most advanced Features at much reasonable cost
- Productivity : 2.5 times Higher than our competition
- Fuel Consumption : 22% Lesser than our competition
- Less Carbon emission More care for the Earth

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SOIL COMPACTION
4 tons to 20 tons

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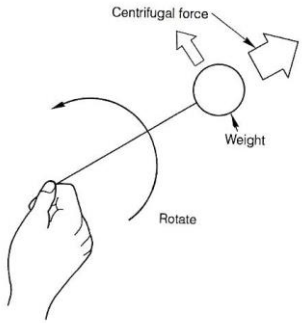


Fig. 32 Centrifugal force

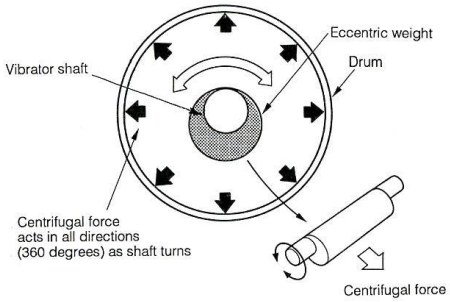
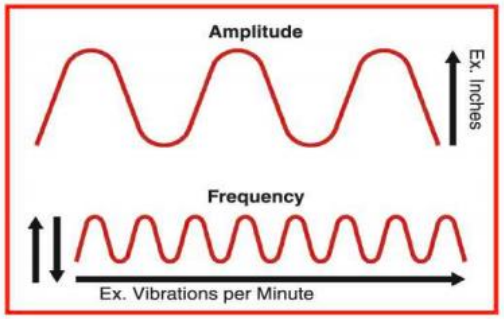
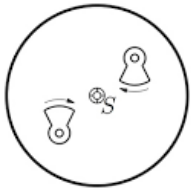
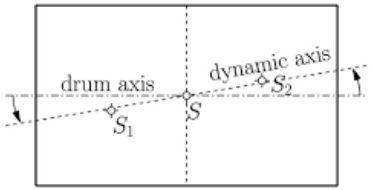


Fig. 34 Directions in which centrifugal force acts



Amplitude
Frequency
Centrifugal Force





SMOOTH DRUM – COMBO DRUM
HEAVY SHELL DRUM- PADFOOT DRUM

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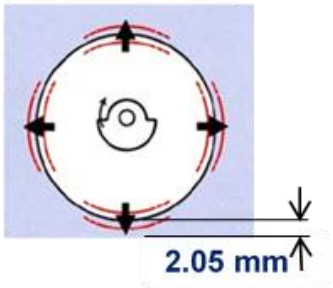
Example of a 10.5 ton class

Amplitude: 0.87 to 1.70 mm
Centrifugal force: 18 tons
Drum shell thickness: 22 mm
Fuel: 14 liters/hour

Amplitude



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Amplitude: 2.05 mm
Centrifugal force: 26 tons
Drum shell thickness: 25 mm
Fuel: 14 liters/hour

Centrifugal force

For Soil compaction you need:
Higher amplitude
Higher centrifugal force

Same job:
Others- 8 passes
Sakai- 5 passes
Over all savings of ;
Time: 30 %
Fuel 30%

If others run for 8 hours a day
Sakai will run 5 hours a day
Per hour fuel- 15 litres
3 hours= 45 litres/day
For 12 months= 16425 litres
= Rs. **1658925.00**

