

Shimane

Okayama

Current location!

Hyogo

Kyoto

Osaka

Nara

You thought you knew but didn't
Sumitomo Riko's Business
Episode 7: Anti-vibration Rubber
for rolling stocks

Kyoto to Okayama...
It's quite far, but it won't take
any time at all by Shinkansen

Next, I'm collecting data
about anti-vibration rubber
for rolling stocks, but I heard
they're used in Shinkansen
trains too...

How do they differ
from automotive
anti-vibration rubber
products, I wonder?

Ah,
there you are,
Ms. Tomoi!

Huh?

I'm Otsubo from
Industrial Products
and Materials

Do you mind
if I sit with you?

Industrial Products and
Materials Business Unit
Mr. Otsubo

Mr. Kusumi contacted me and said
I'd be on the same Shinkansen as you

I was looking for you
because I thought I could help
with your data gathering,
since we're together

I appreciate you
giving me your time

Well then,
please teach me about
anti-vibration rubber
for rolling stocks!

Thank you
so much!

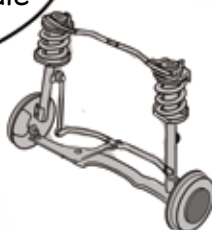
Could you tell me the difference between anti-vibration rubber for rolling stocks and those for automobiles?

No problem!

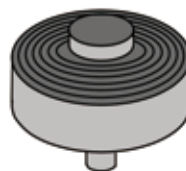
Most of our company's anti-vibration rubber for rolling stocks reduces the vibration from the suspension system.

If I summarize our products for automobiles and rolling stocks, these are the sorts of items we handle

Suspension system



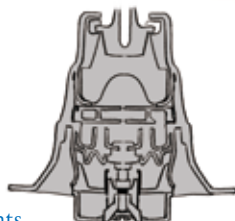
For automobiles



For rolling stocks



Engine mounts



I see
Our anti-vibration for rolling stocks are used in suspension systems

So does that mean our anti-vibration rubber parts "reduce the vibration" from road surfaces or railroad tracks?

And is it right that they also play a role in "supporting" trains?

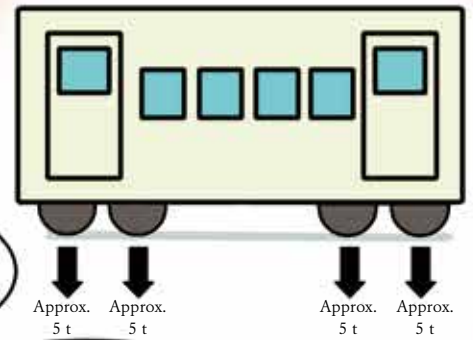
You've got it!

Anti-vibration rubber products have the roles of "supporting" and "absorbing vibration"

One big difference is the weight of what they are supporting

Even the heaviest cars weigh less than 2 tons each

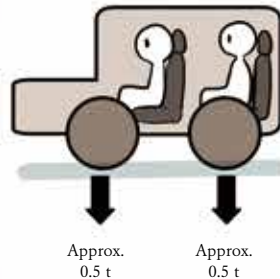
So we can calculate that the weight on each wheel is about 0.5 tons



On the other hand, each railroad vehicle is supported by 8 wheels

Taking into account the acceleration speed of a rolling stock, the weight on each wheel is about 5 tons

In other words, the wheels have to support about 10 times more weight compared to the wheels for automobiles



I see!

So that's why the products are bigger than those for automobiles!

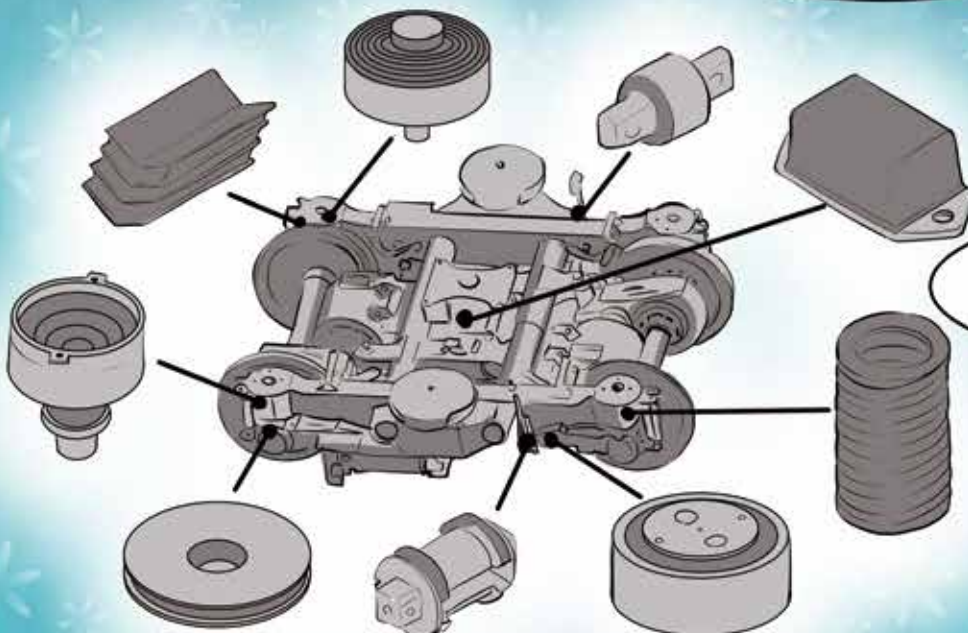
That's right
And the underneath of a train looks like this, with anti-vibration rubber parts

