DYNAPAC

SEISMIC ASPHALT

SEISMIC

DYNAPAC
FAYAT GROUP

dynapac.com

A SEISMIC SHIFT IN COMPACTION

SEISMIC ASPHALT INNOVATION BY DYNAPAC

SEISMIC ASPHALT monitors the natural frequency of the drum and asphalt mix system. The vibration frequency of the drum is then continuously adjusted to deliver the best compaction result in the most energy efficient way. All of this happens in real-time and fully automatic without any intervention from the operator. With a SEISMIC ASPHALT machine you benefit from:

- Automatic frequency adjustment
- Delivering high quality results
- Up to 25% savings on fuel together with EcoMode
- Reduction of CO_2 emissions by up to 25%
- Enhanced operator comfort
- Optimized running costs

CX PIVOT ASPHALT ROLLERS

CO OSCILLATION ROLLERS

CC TANDEM ASPHALT ROLLERS

SEISMIC ASPHALT IS AVAILABLE ON:	
TANDEM ASPHALT ROLLERS	CC2200 VI - CC6200 VI*
OSCILLATION ROLLERS	CO2200 VI - CO6200 VI
PIVOT ASPHALT ROLLERS	CX8 & CX9*

*Includes combi variants

SEISMIC

SEISMIC ASPHALT BENEFITS

HIGH QUALITY RESULTS

REAL-TIME MONITORING AND ADJUSTMENT
The system provides real-time monitoring and continuously adjusts the frequency automatically based on the asphalt material and temperature.

AVOID AGGREGATE CRUSHING
By working in harmony with the material being compacted, it prevents issues like bouncing and aggregate crushing.

REMOVE GUESSWORK
This fully automatic compaction process eliminates any guesswork by the operator, ensuring optimal performance regardless of the material or layer type.

UP TO 25% LESS FUEL REQUIRED

WORKING SMARTER
When vibrating close to the natural frequency, the drum amplitude is enhanced, since energy is automatically fed to the system at exactly the right time. This ensures you reach the desired compaction results at minimum energy levels and with minimum fuel required to complete the job.

SAVE UP TO €3,600 PER YEAR AND MACHINE
When using SEISMIC ASPHALT in combination with EcoMode, fuel savings of up to 25% can be achieved. The total cost of ownership will be significantly lowered and a reduction of CO_2 emissions is an added bonus.

UP TO 25%
LOWER CARBON
FOOTPRINT

SAVE 4,800KG CO_2 PER YEAR AND MACHINE
The fuel savings achieved through the energy-efficient SEISMIC ASPHALT technology directly translate into significant CO_2 reductions. By optimizing energy consumption, SEISMIC ASPHALT minimizes fuel usage, which not only lowers operational costs but also reduces the environmental impact. See comparison on page 7 for further details.

COMBAT CLIMATE CHANGE
Substantial CO_2 savings do not only contribute to a more sustainable operation: The savings also align with global efforts to combat climate change by reducing the carbon footprint associated with construction activities.

EXCELLENT
OPERATOR
COMFORT

ACTIVE BY DEFAULT
Starting the machine is incredibly simple, as SEISMIC is automatically activated by default.

NO TRAINING REQUIRED
The fully automatic operation requires no additional training, eliminating the risk of incorrect compaction settings.

LOWER NOISE AND VIBRATION
The machine also operates at a lower noise level, with fewer vibrations transmitted to the cab due to reduced frequency levels. Additionally, since the roller works in harmony with the asphalt, the machine operates smoothly without any bouncing.

LOWER
COST
OF OPERATION

REDUCE PASSES
With SEISMIC ASPHALT the number of passes required can potentially be reduced depending on the application. Less passes to complete the job means less fuel is required.

LOWER MAINTENANCE COSTS
SEISMIC technology uses computational power and eliminates the need for complex mechanical systems, which in turn helps you avoid additional maintenance costs associated with SEISMIC technology.

LIMIT WEAR AND TEAR
With the roller operating at optimal vibration levels and experiencing reduced bouncing, the wear and tear on components is minimized.

