

Small outlay – large effect!

The Indian ROSTA distributor Technotalent Engineering Ltd. described to one of our technicians the vibration problems that arise when operating a motor test bed. During the test run that lasts several minutes, the Indian manufacturer of single- and two-cylinder motorbike engines, the Microcon company, is measuring a vibration transfer on the test bed substructure that is much too high, and that would spread over the whole building.

The engine is rigidly suspended from two fork-shaped supports that are firmly bolted to the adjustable 2-axis test table. The transmission of structurally borne noise and vibrations would be extremely annoying for the workers in the test department.

The ROSTA technician drew up a simply hand-drawn sketch based on the information regarding the test speeds being run and the weights of the engines (Fig. 1) and recommended that the customer should install a plate with four ROSTA Type ESL 18 anti-vibration mountings between the existing motor support and the 2-axis table, which the engine manufacturer then carried out.

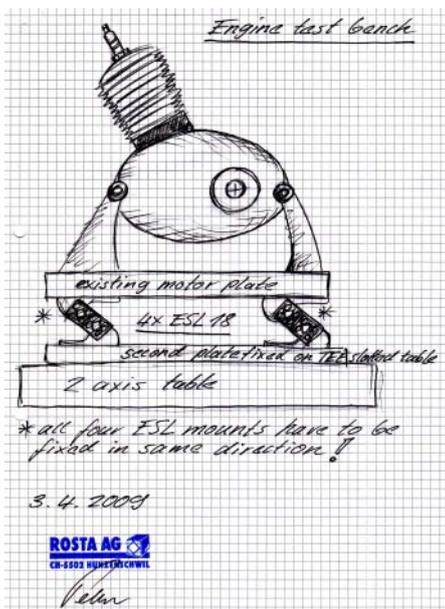


Figure 1



Figure 2

The result was amazing! Accelerations of **16.3 m/sec²** were measured on the engine suspension (Fig. 2) - but only **0.2 m/sec²** of this on the 2-axis table lying underneath it (Fig. 3). The four ROSTA Type ESL 18 anti-vibration mountings thereby compensate for approximately **98.7 %** of the driver unit acceleration. The vibrations transmitted to the

substructure can hardly be measured or felt anymore; the structurally borne noise, which unfortunately could not be measured, was also reduced to a very tolerable level.

Microcon will now be "calming down" more engine test beds using ESL anti-vibration mountings.



Figure 3

More and more bulk throughput from existing installations!

This is the contemporary demand in the production sector of mineral processing. Installations that previously washed and sorted 600 tons of gravel an hour should be able to process 1,000 tons of bulky goods in the future without having to carry out major and expensive modifications to the existing building substance.

In most cases, the realisation of this demand is possible using an additional crusher and a larger screening machine – but the building substance cannot always keep pace with this development. Due to the process the platforms for the screening machine suspension are located at the highest point of the building, which mostly consists of steel construction. If a 18,000 kg screen now dances on the 30-metre high steel construction instead of the previous 10 ton machine, it can happen that the complete „tower“ could begin to rock as a result of the increased transmission of the reaction force.

What can be done to prevent this? Adding additional diagonal braces and casting more cement ballast into the intermediate floor could be a solution, but does not always lead to the desired result.



LZG screen with helical spring suspension, and the counterframe supported on 14 ROSTA Type AB-D 50-2 oscillating mountings



Cyros screen on a counterframe at a height of 30 m in the gravel works of Welbers GmbH, DE-Kevelaer



ROSTA Elements Type AB-D 50-2

Setting an additional counterframe under the new screening machine mostly leads to success.

The inertial mass of this counterframe compensates for the major part of the reaction transmission from the vibrating screening box to the building. Experience has shown that the counterframe weight should be approx. 40–50% of that of the screen box together with the material. The resulting counter-movement of this elastically suspended counterframe, which slightly reduces the capacity, is normally at oscillation amplitudes of approx. 1–2 mm. The relatively high rotational speed of the drive and the elastic screen box suspension can only excite the inertial mass of this frame to a small extent. The screen box of the illustrated linear vibratory screen is mounted on 8 ROSTA Type AB 50-2 oscillating mountings, and the counterframe on 8 units of the AB-D 50-2 type.

The Polish screen manufacturer **LZG Lecyca SA** installed two new, heavy dewatering screens in an existing steel construction at the **Wroclawskie Mines** of Mineral Resources. The design of the steel construction was not originally intended for the dynamic acceleration of these two heavy screens. The intention was to counteract the reaction force transmission by the installation of two counterframes.

