

RUBBER SUSPENSION TECHNOLOGY!

Experience an (almost) genuine feeling of riding on horseback!



Figure 1

What child would not like to feel the "rolling" back of a trotting horse underneath itself and to experience the "up" and "down" of the powerful torso of the animal at close quarters. Unfortunately, those marvellous days when children could make their acquaintance with Man-kind's best friend on the back of a pony at fairs or in riding schools are no longer available to most of us.

The Swiss inventor and playground equipment manufacturer François Kunz from Geneva took on this challenge, and has created a riding apparatus for children that comes very close to the shape and movement of a horse. His "ZNÜK", as he has called the horse, has a pony-sized, muscle-packed polyester torso modelled very closely on nature and available in a range of colours (Fig. 1).

The "inner workings" of the "ZNÜK" are very interesting (Fig. 2). The body of the horse is suspended over a supporting frame anchored in the ground using four ROSTA-rocker-arms that form a parallelogram. When brought into

movement, this little horse carries out a **rhythmic riding movement** thanks to the resulting circular arc camber of the parallelogram.

The **series-connected ROSTA Type DW-A 27 rubber suspension**

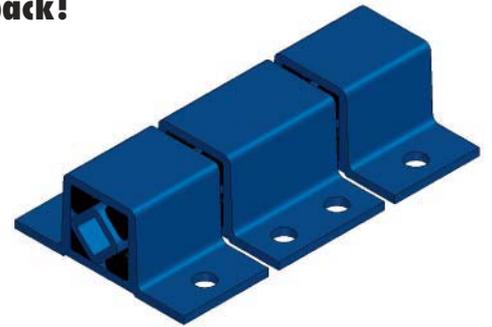


Figure 3

units (Fig. 3), offer the relatively large swing angle of $\pm 60^\circ$ in this combination. The rubber suspension units, which are repeatedly and dynamically "recharged" at the end positions of the swing, actively support the riding pleasure of the children and help to keep the horse at a trot.

Editor: ROSTA AG, François Frabregas

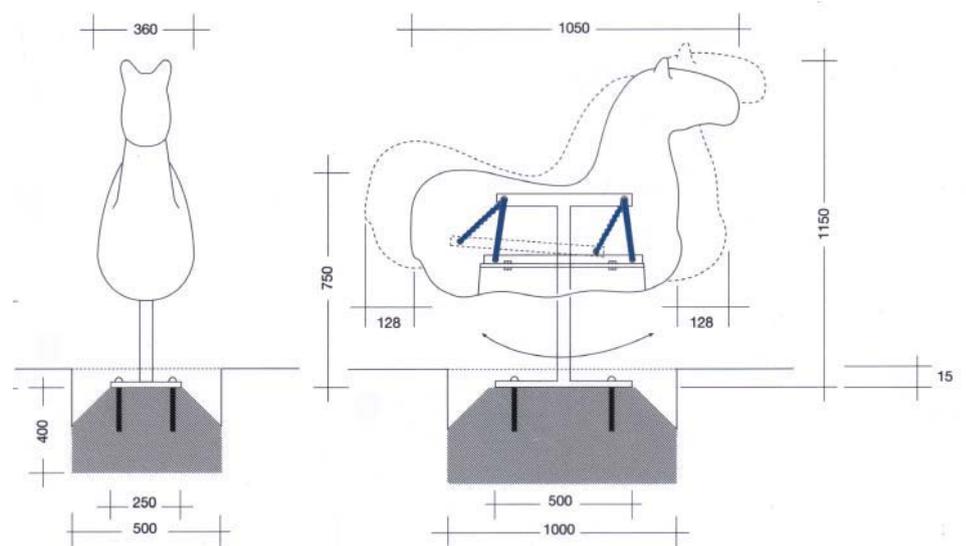


Figure 2

RUBBER SUSPENS

Open mining and gravel extraction installations cannot be simply “carted” to the extract complex, heavy and up to 30 metres in height, have to be lifted, moved and accurately

