

Smooth glazing with Valmet super calenders

This reference case is about a paper finishing machine called super calender made by Valmet Järvenpää.

One problem with these machines was too high bearing temperatures in so called spreader rolls. When this happens the paper surface will be glazed unevenly.

The first action SKF proposed some 10 years ago was to use spherical roller bearings with only half the number of rollers to reduce friction. However, when the new generation of spreader rolls with polymer coated surfaces were introduced recently, this solution proved to be insufficient. The local higher temperatures damaged the polymer surface. This was of course unacceptable.



Valmet and SKF studied the problem closely together and the outcome was more appropriate bearings for this application.

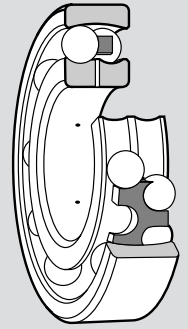
The new solution means a changeover from spherical roller bearings to self-aligning ball bearings. These bearings have the lowest friction of all rolling bearings, and in combination with their self-aligning feature this makes them the optimum choice for this type of arrangement.

Results from extensive tests at Valmet show that with the old solution the mean temperature increase (measured at the bearing position but outside the rotating shell) was 11 °C. With the self-aligning ball bearings the increase was only 1 °C. These results were so encouraging that Valmet decided to use the new solution in a completely new machine for UPM in Finland.

This machine has been in operation since January 1998 and it has been working perfectly since then.

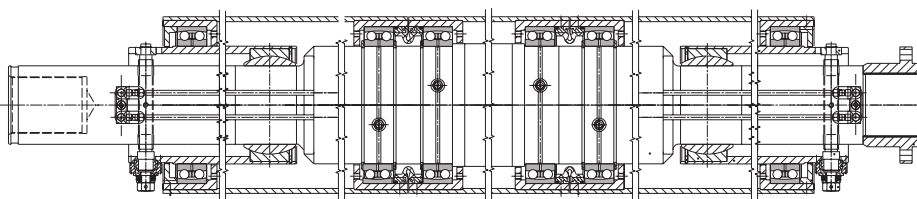
The main advantages with the new solution are:

- improved paper quality
- wider operation range for the machine
- lower temperatures
- less need of relubrication
- longer operating periods between service stops
- less noise



Bearing application data

Bearing:	BJ2-4008 d = 240 mm D = 320 mm B = 60 mm (6 bearings per spreader roll)
Speed:	1 280 r/min
Load:	4 500 kg (roll mass) 500 N/m (paper web tension)
Lubrication:	Grease



Source
Oy SKF Ab
Espoo, Finland