

ROSTA Motorbases Type MB 100 on New-Sulzer-Burckhardt Vacuum Pumps

Aniline, used in the chemical industry primarily as a raw material for the synthesis of colours and synthetic fibres, as well as for the manufacture of synthetic rubber and medicines, is technically extracted by the reduction of nitrobenzene, in the presence of iron and hydrochloric acid. For the further processing, the aniline produced is distilled in a vacuum.

The company **nsb AG** (New-Sulzer-Burckhardt AG) situated in Basel, builds very large liquid ring pumps to create a vacuum for industrial needs.

Recently, **nsb AG** has delivered two large radial liquid ring pumps for the extraction of aniline to a customer in the petro-chemical industry. The ring pump, driven by eight SPC V-belts, is driven by a 250 kW, 6 pole (1500 min⁻¹) electro-motor, with a frame-housing 355M and weight of 1750 kg.

The reduction ratio of the drive motor to the flywheel of the ring pump is 1:3,75



Installation of the 1750 kg heavy motor on the motorbase, and tensioning of the eight SPC V-belts by an integrated bevel-gear shaft drive.



250 kW drive motor for the fluid ring pump on ROSTA Motorbase Type MB 100

(pump speed 400 min⁻¹) and the effective belt length measures 5 metres.

nsb AG wanted to supply their customer with a **user friendly** vacuum plant and therefore installed the large 250 kW drive motors on **self-adjusting ROSTA Motorbases Type MB 100**. Until it reaches its lifespan due to wear, a 5 metre long V-belt is subject to an average elongation, because of age, of approx. 3%, in this case, this is equivalent to a distance of 150 mm. During the first months of operation, without **self-adjusting, slip compensating** ROSTA motor suspension, the maintenance personnel would have had to compensate for the belt elongation on a weekly basis, in order to guarantee slip-free torque transfer.

For the mentioned drive size, with new adjustment of the motor, that is equivalent to **expensive maintenance work**

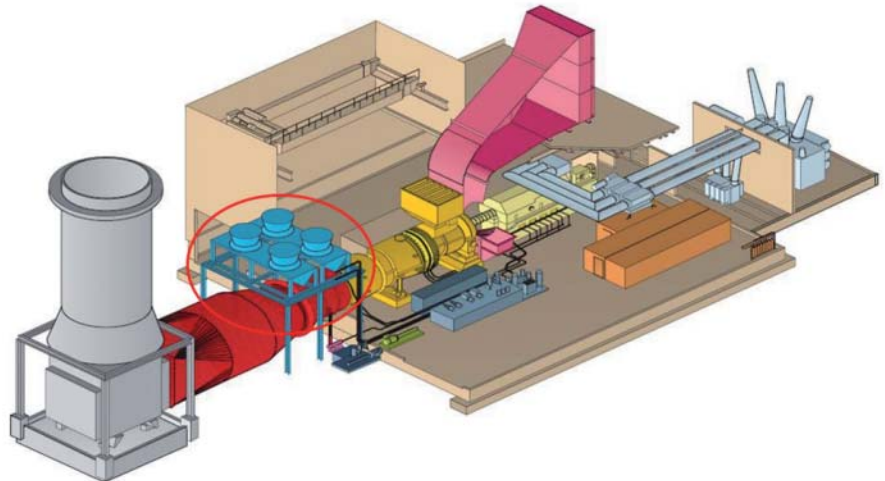
of approx. 1½ hours for two qualified mechanics. Moreover, the endurance of the **belt extends** by approx. **factor 3** with the self-adjusting mounting of the drive motor; the belts never operate under heat generating slip conditions, do not become warm when operating and will not become glass hard prematurely and brittle, that leads to failure!

All in all a user friendly, cost saving investment!



Application of ROSTA Motorbase Type MB in Large Heat Exchangers

Industrial coolers or heat exchangers for the cooling of the coolants, such as water, oil or anti-frost refrigerants, have the task to appreciably cool down the respective cooling medium, for example in motors, generators, refrigeration or air-conditioning plants, by passing the refrigerant through a radiator (secondary circulation) so that it can be recirculated to cool the heat producing unit again. The warm air produced by the cooler is often used for further heating purposes.



Pattern of an ABB gas turbine with four heat exchangers

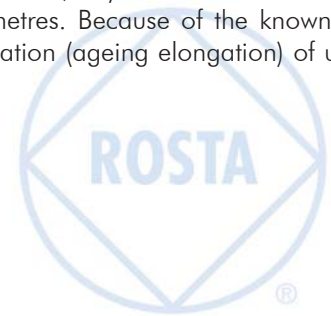
Industrial heat exchangers consist mainly of one, or more, cooling radiators of a large area (single or double block coolers) made from heat conducting copper pipe with integrated fine copper cooling honeycombe. Large impeller ventilators are used, to blow or suck large quantities of cool ambient air through the radiator honeycombe, to intensify the discharge of heat from the cooling medium.

The large horizontal impeller ventilators, with an impeller diameter of up to five metres, are mainly driven by friction belts. When starting, the friction belt drive permits a certain slip and compensates irregular rotation spikes of the ventilator blades, thanks to the elasticity of these drive components.

