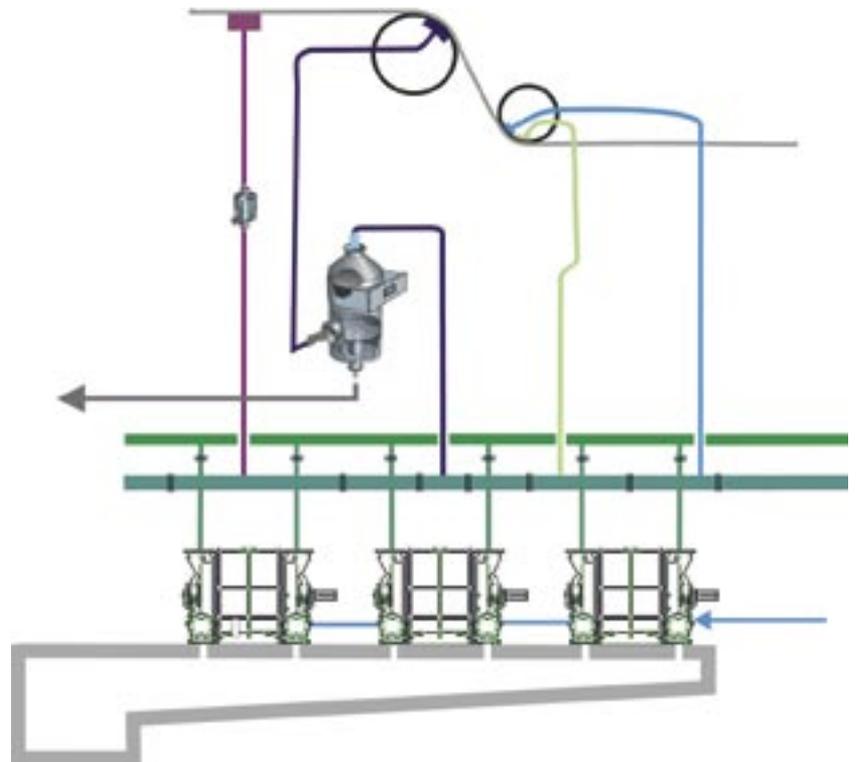




Jan-Erik Djuplin (left) managing director, Folla Tech Sverige AB and Idar Vandsvik, head of marketing, Folla Tech A/S Norway



Diagnosis and optimisation of vacuum pumps and systems

Jan-Erik Djuplin and Idar Vandsvik Have through their leading expertise and renovation resources within the paper industry. By optimizing vacuum pumps and systems they have successfully saved millions of Euro for many Scandinavian paper mills.

It is possible to renovate and optimise vacuum pumps and system via diagnosis and calculation. The two gentlemen mentioned above have been involved in more than 1000 renovations and optimizations of vacuum pumps.

In the 90s, Folla Tech answered

to the desire of the market and was the first to build an independent testing equipment for vacuum pumps in Europe.

Videoscope

Folla Tech have also invested in a portable diagnostic unit, Videoscope

scope, which enables checking of the vacuum pumps status, critical surfaces and dimensions. All the paper mills' vacuum pumps can be tested this way in one single day. Through regular diagnosis and calculations remedial measures can be planned and costs budgeted in advance.

Folla Tech is the only company in the Nordic countries who have diagnosed more than 600 vacuum pumps with the Videoscope in the

last four years. Large amounts have been saved by identifying unnecessary "energy leakages" and loss of capacity. Repairing them have increased capacity and reduced energy costs.

Energy

Vacuum systems are responsible for 25-40% of the paper machines total electricity usage. A number of different factors affect the systems efficiency such as pipe di-



Mätning med videoscope.





Here we can see normal vacuum pumps. But do we know the condition they are in, and how they look inside? What are the capacity and the energy use?

This test equipment for vacuum pumps is one of very few in Europe that has been supplied by an independent manufacturer.



Without the right checks the equipment will eventually be damaged. This will cost money in reduced capacity and higher energy use.

mensions, water flow, water quality, gas temperature, wear, back pressure, couplings etcetera.

Measuring with Videoscope

Over dimensioning is another important factor which contributes to unnecessarily large energy use.

Vacuum systems

If the customer requires we can also check and diagnose the whole vacuum system to find possibilities for improvements. We check vacuum levels, measure vacuum loss, check pipe routing, vacuum areas etcetera.

During the check we also include measurement of water volumes and handling of both process water and sealing water.

Through close cooperation with a network of specialist companies; European Industrial Group, we have the experience and leading competence to optimize and calculate complete vacuum systems which are both old and new.

The right skill levels

In order to restore vacuum pumps to “new condition”, experience, skill and the correct workshop resources are required.

The techniques used are thermal spraying, welding and composite.

A dynamic balancing of rotors and shafts is also important for good results.

Test equipment

Vacuum pumps are always tested before and after renovation. The

test equipment that Folla Tech has built into Follafoss allows accurate measuring of capacity and efficiency at different vacuum levels.

By testing before and after the repair we can calculate how effective the renovation is. The test also gives a documented guarantee that the pump works like a new pump when it is mounted in place.

Spare parts and new pumps

We have a supply of spare parts fitting the most common types of vacuum pumps. Exchange pumps are available in the most common types and sizes used in the paper and pulp industry.

We also have access to new pumps which are fully exchangeable with the most common Nash- and Siemens/Elmo pumps.

Education

We hold regular educational courses in pump techniques and vacuum systems. The training is intended for both maintenance and production staff but is also suitable for designers and buyers.

Service contract

The service contract has been written in cooperation with the customer to reach the specific goal and can cover everything from individual pumps to complete pump systems. The contract can also cover vacuum pumps and fluid pumps.

Vacuum pumps use
25 – 40 %
of the paper machine’s total
energy consumption

**Test of vacuum pump
before and after the repair**

Capacity

Before 22,7 m3/KW

Increase 38,2%

After 36,7 m3/kW

Energy

Before 466,7 kW

Savings 96,1 kW

After 370,6 kW

Savings per year

96.1 kW x 8 000 h = 768 MW x € 50 = € 38 400 per pump.