

## RUBBER SUSPENSION TECHNOLOGY!

### **DIGGER D-2 armoured mine-clearing vehicle with ROSTA track suspension**



*Digger D-2 mine-clearing vehicle*

The *Digger D-2* armoured mine-clearing vehicle is a development of the *Digger* Foundation (Demining Technologies), which has been realised with the support of the humanitarian Swiss Foundation for Mine Action (FSD).

As a result of the turmoil of long passed civil wars, a large part of Africa, as well as wide areas in Asia, are still heavily mined, and people die every day as a result of detonating these mines while attempting to re-use these former battlefields for agricultural purposes.



*Elastic ROSTA suspension of the caterpillar guide rollers*



*Rotary chain-roller drum for triggering mines*

The *Digger D-2* is a 7 ton, armoured and remotely controlled caterpillar vehicle that uses a rotating frontal chain-roller drum for the „controlled“ detonation of land mines hidden under the ground or in bushes. Thanks to its hydrostatic track drive, the *Digger D-2* has a very high off-road capability, which is necessary in mined agricultural areas, some of which are very hilly.

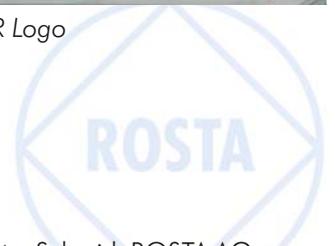
The caterpillar guide rollers of the first *Digger* prototypes were rigidly mounted, which greatly limited the mine-clearing vehicle's off-road capability. On the second prototype, as well as the first production series of 10 *Digger D-2*'s, the six guide roller pairs on each tracked

vehicle were each fitted with flexible **ROSTA Type DR-A 50 x 300 rubber suspension units**. This individual spring mounting of the guide rollers improves the off-road adaptability of the caterpillar drive, and reduces the effective peak-pressure on the track, thereby improving its traction transmission. Another positive aspect of this „path-adaptive“ individual wheel suspension is the improved horizontal positioning of the chain-roller drum, which can now maintain a constant ground contact over virtually the entire working width.

**These maintenance-free, long-life and absolutely insensitive flexible wheel suspensions from ROSTA are ideal for *Digger D-2* vehicles working in remote areas!**



*Digger DTR Logo*



Editor: Peter Schmid, ROSTA AG  
Pictures: Iris Trottmann, ROSTA AG

## TENSIONING TECHNOLOGY!

### Elastic Motor Suspension for Friction Belt Drives – what for?



*Splintering chipper in the chipboard plant*

rubber encasements around them are the elastic components of the friction belt. Due to their structure, belts are thereby subject to **elongation with wear**, which starts in the first hour of operation, is shown most intensively in the run-in phase, and continues over the whole life span of the belt. This elongation must therefore be regularly compensated, as the torque transmission would otherwise reduce drastically, and the resultant slippage, with its accompanying friction heat, would lead to the premature wear and failure of the belt.

The torsionally-elastic **ROSTA Type MB motorbase**, with its slip-compensating operation, is the ideal, maintenance-free suspension for the drive motors of friction belt drives. The elastically supported drive motor, mounted on a motor plate that is pre-ten-

V-, trapezoidal and flat belts are mainly used for the drives of unevenly running machines. With the flexible drive component „**belt**“, so-called friction belt drives offer the possibility of compensating torque peaks, starting torques, impacts and shocks without negative backlash to the motor and gearbox. The flexible structure of the belt absorbs these peaks, and can dissipate them via the drive pulleys in the form of slippage.

Classical friction belt drives can be found on many large drives for unevenly running units such as pumps, rock crushers, chippers, presses, punches, vibrating screens, heat exchangers and centrifuges. In order to compensate or moderate the machine run, these units are often equipped with heavy flywheels, whose large inertia can balance out drive peaks and impacts, too.

In order to dissipate the peak torques, friction belts have a flexible structure. The fabric carcass, the textile belts and the



*Setting of the Type MB 100 motorbase*



Tensioning the belt using a spindle gearbox

The very high peak torques that arise in the chipping of root timber and recycled wooden waste lead to excessive elongation of the drive belts, which results in an almost daily, ritual re-tensioning of the belts and re-alignment of the motor. Hard work, which requires an expensive hour of work from two factory mechanics every time.