Because of the required speed reduction, these belt drives feature very large belt pulleys, which results in a large pitch between the motor-shaft and axle of the ventilator. The effective length of the belt is, therefore, very often between three and five metres. Because of the known belt elongation (ageing elongation) of up to

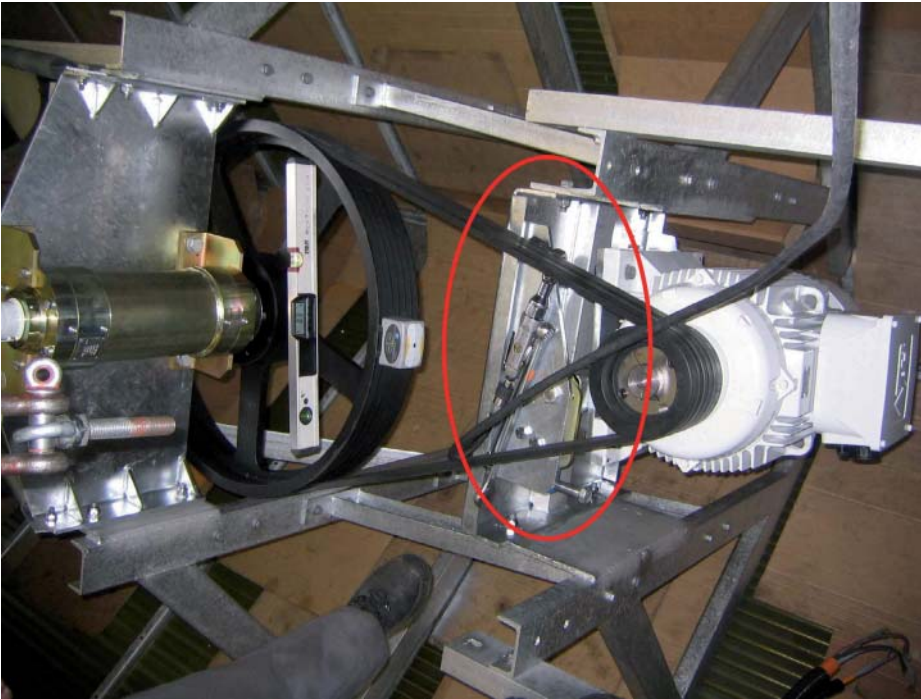


Double block cooling devices ECODYNE AG with six impeller ventilators for ABB gas turbine in power plant



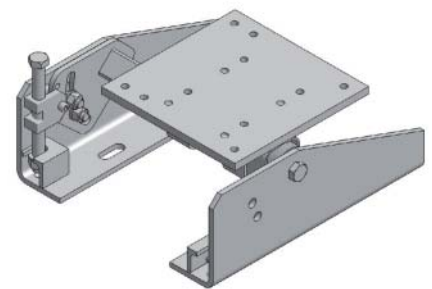
Belt drive for impeller ventilator mounted in vertical position on ROSTA Motorbase type MB 50 x 200

Ecodyne



Drive motor for impeller ventilator installed on zinc plated ROSTA Motorbase

the belt are proved to triple, because no destructive frictional heat, caused by slip, can prematurely age the belt and cause it to go glass hard.



3% of the total length, this type of drive requires periodical retensioning of the belt otherwise slip would occur and reduce performance. This retensioning means misaligning and readjusting the motor on the drive frame – a time consuming maintenance task that can initially be required weekly (new belts), very often at dizzy heights.

The Swiss heat exchanger manufacturer **ECODYNE AG** uses **automatic retensioning ROSTA Motorbases**, for the mounting of the belt drive in their double block coolers, which continually compensates for the arising belt elongation! With this system, the optimal torque transmission is guaranteed and tedious, periodical maintenance tasks are completely eliminated. This decision is to the advantage of the efficiency of this plant that is exported worldwide. In addition, the service life of the strands of



ECODYNE double block heat exchanger (V-shape) with two impeller ventilators for efficient air circulation

This element can be worth its weight in gold for your design!



In many cases, ROSTA rubber suspension elements replace complex, maintenance intensive and susceptible hydraulic or pneumatic components in machinery with the easily installed, maintenance-free and durable torsion suspension elements.

Manufacturers from all parts of industry: **Lawn mowers, compressors, air-hammers** and **tillers**, also sustain the food for thought with the ROSTA components that can **be worth their weight in gold!**

Together with their distribution partners, ROSTA AG is at present launching a direct mailing action with the "golden" ROSTA module with the motto: "This element can **be worth its weight in gold** for your design!" Enclosed in each mailing is a "golden" standard rubber suspension element, which should give food for thought for the simplification of existing designs for pressure rollers, guide rails, centering guides and stops.

The Blue Ones from ROSTA ...

... offer the greatest insulating effect for lawn mowers, compactors, jack hammers, rototillers, etc.!



- arm joint protecting
- dampens vibrations
- robust
- maintenance-free



The Blue Ones from ROSTA ...

... for relaxed, ergonomic sitting, in business or in leisure time!



- maintenance-free
- progressive suspension
- absorb shock and vibrations
- silent
- secure against overloading



Our golden element shall lead the manufacturers of **sitting furniture** and **school chairs** to reconsider the elastic joints and pivot articulations. In many cases, the sitting furniture is ergonomically elaborately designed with a vanguard look, but the joints and articulations do not correspond to the latest technical findings and their early wearout determines the lifetime of these costly sitting furniture.

Represented by:

The Blue Ones from ROSTA ...

... for the regulated guidance, control, hold-down and steering for your material to be conveyed!



- maintenance-free
- robust
- simple
- cost effective



The **EU Guideline 2002/44**, applicable to the hazard appraisal of the operators states that the afore mentioned garden and road construction devices, with **more than 2,5 m/sec² acceleration** at the user console, can only be operated by one person for a **limited period of time**. A limited period of daily use reduces the possible market potential of these devices!

In most cases, the ROSTA rubber suspension elements, as an elastic suspension for the operating hand levers, or the user's console, reduces the acceleration level to the operator to **less than 2,5 m/sec²!**

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