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Custom Built Solutions

One Operator can operate 12 equipment from control room with accuracy

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ASPHALT COMPACTION

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ACT
WHEN
IT'S HOT

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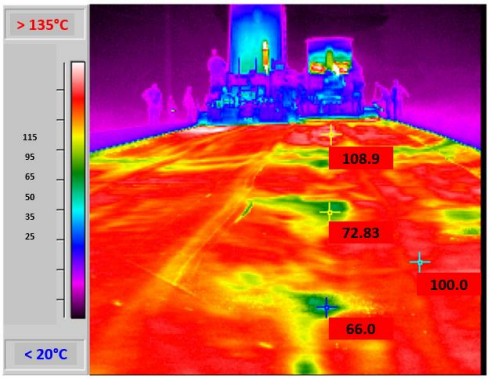
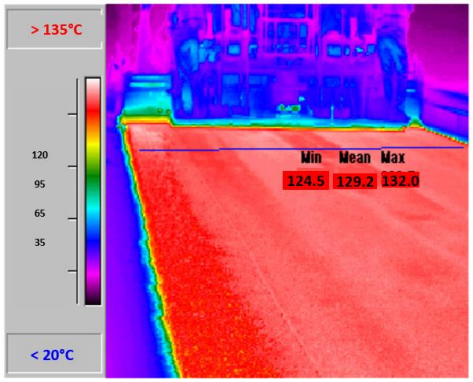
Inherent characteristics of Hot Asphalt Mix:

HMA mix have the inherent problem of segregation.

> Particulate Segregation- visible
> Thermal segregation (more critical), but invisible.





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All Sakai equipment will have electric prime movers soon

4000 VPM

BENEFITS

Oscillation

Static and Dynamic forces

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HFU

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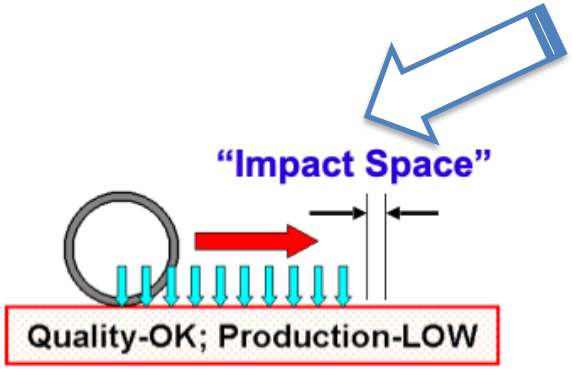
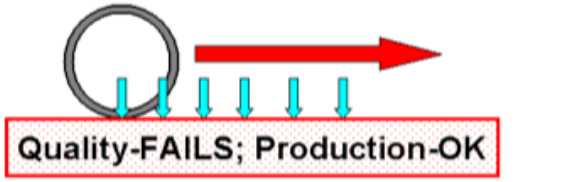
All asphalt rollers available in India are Vertical Impact rollers

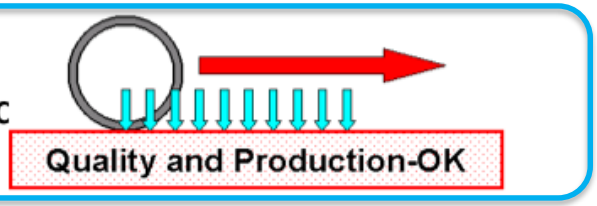
1. High Frequency (HF) Roller



- 2,500 vpm, 4.5 km/h
  Low Frequency + Low Speed



- 2,500 vpm, **7.2** km/h
  Low Frequency + **High** Speed



- **4,000** vpm, **7.2** km/h
  High Frequency + **High** Speed

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SAKAI 100th 1918-2018

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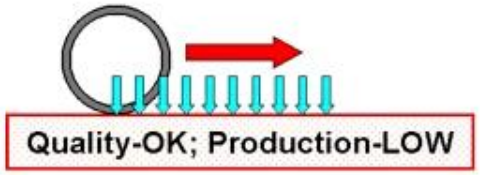
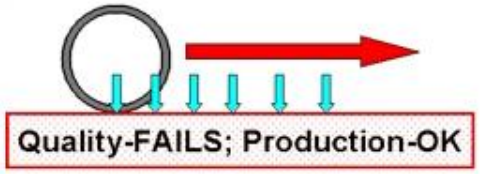
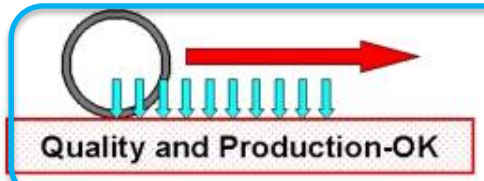
Difference between Vertical Impact roller and Nutation Rollers