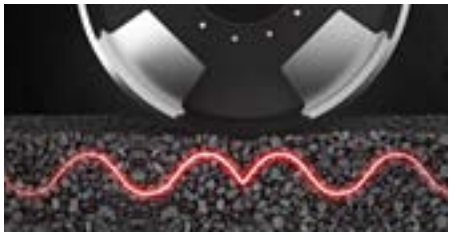
THE PRINCIPLE BEHIND THE SEISMIC MACHINE

NATURAL FREQUENCY OF THE ASPHALT MIX

Conventional vibratory compaction deliver a rapid and random succession of impacts to the surface at a frequency that is either pre-set or adjusted manually. The new Dynapac SEISMIC ASPHALT technology considers the drum and the material as one dynamic system and operates at its natural frequency.

RIGHT TIMING - FOR ENERGY EFFICIENCY

At the natural frequency, the drum amplitude is enhanced, since energy is fed automatically into the system at exactly the right time. This can be likened to the principle of a swing where applying the force at the right time creates the best momentum and effect. This, in turn, maximizes the compaction force between the drum and the ground, yielding maximized compaction and energy efficiency.



SEISMIC ASPHALT compaction with automatic frequency adjustment.

Compacting at the conventional fixed frequency.

WORKING IN HARMONY – FOR THE BEST COMPACTION RESULT

Working at the natural frequency allows the drum to transmit the energy at the right time, and not randomly. This harmonious way of compacting the material helps avoid crushing the aggregates and delivers high quality compaction.

STAMP OF APPROVAL

To make sure that the SEISMIC ASPHALT technology performs as expected, we have performed a series of trials and field tests. The trials were performed on various asphalt mix types and layer thicknesses. From the paved and compacted lanes, no less than 360 core samples were drilled and analyzed with respect to degree of compaction. What's the verdict? The tests show that the SEISMIC machine operates at a much lower frequency, thus with a much lower energy and fuel consumption, while still delivering a high quality compaction result.

WHAT IS UNIQUE ABOUT SEISMIC ASPHALT?

FULLY AUTOMATIC FREQUENCY ADJUSTMENT

SEISMIC ASPHALT continuously monitors the natural frequency of the drum-material system. The vibration frequency of the drum is then continuously adjusted to the optimal level. All of this happens automatically in real-time and without any intervention from the operator.

CONSIDERING ASPHALT TEMPERATURE

The temperature of the asphalt mix plays an important role in the plasticity of the material and therefore in its optimal compaction frequency. When an asphalt mix is hot it is flexible and rather easy to compact. As it cools down, which can happen quite quickly depending on the weather conditions, it stiffens and becomes significantly more difficult to compact. The compaction effort - amplitude - must be increased to be able to further increase the density as the mix temperature drops. An intelligent tandem roller should be able to account for this “stiffening process” and remain effective even at lower temperatures. Our SEISMIC roller is equipped with two temperature sensors and combines this information with the natural frequency measurement to ensure optimal performance.

ACTIVE
ON BOTH DRUMS

COMPARISON: SEISMIC ASPHALT VS. CONVENTIONAL COMPACTION

	NON-SEISMIC	SEISMIC ASPHALT	SAVINGS
FUEL CONSUMPTION (l/h)	7,2	5,4	1,8
FUEL COST (EUR/l)	2,00	2,00	-
UTILIZATION PER YEAR (h)	1 000	1 000	-
FUEL PER YEAR AND MACHINE (l)	7 200	5 400	1 800
CARBON / DIESEL LITER (kg)	0,720	0,720	-
OXYGEN REQUIRED TO COMBUST 1 LITER DIESEL (kg)	1,92	1,92	-
CO_2 PER LITER DIESEL (kg)	2,64	2,64	-
FUEL COST PER YEAR AND MACHINE (l)	**14 400**	**10 800**	**3 600 / 25%**
CO_2 PER YEAR (kg)	**19 008**	**14 256**	**4 752 / 25%**

Calculations are based on 8 ton rollers with 1 000 hour utilization per machine and year.

CONTACT US

FOR MORE INFORMATION

WANT TO FIND OUT MORE?

Scan the QR code to enter the product site.

Your contact:

DYNAPAC
FAYAT GROUP