

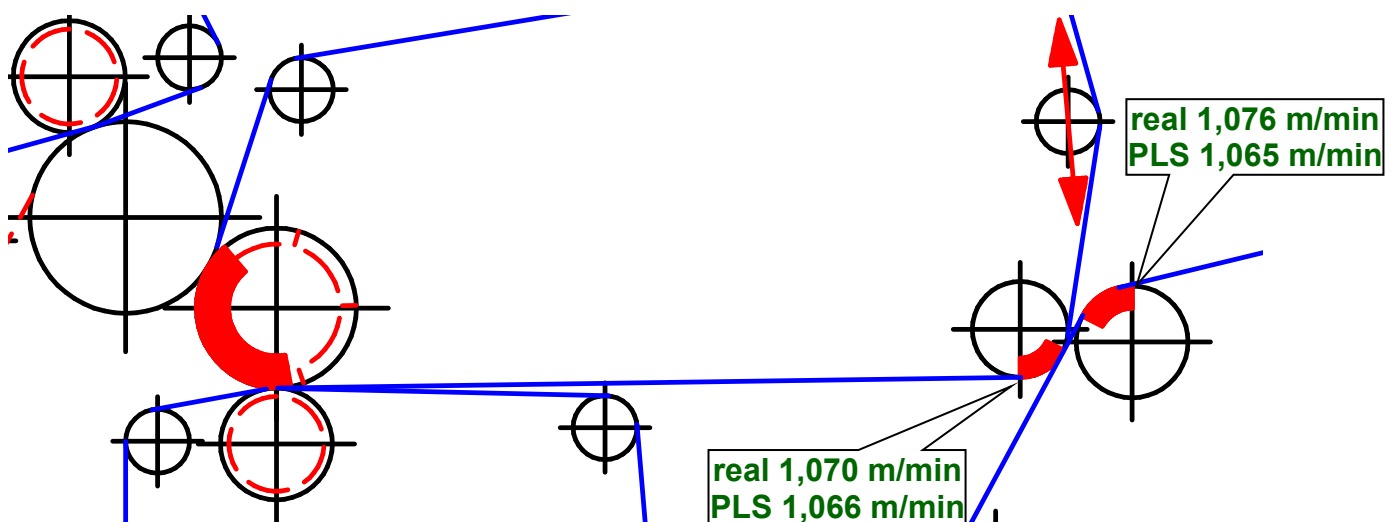
## Optimising speeds

**Problem:** Edge stealing from the bottom wire and sheet drop-off on the Pick-up felt often causes sheet breaks and insufficient runability. In the case of a fine paper machine (1,200m/min; machine width 9,5m; 52 g/m<sup>2</sup>) all measures like felt conditioning, roll changes etc. could not achieve the desired improvement.

**Solution:** Although the draw of the wet end seemed to be properly adjusted according to process control system, we verified it by conducting relevant speed measurements. Our measurements revealed that the Pick-up felt ran about 6m/min or 0,6% slower than the forming wire despite of correct speed settings in the process control system. As a result, this led to increased paper web compression on the felt and compaction of the Pick-up felt especially of the felt edges, which in turn causes increased sheet breaks.

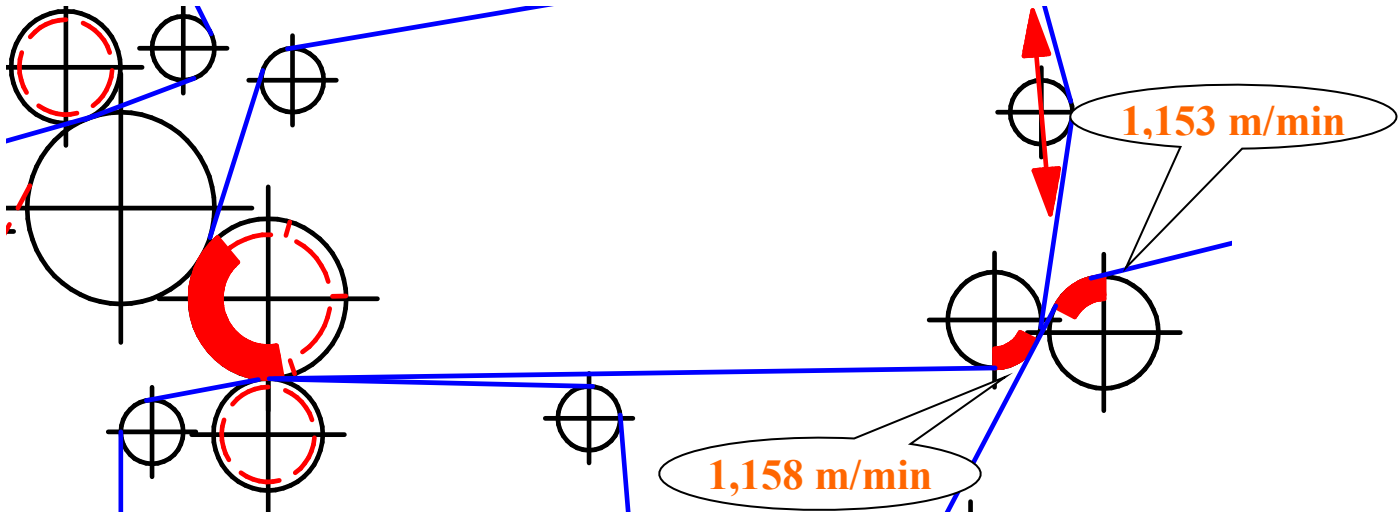
Based on our measurements we adjusted the speed settings. The Pick-up felt was set to run 0,4% faster than the forming wire.

Figure 1: Before the optimization



## Case study: Optimising speeds

Figure 2: After the optimization



### Benefit:

- The draw after the 3rd press was reduced from 2,7% to 2,3%
- Wider paper sheet at the reel, which provides increased production output and machine utilization
- **The average machine speed per month could be increased by 50m/min.** This led to additional production output of 11,700t/year or in other words based on an assumed paper price of 500€/t:

Increased turnover per year:



(= +50 m/min \* 9,50 m \* 52 g/m<sup>2</sup> \* 24 h \* 330 days \* 500 €/t)