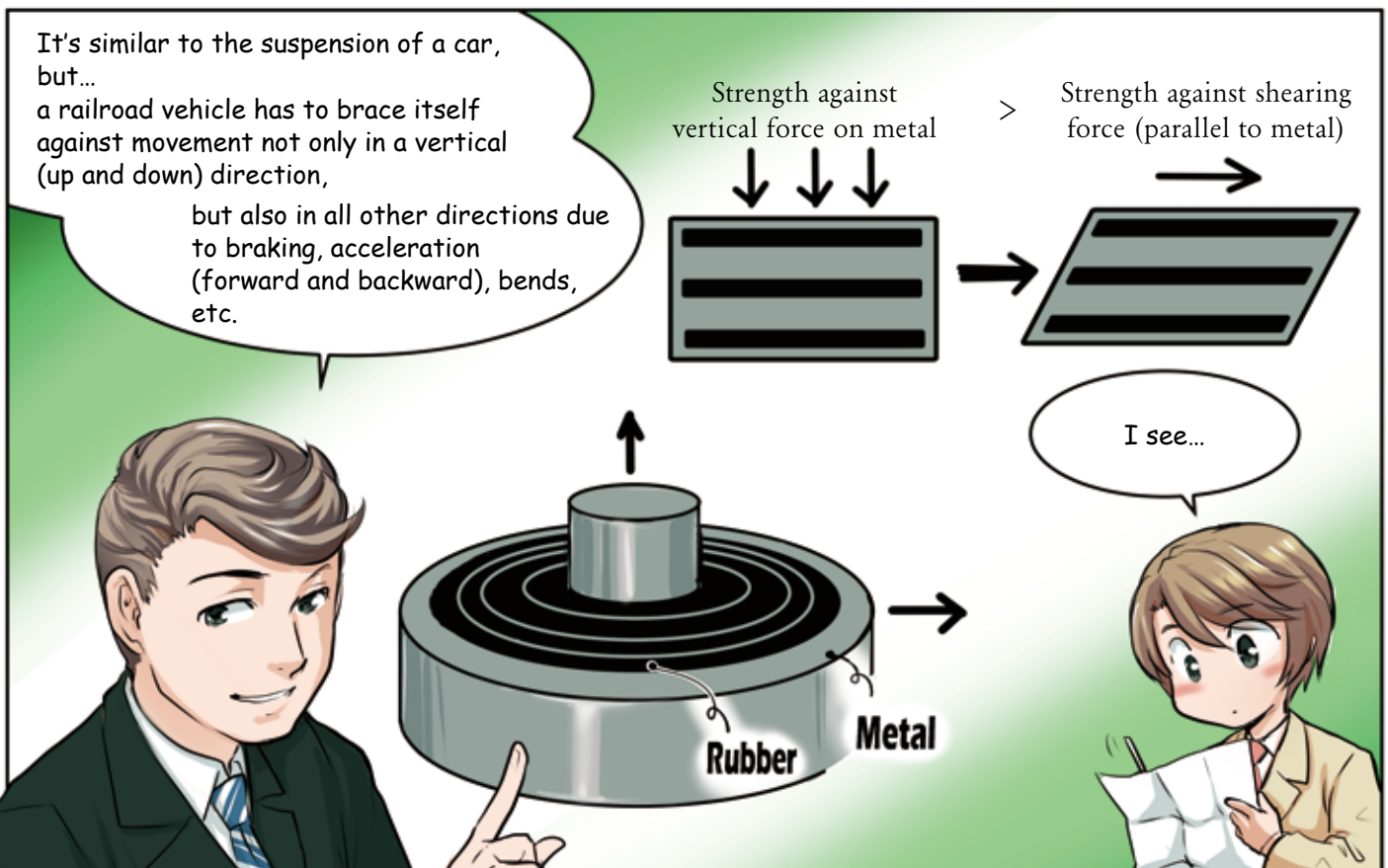
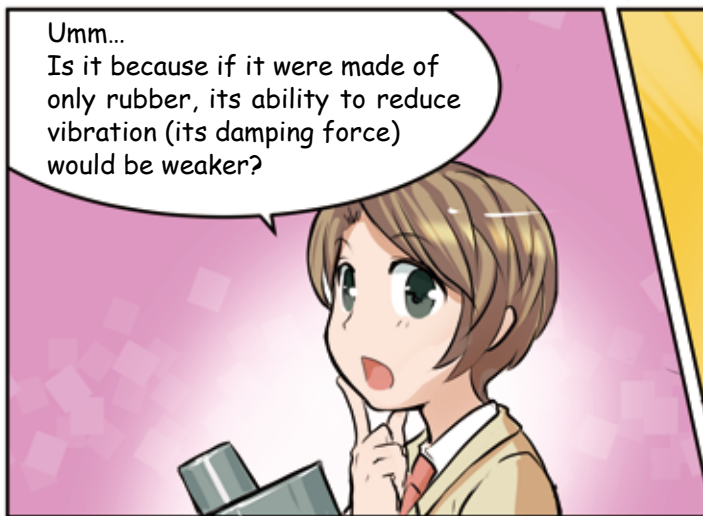
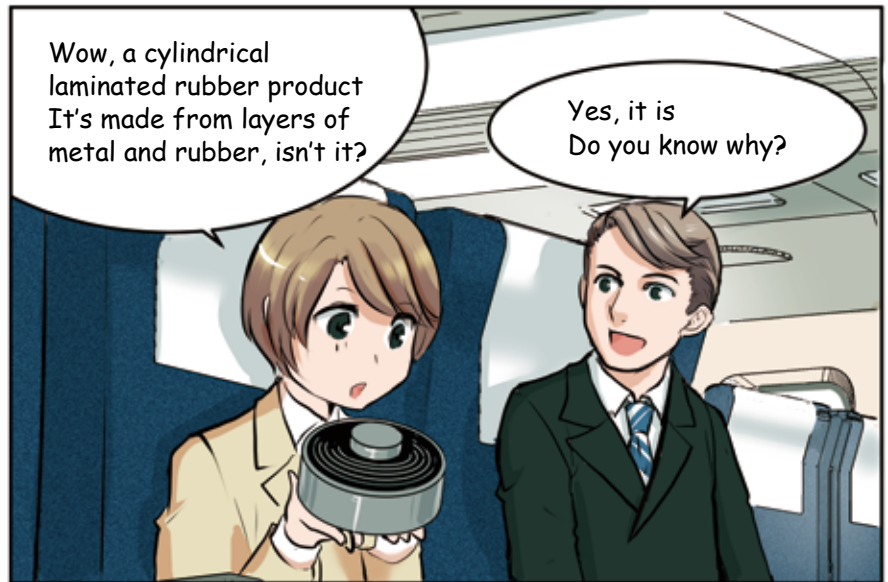
There are at least 5 main types of anti-vibration rubber parts, not only those for suspension

