ROSTA Info

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TENSIONING TECHNOLOGY!

NEW!

ROSTA Motor Base Type MB 100!

Figure 1

The self-adjusting universal motor base for friction belt drives with drive power in the 90 kW to 250 kW range (motor frame sizes 315 M to 355 L or NEMA frame sizes 449 T and 586/7 = 200–350 HP).

This heavy-duty motor base is supplied fully assembled and ready for use. The two-part motor plate includes as a standard feature the mounting holes for all the motor frame sizes listed above (figure 1).

The belt tension can be set accurately by means of a mechanical pre-tensioning unit (figure 2).

The bevel gear lifting spindle has a maximum tensioning travel of 120 mm and, depending on the desired angle of motor inclination, can be secured to two different positioning holes on the ROSTA rubber suspension element.

The pre-tensioning screw on the lifting spindle, width 24 mm, must not be actuated with a pneumatic screwdriver – use a ratchet screwdriver!

Figure 2

Customer benefit:
The rotation-elastic ROSTA motor base type MB 100, with its slippage compensating operating mode, provides an ideal maintenance-free suspension for the drive motors used for big friction belt drives, e.g. on cyclone pumps, stone crushers, wood chip cutting machines, presses, punches, heat exchangers, centrifuges and stone saws. The flexibly mounted and pre-tensioned drive motor automatically compensates the belt elongation which occurs continuously and effectively eliminates torque peaks so achieving a vast improvement on the service life of the belt sets.

ROSTA motor base type MB 100 with 220 kW drive motor for a **Warman** centrifugal pump (Photo: BHP Billiton-Mining, Australia)

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OSCILLATING CONVE

Efficient suspension of screening machines on high processing plant

Fig. 1: Linear vibrating screening machine on ROSTA AB's in a very high steel-structure plant.

For maximum process efficiency, large, heavy screening machines, for example for the extraction of the various grain sizes of pebbles in the preparation of ready-mixed concrete, are always **positioned at the highest point of the plant –** high above the silos, crushers and concrete mixers (fig. 1). These screening machines weigh several tons, and are accelerated up to **5 g** forces by their drives (unbalanced motors, unbalanced shafts or linear exciters), which generates very high dynamic forces.

Neither high reaction forces nor excessive transmission of the vibrations are desirable on the very high steel structures of these processing plants, as they lead to material fatigue in the steel structure and inaccurate functioning of the downstream machinery and controllers. In addition, they make it impossible for the operating staff to work on the various platforms and working stages for longer periods.

When installing screens on such high steel structures, suspensions are thereby demanded that are **highly isolating, reaction-neutral** and have a **controlled runout.**

The **ROSTA oscillating mountings type AB** with the double-arm pantograph arrangement are offering deep spring-deflection, and thereby have a **low natural frequency of approx. 2 Hz, which results in levels of isolation of up to 98 %** of the vibrations from the drive unit!

ROSTA suspensions harmonically support the linear or elliptical movements of the screen and, **through their pantograph construction, create relatively little dynamic rigidity,** which can be transferred to the substructure as residual force.

ROSTA oscillating mountings dissipate virtually no lost energy (< 0.5 %) while the screen is running normally. During the resonance transition of the screen, the two rocker arms describe excursions that are 5 to 6 times as great, which generates a high level of energy-loss (hysteresis) in the rubber inserts. **The remaining energy in the screen box will thereby be completely dissipated within a few movements!** The screen goes in standstill.

AB mount

YOR TECHNOLOGY!

Effective reduction of the residual force transmission to the substructure

In very high structural steel plants with lightweight designs, an additional **energy-absorbing counterframe** is also frequently positioned under the screening machine itself for the absorption of reaction forces. The oscillating suspension of the screen is mounted on the counter-mass, which is also elastically suspended, and which slightly reduces the oscillation amplitude of the screening machine, but which dissipates a large portion of the resulting dynamic acceleration through the countermovement (fig. 2).

From experience, these counterframes weigh between 50–100 % of the weight of the screening machine itself. The more counter-mass, the lower the transmission of the residual force! Due to the large mass inertia of the screening machine, the counter-mass only compensates a relatively small fraction of the effective oscillation amplitude of the screen.

ROSTA offers both the type AB low-frequency screen suspension and the very high-load type AB-D suspensions for the support of the counterframe. It goes without saying that the supports of the counterframe mass must also be able to support the weight of the screening machine and the counterframe.

It is above all recommended to install counterframes if several very heavy screening machines are working on the same processing deck. Two or more screening machines will never work (oscillate) synchronously with each other, which leads to reciprocal bending stresses in the processing deck or in the working platform. In addition to the transmission of the residual forces to the ground, which is very unpleasant for human beings, these asynchronous bending stresses lead to material fatigue in the complete construction of the plant.

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AB-D mount

Fig. 2: Gravel dewatering screen with counter-frame on ROSTA AB's and AB-D's

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RUBBER SUSPENSION TECHNOLOGY!

Brunello di Montalcino . . .

. . . must be left to mature for four years in absolut tranquillity in an oak barrel until it is released on to the market as what must surely be the most sought-after of all Italian wines.

However, for lovers of Italy, the name Montalcino is not just a byword for Brunello wine. The picturesque hilltop city and fortress in Tuscany, lying some 30 km south of Siena, gives tourists an opportunity to get to know the late Middle Ages at close quarters. The fortifications surround the city like a citadel on the 570 m high Montalcino hill.

The **Chiesa di San Francesco** is a true symbol of this little medieval city with some 5 000 inhabitants.

Of late, this Chiesa di San Francesco has been a source of some worry for the people of Montalcino. The 30 metre high Campanile (steeple) made of bricks was built in the 15th century and since eroded by the passage of time. The oscillations and vibrations constantly transmitted by the swinging bells caused the substance of the structure to deteriorate. The centuries-old lime mortar trickled out of the joints between the bricks as the bells were rung every day and the tower structure began to show the first cracks.

Stop ringing the bells or install vibration-free suspensions of the belfry?

That was the big question in Montalcino! Fortunately, the decision was taken to go on ringing and all the oscillating bell pedestals were mounted on two supporting **ROSTA anti-vibration mounts Type V 45 –** and the trickling lime stopped flowing!

In the "Cantinas" or wine cellars located further down the hill, the Brunello will be able to mature peacefully in the absence of future vibrations.

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