



To Invest Means to Save Small Issues – Great Effects

Dear paper makers,

Not long ago my TASK colleagues and I sat around a table over lunch and asked ourselves the following question: Why should customers really engage with our department, what purpose do we serve for paper makers? In a lively discussion we quickly found a joint answer: TASK helps to make savings! And in order to prove this, my colleagues asked me to dig out some case studies; it didn't take very long.

So I went and pored over practical examples: I found several 'Savings Projects', which, unfortunately but understandably, I can't present to you all in one go due to their volume. Therefore we will initially concentrate on an **almost unbelievable example today**. Just a hint upfront: extremely small cause – massive effect ...

To Invest Means to Develop

Our customer's production manager explained his view – and that of his paper

makers – in a briefing meeting: The customer was (and is) expressly focused on "increasing **efficiency through process optimisation**". He has approached our department with this demand several times before, as 'old TASK hands' revealed to me. One colleague said for instance: "This customer is visionary indeed because they are virtually never interested in a search for the lowest prices, but rather have the goal of buying the best mix of excellent consumables and outstanding service." Another colleague confirmed

this by saying: "This customer has become known to us through the statement 'investing means developing'. He insists on this in order to emphasise the following: The best cost-benefit ratio prevails when **clothing and machine settings work towards superior runnability**." Quite right, as in the final analysis this is the prerequisite for higher economic efficiency of the paper machine. But now back to reality: So what precisely needed to be done?

'Paper Spikes' and Fabric Wear

The problem was spikes in the CD paper profiles: The difference in weight was up to 3.5 g/m². The problem was located in an area around 430-730 mm in from the operator-side edge. The phenomenon was observed **every time** a new fabric was installed once the paper machine (a twin-wire former) had been running at the speed required for the specific grade production for between 9-12 days. Altogether **six forming fabrics** from different manufacturers were affected (among them two Primobond fabrics from us). This problem deteriorated further to the point that by the time we intervened fabrics had to be changed **after just three weeks on the machine**. This could not be in either the customer's or our own interest. The customer declared their justifiable aim: "We need the fabrics to run for at least eight weeks!"



Heimbach TASK: Your partner for efficient paper production.



Establishing the Facts – Step One:

Fabric Analysis

“Let’s look at the wire”, my colleagues and I said. We detected no discernible wear either on the paper or the machine side of the fabric surface. Similarly measurements of the fabric thickness (during the operation it was only possible to measure up to 250 mm from the edge) did not show any anomaly. Furthermore we could not detect any creases and/or visible deformations of the fabrics, even though we did notice slight striation. Last but not least we measured the fabric tension: At the point of measuring this was > 7.5 kN – uniform across the total width. This meant: normal values everywhere.

Even More Facts – Step Two: Laboratory

As is so often the case, we consulted our colleagues at the lab in order to find the reason for the problem. This step always complements our TASK work very well, as the engineers in the laboratory are always able to come up with interesting facts. This additional insight enriches our TASK analyses of the paper machines and **provides the customer with clarity** – both quickly and effectively – in terms of the problem. In the aforementioned case we were able to determine “internal” damage resulting from extreme internal abrasion on warp and weft (Fig. 1). We knew immediately: Very high force must have been applied to the fabric, so that it was being “compressed” bit by

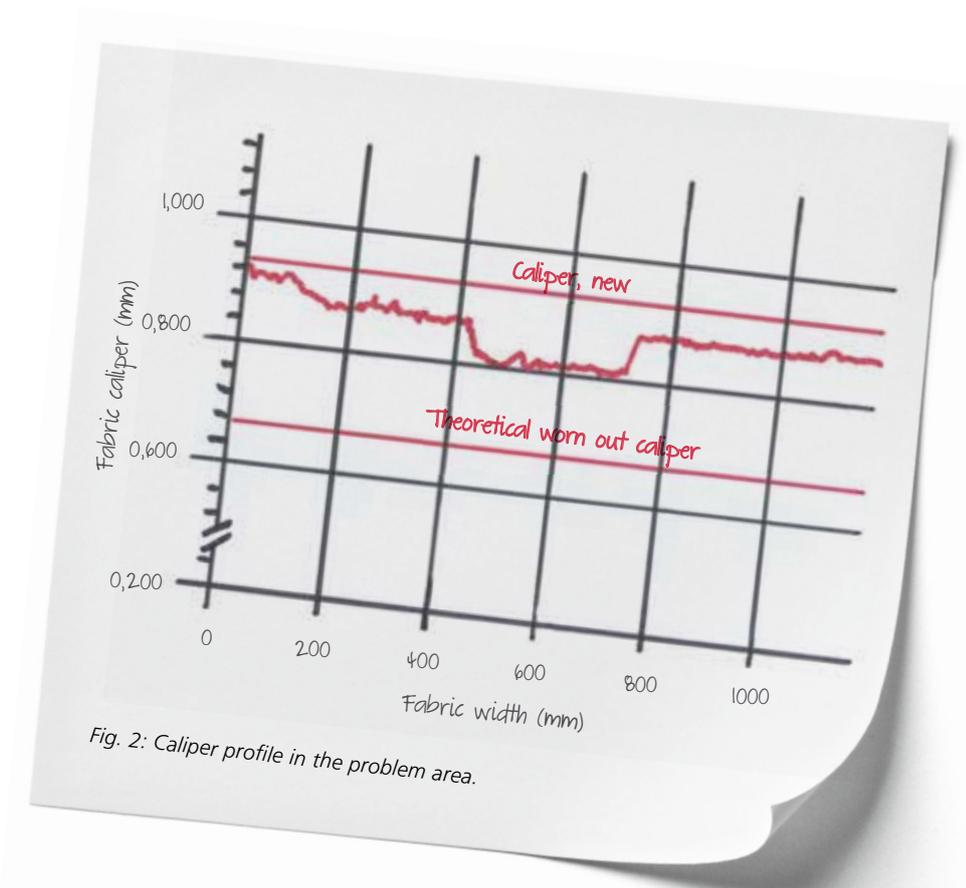


Fig. 2: Caliper profile in the problem area.

bit. Additional comparative caliper measurements confirmed the damaged area (Fig. 2). Therefore the first important discovery was: **The CD profile spikes in the paper resulted from obvious fabric damage.** Now the question to be tackled was what exactly was causing this damage to the clothing.

