

VIBRATIONS

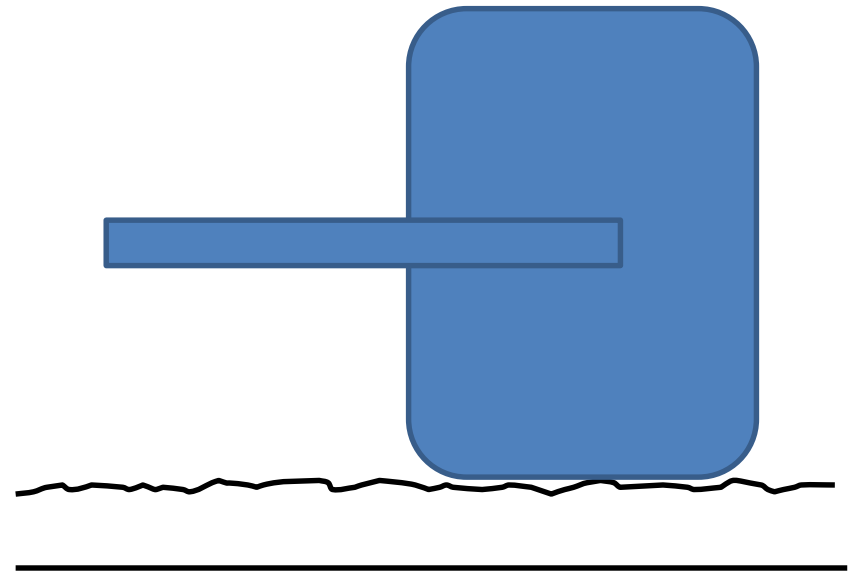
Have you ever noticed that every board gives you a different feeling when you ride it? It's due by all the components that are between the road and your feet. First of all we define what generates vibrations: the **road**.

If the road was perfectly smooth, vibrations wouldn't exist, but also we wouldn't have grip!

Small irregularities of the asphalt deform the wheels, generating vibrations.

REAL ROAD

IDEAL ROAD



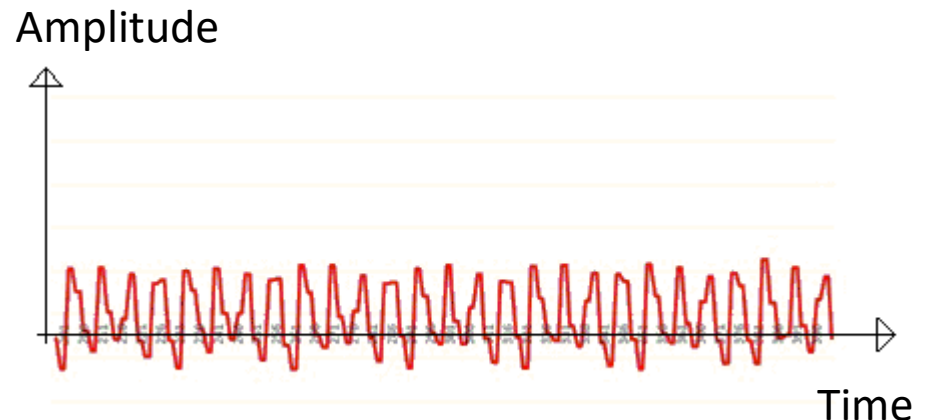
Let's see all the components through which the vibrations pass!

In order from the ground:

- Wheels.
- Bearings.
- Axles.
- Pivot cup and bushings.
- Baseplate.
- Risers.
- Board.
- Sole of shoes.
- Feet.

In the graph below you can see how the road transmit vibrations to the wheels.

The higher the speed, the higher the frequency and the amplitude of vibrations will be.



Choose the right stuff for you!

First of all you have to decide at which speed you want to use your new board, only in this way you can choose an adequate set up and deck.

You prefer **stability** and confidence at high speeds or **reactivity** and sensibility at low speeds ? This is the difference between **downhill** and **carving**.

WHEELS:

Soft wheels, with large diameter, sideset and squared edge will help you to absorb more vibrations.

Hard wheels, with small diameter, centerset and rounded edge transmit a lot of vibrations

BEARINGS:

If they are worn or oxydized they will generate a lot of vibrations, so remind to clean up your bearings and lubricate them often. Bearings of good quality like Abec 9 , titanium or ceramic will help you a lot to absorb vibrations.

AXLES:

Large axles, forged or CNC worked will be expensive but also very stable at high speeds absorbing lot of vibrations from the wheels. The same for baseplates: it's very important the material with which is made and it doesn't need to be too much thin and light.

PIVOT CUPS AND BUSHINGS:

They are made with urethane, the larger the pivot cup is, the better the absorption of vibrations will be.

Don't save money for these small items, they are really important!

Soft bushings are ideal for deep turns at low speed but can be dangerous for downhill.

Hard bushings with lot of material are ideal for stability at high speed. Double barrel configuration is the most stable at high speeds, cone bushings absorb less vibrations.



Pivot cups

RISERS

Tall risers reduce vibrations but they are not good to do downhill, at high speed is preferable that the deck is close to the road. This is possible only with small risers, made possibly with high quality plastic.

THE BOARD

Here we are! We talked enough about set-up, now it's time to talk about what we build.

What influence vibrations of a board?

- **Weight.**
- **Rigidity.**
- **Geometry.**
- **Materials** with which it's built.



Weight:

A light board will transmit all the vibrations to your feet, the **mass** of the deck works like a **damper**. If you are planning to skate down a mountain with a ultra-light deck it can be very dangerous. If you want to carve in the city or at the skate park at low speed will be preferable a light deck, in order to be more reactive to change his direction.

But be careful about the roughness of the asphalt: ultra-light boards are not for rough asphalt!

Rigidity:

The flexibility of the board contributes a lot to absorb vibrations, when you choose a deck with a good flex to cruise around the city you will be sure to always have a comfortable ride! Downhill boards can't be flexible because you need rigidity at high speed, that's why materials are very important to build a perfect high-speed deck which absorbs vibrations well.

Flexible board : **low frequency** vibrations.

Rigid board: **high frequency** vibrations.

Geometry:

A large **wheelbase** and a plenty **width** allows to dissipate vibrations: more material means more damping. That's why also a downhill board should be large almost like the foot of the rider (also to give maximum control).

Concave is very important to determine the frequency of vibrations: a flat board will vibrate with lower frequency than a board with deep concave.



On the other hand more concave means that the board is **more reactive** in turning and carving. Boards with **rocker** closer to the road are made for high speed: lower the center of gravity help to reduce vibrations.

Materials:

Here we are at one of the most important features which influence vibrations.

It's very important to choose **high quality wood** and resin, maple wood or birch wood are the most common used.

To create a board that absorbs vibrations very well is necessary to couple wood together with **synthetic fibers**: in particular fiberglass and kevlar, carbon fiber is very known for his lightness and awesome looking, but has tendence to vibrate a lot at high frequencies.

Guitars and violins are made only with wood, because they have to vibrate and generate sound, but if you cover them with fiberglass they will be almost mute!

When we want to create a very damping board we use a **ultra-light polymer** core, used in aerospace to build light structures with reduced vibrations, together with maple wood and synthetic fibers ... the cocktail is ready!

CONCLUSIONS

Every Stradivarius is unique, not only in aesthetic but also in his structure, everyone vibrate in a different way and make a **different sound**: everyone can give you a **different feeling**.

You just have to know which is the feeling you are looking for!

Write us and talk directly with the shaper, you can ask everything to clarify some doubts. We can help you to choose which is the right board and set-up for you.