



Piping on the operator side of the pre-dryer section of the PM 4

Completely new lubrication technology from AS

by Manuel Froncek*

The reason behind the overhauling of the paper machine was to convert the PM 4 into a multiproduct plant. AS Drives & Services GmbH, Reken was responsible here for modernising the entire lubrication technology, from engineering to commissioning.

The "renovation of the PM 4" was a big project for Josef Alberding, the installation supervisor and managing director of AS Drives & Services GmbH and his team. AS was responsible for the entire lubrication technology for the machine, and in addition to installing all components, also assumed the engineering including planning of piping and the preparation of the plant layout diagram.

The company modified the existing lubrication unit by changing it to new, frequency-controlled motors to adapt to the new circumstances. AS also installed six restacking units each with a container

volume of 50 litres in the basement of the plant to pump the oil running back from the guide, training and tensioning rolls installed in the basement back to the central lubrication unit. This work undertaken parallel to the conversion of the lubrication unit was a major feat lasting several weeks. AS assumed the complete installation of new supply and return pipes for the entire PM 4, installing over 8 km of new pipelines.

FlexoFlow oil flow controller

Where previously simple flow meters and progressive distributors had been used, AS

replaced these during the modernisation with the new intelligent FlexoFlow oil flow controller. 321 units were distributed over 18 FlexoFlow terminals, which since the reintroduction of the machine in the summer of 2011 have been supplying all bearing surfaces.

THE ADVANTAGE of this flow controller is the fully automated adjustment of all FlexoFlows in one system. Each FlexoFlow adjusts a fixed setpoint value, independent of oil temperature, viscosity of the oil or pressure. What is more, they require considerably less system pressure com-

pared to the old progressive distributors. Where system pressure of 25 bar was previously needed to supply the plant adequately, just 5-6 bar are necessary using the new units. The FlexFlow terminals were integrated via Profibus in the process control system to monitor all values (such as default values, alarm etc.) from the control room.

Replacement of the entire grease lubrication system

AS was also involved in the area of grease lubrication. AS replaced the entire grease lubrication system supplying the wire and press section, also supplementing it with grease lubrication points for five further rollers. The new grease lubrication system supplies all rollers via a central grease supply vat and a so-called "dual line system". This system supplies grease to all lubrication points fully automatically. Manual lubrication is therefore superfluous, a great advantage in the case of inaccessible areas. The dual line system is also a closed

system that prevents contamination and lubrication points being forgotten. Once the new lubrication technology had been installed, AS remained on site until commissioning so as to guarantee a smooth start from the point of view of lubrication.

The satisfaction of the papermakers at PK Varel with the work carried out by AS is demonstrated by looking at future plans. Namely PK Varel is already planning to overhaul further dryer sections of its Board Machine 2. In future there are to be two additional dryer cylinders each to boost the drying performance of the 3rd, 4th and 5th dryer section. The lubrication technology from AS is to be deployed here too.

THE ORDER for a further twelve FlexoFlows has already been placed. AS thanks all project managers, in particular Uwe Wollschläger and Henning Wald, for the smooth collaboration during all projects. ■

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FlexoFlow terminal to supply bearing surfaces