The weight of the screen box together with material is around 13 tons. The

weight of the counterframe has been estimated as 6,500 kg; the total weight of the two vibrating masses is therefore 19,500 kg. A ROSTA Type AB-D 50-2 oscillating mounting has a load capacity of 1,600 kg. The screen manufacturer thereby mounted 14 suspensions with a total capacity of $(14 \times 1,600 \text{ kg}) = 22,400 \text{ kg}$ under the counterframe – an overload reserve of 13% was thereby included in the calculation. In addition, the pedestal positioned to the side with the two drive motors for the unbalanced shaft was supported by an additional AB-D 50-2.

In the meantime, the two screens have been operating in two shifts for more than a year in this old building. The operator and the operating personnel are completely convinced about the efficiency of the counterframe, which was not part of

the original design. The compensation movement of the frame has an oscillation amplitude of only 1.2 mm, and reaction movements can hardly be felt. These two „vibration absorbers“ certainly cost much less than a total renovation of the building or the construction of a new process building.

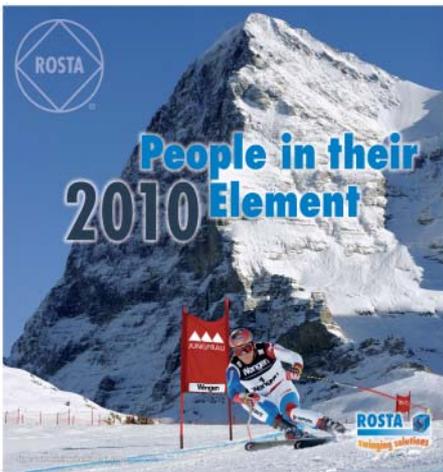


Two LZG linear vibratory screens on a counterframe with successive grain size selection (large grain outflow = upper screen; fine grain outflow = lower screen)

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Under the motto:

People in their element ...



... we have again produced an individual calendar for the coming year. Brilliant pictures of our beautiful mountain world in combination with Swiss people who feel themselves to be completely in their element with their very specific hobbies, sports or professions.

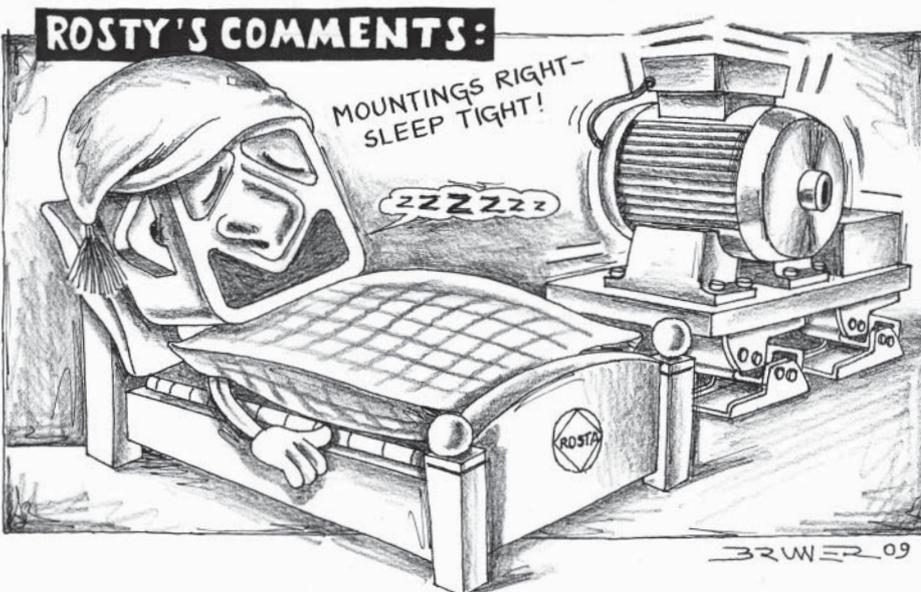
The second part of the monthly page shows professional people dealing with the **blue (ROSTA) element**. A range of applications for the Blue Ones in the machine industry and in the aggregate processing sector, some of them previously unknown, are shown with illustrations.

Four years ago, we launched this calendar campaign with a modest run of 4,000 copies, and it was very well received by market intermediaries and customers. In the meantime, the print run has been doubled due to the great demand. The combination of beautiful landscape pictures with pictures of applications of our products seems to have been a success, and has also generated many new customers.

Our ROSTA representatives and distributors have a large stock of this attractive calendar – make sure you obtain your copy!



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