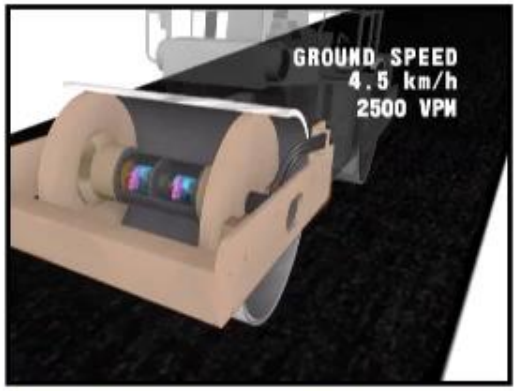
2,500 vpm, 4.5 km/h
Low Frequency + Low Speed



2,500 vpm, 7.2 km/h
Low Frequency + High Speed



4,000 vpm, 7.2 km/h
High Frequency + High Speed



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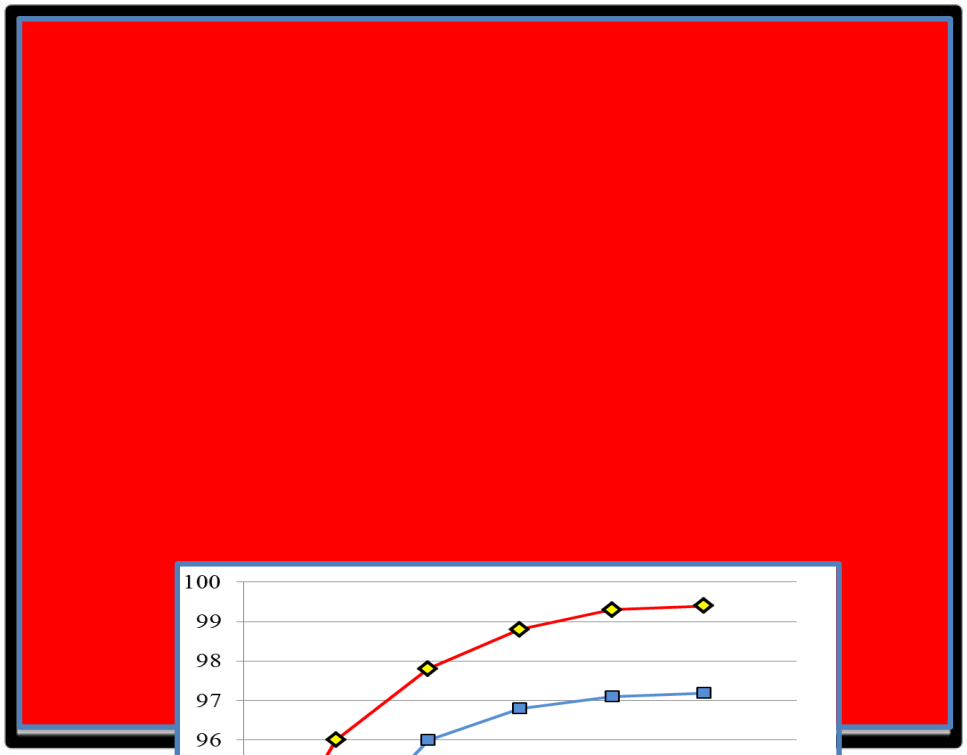
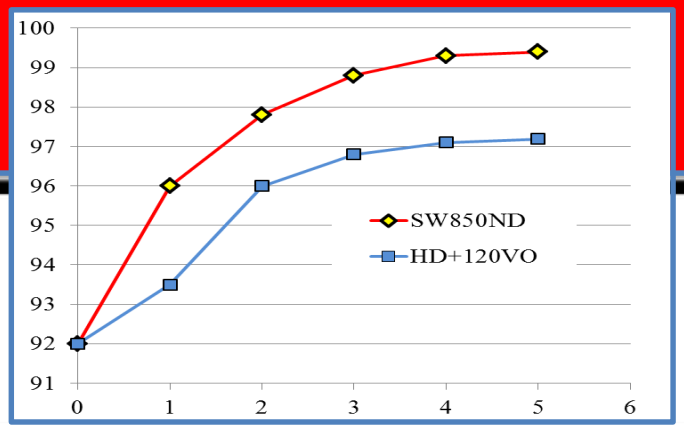
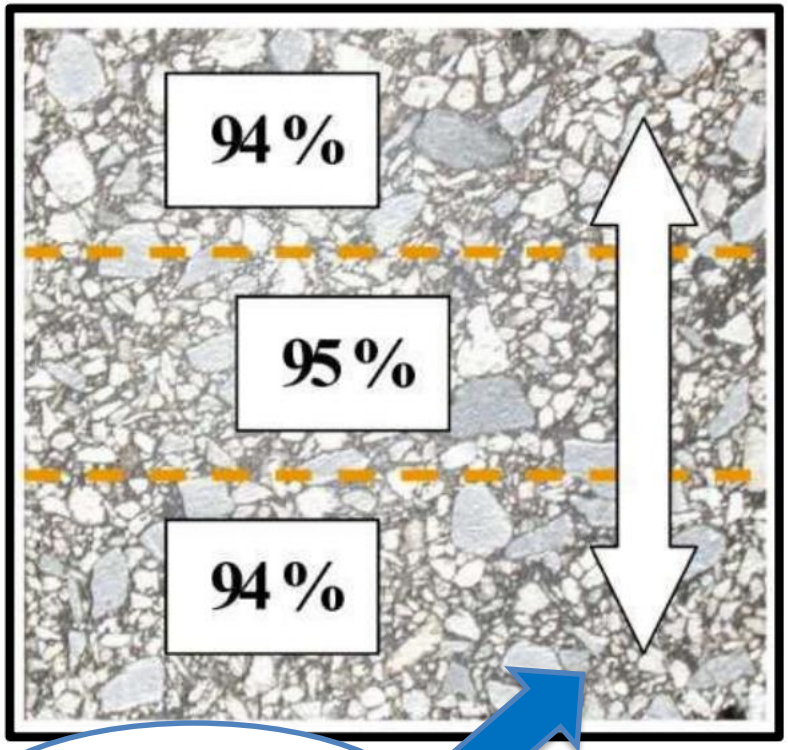
TIME TO THINK AND ACT