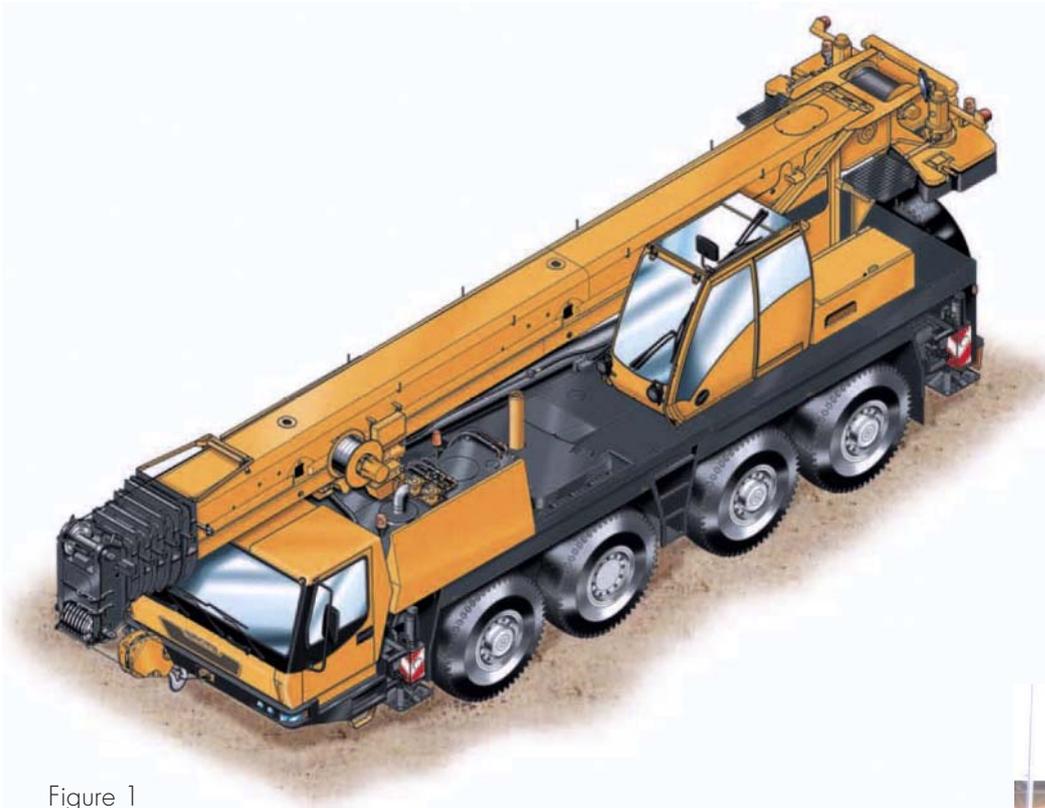


Figure 1

This requires lifting equipment with the highest hoisting capacity that is capable of operating on any terrain!

The **Manitowoc-GROVE GMK 4100 truck-mounted crane**, with a lifting capacity of up to **100 tonnes**, is the ideal installation unit for the mining and aggregate industry.

With four driven axles (8 x 8 wheel traction), the Grove GMK 4100 truck-mounted crane also offers a high all-terrain capability, an essential feature in the sometimes virtually impassable extraction and processing areas of the mining industry. The 6-section telescopic boom can be extended up to a maximum of 51 metres and, depending on the inclination of the boom, can lift loads of up to 100 tonnes. This 50 tonnes vehicle is powered by a Mercedes-Benz 6-cylinder diesel engine with almost 400 hp and can position itself in the ideal lifting position in the most difficult terrain thanks to the 8 x 8 wheel traction (Fig. 1).