Inside the Machine: Analysing the Mechanics

What mechanism was responsible for compressing the fabric in these specific areas? My TASK colleagues and I visited the customer

again with the machine both stopped and when running in order to determine the cause of the damage. Intensive inspections followed on site and when we discovered the solution to the puzzle we were very surprised because it was indeed a very small cause that was responsible for the enormous effect, i.e.: **One single nozzle of the HD cleaning shower was damaged!**

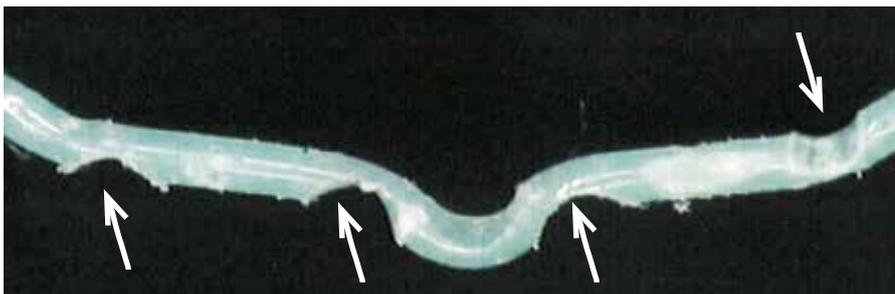


Fig. 1: Very clear: damaged warp.

Clarity for the Customer

The aforementioned nozzle generated an extremely turbulent water jet, which in turn caused strong pulsation. The water jet hitting the fabric had a “hammer” effect, and as a result the fabric was being “beaten up”: In addition to the “wrecking” mentioned earlier the fabrics within the problem area were obviously hardly cleaned at all, which meant an additional loss of efficiency. **The customer’s maintenance staff fixed the HD shower on advice of our TASK department** as there were many other nozzles that were not in optimal condition. When the shower was restored to optimal condition, with all nozzles working properly again, **forming fabric lifetimes were**

increased to 8 to 10 weeks in an instant – customer expectations exceeded! Furthermore paper makers at this mill can now expect – long-term – distinctly **more effective fabric cleaning and very even CD moisture profiles of the paper**. Their customers in turn will receive high-quality paper; the previous high rate of complaints is now a thing of the past.

Cost-Benefit-Ratio: Very Convincing
Our customer was happy knowing what it was that had caused their problems. As a small ‘thank you’ they gave their support in establishing an efficiency calculation that shows just how much our intervention has yielded: We are talking about a **saving of**

several hundred thousand Euros! As figure 3 shows graphically, clothing costs had increased dramatically. Furthermore unnecessary downtime was costing time and money as well as loss of production – let alone rejects and complaints from printers. All this is now in the past – and this is thanks to an investment that is hardly worth mentioning when compared to the result: **Our customer had to pay less than 3,000 Euros for materials and repair!**

Thus TASK does not only help save – TASK increases efficiency.

Till next time!

Your Paper Pete

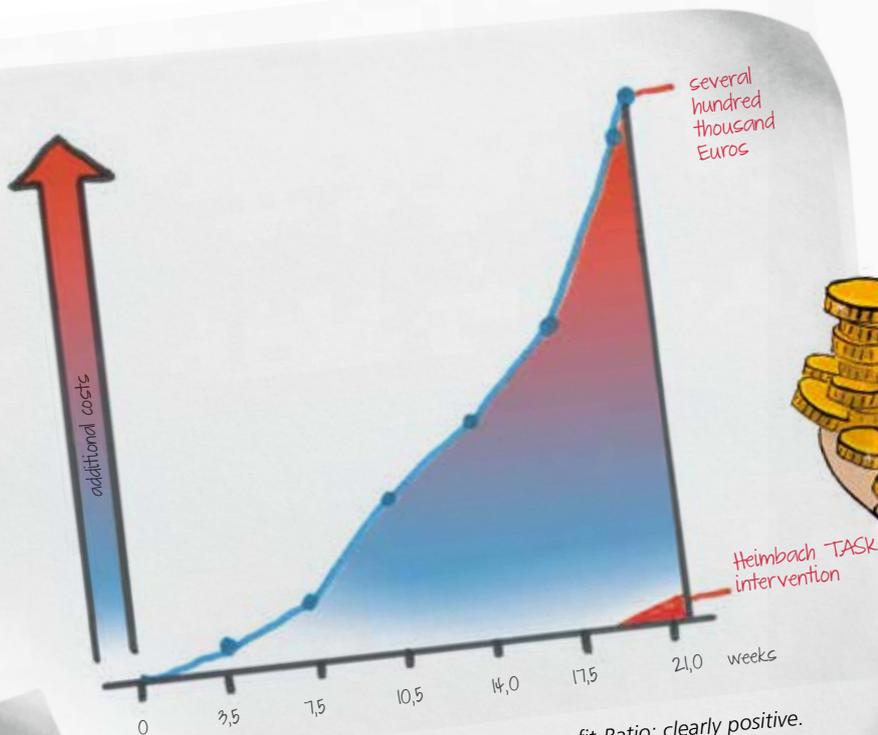


Fig. 3: Cost-Benefit-Ratio: clearly positive.