**The pre-tensioned, continuous elongation compensation of the motorbase from ROSTA does this automatically, and there is also thereby no need to re-align the drive motor! The expensive plant maintenance work has been drastically reduced, and the working life of the belt sets has been quadrupled!**

sioned by a ROSTA rubber suspension unit, automatically compensates the continuous elongation of the belt, and effectively dissipates any torque peaks.

For many years now, ROSTA has been building standardised automatic motorbases for frame sizes up to **315 S** for motor outputs of **110 kW**, which thanks to their simplicity, efficiency and maintenance-free operation, have found a fixed place in friction belt drive technology as **belt-protecting** installation components.

At ROSTA, the increasing demand for considerably larger elastic suspensions for belt system drive motors has led to the development of the Type **MB 100** motorbase, for the installation of motors with frame sizes up to **DIN 355 L** (250 kW motors) and **NEMA 449 T** (350 hp motors) respectively. The mode of operation is identical to that of the smaller types MB 27, 38, 50 and 70, although the mechanical pre-tensioning unit has been

adapted to the much larger pre-tensioning torques by means of spindle transmission.

The serie of pictures shows the installation of a 250 kW friction belt drive onto an automatic ROSTA Type **MB 100** motorbase for a drum-type splintering chipper in the Kronospan chipboard plant in CH-Menznaun.

Editor: Peter Schmid, ROSTA AG  
Pictures: Bernhard Fasler, ROSTA AG



Automatic compensation of the belt elongation



## [www.rosta.ch](http://www.rosta.ch)

We are rather proud of our new Website!

It first appeared on the Internet in September 2005, and has proved to be very popular with people interested in „the Blue Ones from ROSTA“. Navigation is as simple as possible, and, based on our three business fields **Tensioning Technology**, **Oscillating Conveyor Technology** and **Rubber Suspension Technology**, all our product information can be visualised in the shortest possible time.

A clearly laid-out programme overview displays the various standard products in



our three business areas. Clicking on the desired ROSTA components will call up a 3-D presentation of the respective

machine component at the lower left of the screen, which can be rotated in any direction by clicking the left mouse button. For CAD users, the 3-D presentation can also be downloaded for further processing (and can be opened in virtually all 3-D CAD programs).

In addition, our Website also provides information about our worldwide distribution network, about the latest developments and applications worldwide (ROSTA-INFO) and about ROSTA rubber suspension technology in general.

**We look forward to your visit to the [www.rosta.ch](http://www.rosta.ch) Website!**

## Exhibition participation of ROSTA 2006

**IPACK-IMA** Milano, Italy  
February 14–18  
Booth: ROSTA S.r.l., IT  
[www.ipackima.it](http://www.ipackima.it)

**ExpoMin** Santiago, Chile  
May 23–27  
Booth: Riosan Ltda, CL  
[www.expomin.cl](http://www.expomin.cl)

**BAUMA CHINA** Shanghai, China  
November 21–24  
Booth: ROSTA AG, CH  
[www.bauma-china.com](http://www.bauma-china.com)

**TECHNI-SHOW** Utrecht, Netherlands  
March 14–18  
Booth: A & A techniek  
[www.technishow.nl](http://www.technishow.nl)

**AANDRIJF-TECHNIEK** Utrecht, Netherlands  
October 3–6  
Booth: A & A techniek  
[www.aandrijftechniek.nl](http://www.aandrijftechniek.nl)

**MECANELEM SCS Automation** Paris, France  
December 5–8  
Booth: Prud'Homme + ROSTA AG  
[www.industrie-expo.com](http://www.industrie-expo.com)

**POWDER & BULK SOLIDS** Chicago, USA  
May 9–11  
Booth: Lovejoy Inc., USA  
[www.powdershow.com](http://www.powdershow.com)

**SWISSTECH** Basel, Switzerland  
November 14–17  
Booth: ROSTA AG, CH  
[www.swisstech2006.ch](http://www.swisstech2006.ch)



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