UNIFORM COMPACTION

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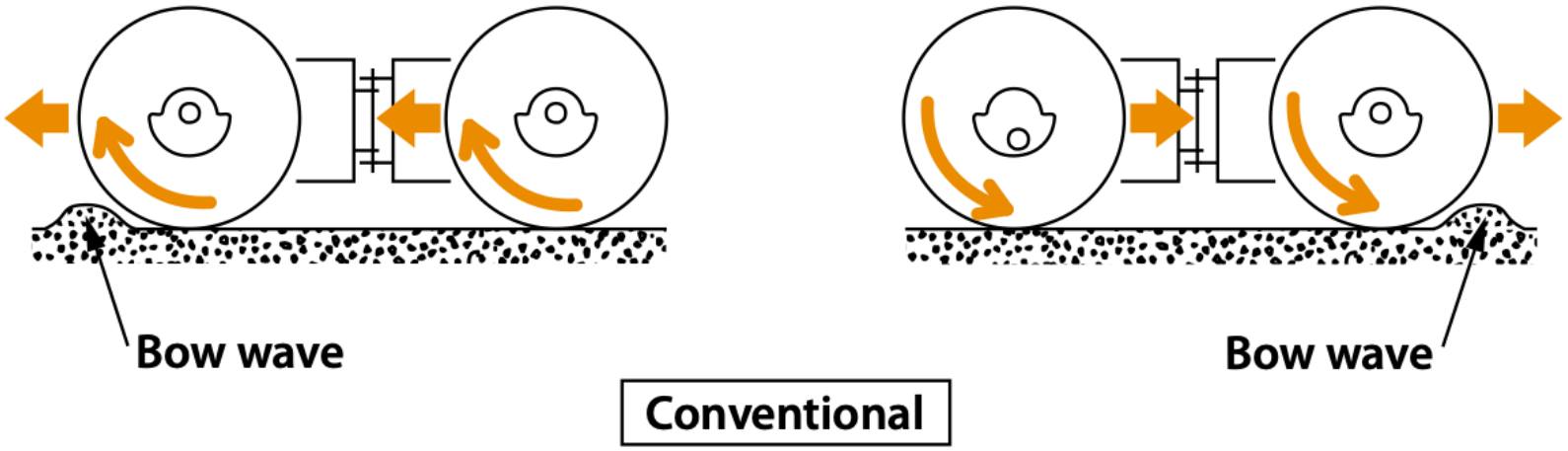
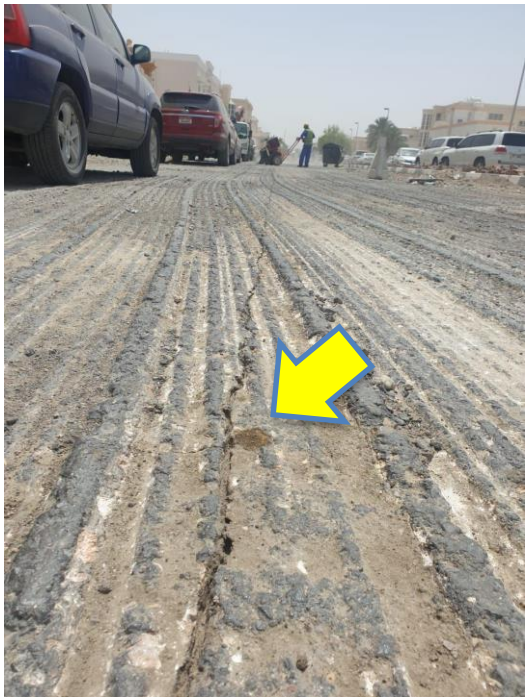