The full-view crane operator cab provides the operating personnel with the highest possible spring-suspension comfort, both during long-distance travelling to the site and while on-site. Thanks to its only slightly progressive characteristic, the **parallelogram cabin suspension** from ROSTA (see Fig. 2) offers a high level of spring-suspension comfort on roads but with virtually “automatic” stiffening when driving the unit in the “broken-up” construction site terrain. The relatively long spring deflection of the parallelogram suspension, consisting of four dual rubber suspension units, effectively reduces impacts when driving on rough terrain. The high transverse stability of the cab is retained, however, due to the high cardanic rigidity of the ROSTA elements. Despite high transverse inclination of the vehicle, the driver cab remains in position, absolutely parallel to the chassis substructure, thanks to the considerably increased rigidity of the Y-axis of the ROSTA shock absorbers.



Figure 2

ION TECHNOLOGY!

tion area and assembled without aids; these equipments and machines, which are very lowered with appropriate equipment.

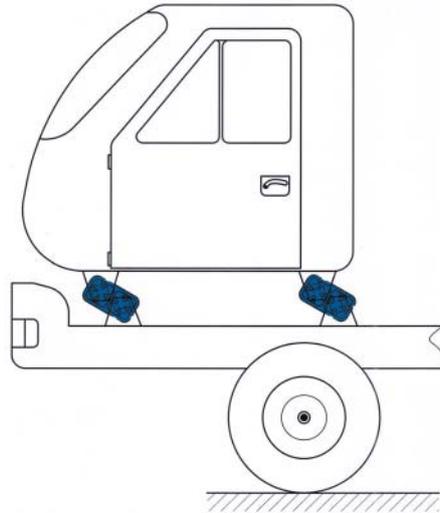


Figure 3

Customer benefits:

- **unbreakable** parallelogram cab suspension
- **maintenance-free, long-life** suspension
- **secure against overstraining** through progressive spring characteristic
- **application-conform** spring travel
- **high transverse stability** through the rigid Y-axis
- **highest driving comfort** thanks to the "floating" cab suspension



GROVE designed the parallelogram cabin suspension using **four ROSTA Type DO-A 50 x 120** dual rubber suspension units (Fig. 3). The maximum possible vertical spring movement of the cabin (Z-axis) is approximately 30 mm, and thereby guarantees that even impacts of the highest intensity will be cushioned out. In the direction of travel (X-axis) the cab can move a maximum of 5 mm in case of impacts (= circular arc of the parallelogram). To the side (Y-axis), the excursion is only in the millimetre range, which gives the cab the desired, high transverse stability (Fig. 4).



Figure 4



TENSIONING TECHNOLOGY!

AAGLANDER ...

- ... Back to the future
- ... An experience on four wheels
- ... The alternative progress

No, the wheel has not been re-invented, but, after more than 100 years, the motor coach has been re-developed and been equipped with state-of-the-art technology and safety standards. Meeting all the regulations and approvals was a difficult path, requiring an enormous engineering effort and very good cooperation, especially, last but not least, with the inspection stations. All the trouble has been worth it, however.

The AAGLANDER was built in surroundings that could not have been more appropriate or creative: in the Kühlenfels castle in Pottenstein. Frankish Switzerland, a wonderful region of Germany,

simply invites you to take a ride in an AAGLANDER and to enjoy the luxury of taking your time.

The top speed is limited to 20 km/h, but experience has shown that one enjoys the landscape and the company, and that the "sound limit" is rarely reached. The motor coach is driven by an environmentally friendly 3-cylinder diesel motor. 749 cc and 14.9 kW allow the rear drive wheels, which are fitted with solid rubber tyres, to apply an enormous torque to the roadway. The power transmission takes



ratio 1:70) show no signs of wear. The roller chain, which also has a long service life, also contributes to an unforgettable and troublefree AAGLANDER ride.

You can find more information on the following Homepage: www.aagland-manufaktur.de.

Editor: ROSTA GmbH
Dirk Kleineberg



place by means of two 1" chains, which are tensioned using ROSTA SE 38 model tensioning elements. The chain wheels are mounted in a Z-arrangement, and a pretensioning angle of approx. 15° prevents any slapping of the loose side of the chain as well as compensating for the very high initial torque back lash when starting. Even after three years of driving, the drive and driven chain wheels (gear



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