Some prevent side-to-side swaying, others are attached to traction link for trains

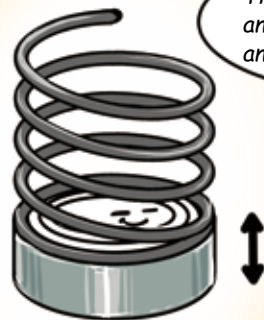
So they all play different roles

Amazing!



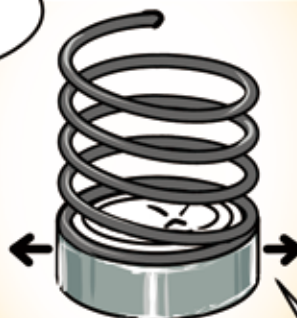


In a vertical (up and down) direction, a coil spring is effective



There isn't so much of an excessive load in an up-and-down direction!

For the spring to prevent the train from swaying forward and backward due to acceleration and deceleration, it is hardened.



This rubber is strong against movement from acceleration and deceleration rather than against vertical movement

Of course it also braces the train against movement on bends

When the train starts or stops, there's an excessive load I work hard!

Hmm?

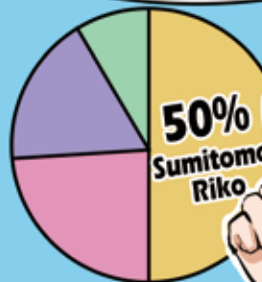
Is this a bit difficult...

Come to think of it, how much are our great anti-vibration rubber for rolling stocks are used?

You switch subjects quickly, don't you?



According to our research, about 50% of the market in Japan! That's the top share!



Wow!

Well, we can say that our rubbers are in nearly all the trains everyone rides on

They've been in all Shinkansen trains, from the first 0 Series to the very latest Hokkaido Shinkansen