Risk of using VI Rollers:

For overcoming/managing Bow Waves the operator will apply higher amplitude for levelling and actually cause invisible cracks on the base course which are visible after one monsoon with cracks and rutts.



Conventional Rollers:

* Eccentrics rotate in the same direction
* The moment of inertia creates Bow waves
* Fractures the surface
* Creates Hairline cracks
* Damages base course structure
* Decrease permeability
* You discover only when you need to do milling
* **Sakai's design** : Eccentrics rotates in counter direction
* Counter rotation cancels horizontal movement of drums

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The World's one and the only Vibratory Pneumatic roller since 2004

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SAKAI
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Intelligent
Compaction System

Design patented by Sakai

SINCE 2004

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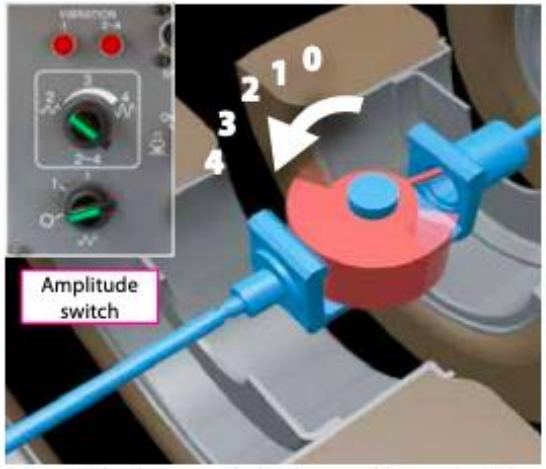
How that makes a difference ?
Ask the Pavement experts to understand



Schematic diagram of variable amplitude vibration

Amplitude setting*2	Amplitude mm	Centrifugal Force kN	Equivalent compaction efforts to a static pneumatic tire roller ton	Applications and layer thickness (Examples)
Static	0.0	0	= 9	Overlays and thin HMA layers, less than 5cm
1	0.1	8	≥ 10	
2	0.3	25	≥ 15	
3	0.5	42	≥ 20	Binder and base course layers, thicker than 5cm
4	0.7	58	≥ 25	

*2 The amplitude selected and number of roller passes should be reconfirmed

of Roller Compacted Concrete Pavement

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Thank you for your kind attention

DO IT RIGHT- SAVE THE COST

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