

RUNTECH PAPER MACHINE INDUSTRY VACUUM SYSTEM SAVES ENERGY, SPACE AND WATER



Runtech selected The Switch to develop the high-speed motors that they needed. The cooperation has been mutually beneficial for both companies.

Since 1989, Runtech has been on a mission to clearly reduce the power consumption of a paper machine pumping vacuum system. Since no solution matched the company’s vision at the time, the company began to develop a system in close collaboration with The Switch. Years of intensive design, testing and production scale piloting have produced a recognized frontrunner today in efficient vacuum systems for modern paper machines.

Growing need for turbo vacuum systems

After years of optimizing existing paper machine vacuum systems, Runtech realized that paper mills had a real need to find a solution with adjustable speed control. Competing traditional technology was either water ring pumps with low efficiency and remarkably poor water consumption or a single-stage or multi-stage blower aggregate with limited control ability.

“We knew if we offered a controllable solution, we could provide great potential for power savings by eliminating excess capacity due to over dimensioning. With adjustable capacity, savings would go directly to a mill’s bottom line,” says Kimmo Loippo, Founder and Chairman of Runtech.

“Additionally, a mill can benefit from water savings, foundation cost savings, and maintenance and parts savings. Indirectly, too, a mill is able to take advantage of faster shutdown time,” he continues. “The solution also offers considerable savings in space and weight.”

RUNTECH TURBO VACUUM PUMP SYSTEMS

- Continuous orders for high-speed motors
- Paper machine vacuum systems
- Speeds over 10,000 rpm





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Robust, solid rotor induction motor for unrivalled savings

Working closely to develop the ideal solution already in 1998, Runtech and The Switch, formerly Rotatek Finland Oy, based this unique system on the combination of a high-speed electric drive and high-efficiency turbo blower. The unit is driven with a frequency converter, which enables speed control from zero to the maximum without any limitations in the operating range.

“The Switch was able to help us develop the high-speed motors we needed, and our cooperation in this area has been mutually beneficial,” says Kimmo. “Our orders also represented the biggest single order for The Switch at the time.”

The turbo impellers are directly mounted on the motor shaft, making the system very compact and mechanically reliable. No gearbox or couplings are needed, a key factor to some of the considerable savings. The high-speed solid rotor induction motor is robust and has no resonance frequencies within the operating range.

Both the carbon composite or the cast titanium impellers are mechanically and chemically very stable. Oil-lubricated ceramic ball bearings and lightweight parts make the system easy to maintain. Scheduled maintenance can be carried out with a minimum of only 8 to 12 hours.

Unbeatable energy savings

The main benefit for a paper mill to choose a vacuum pump system from Runtech is the power savings. Results show that Runtech’s solution saves a mill between 30–60% in energy, even while increasing vacuum speed.

Another equally important advantage is the 100% savings in water, which is crucial to paper mill operation. Runtech’s solution is water-free.

The vacuum pump turbo blower also improves system reliability. It is easy to install, easy to own and operate and is an excellent option for vacuum system rebuilds and optimization projects. Payback time for a rebuild project is normally between 1 and 3 years.

Sales take off

Sales of the unique vacuum pump turbo blower were slow in the beginning because it was difficult to convince the conservative paper industry to make a change away from the conventional liquid ring solution. Yet once word of the impressive advantages started to get out and a proven track record was built, Runtech’s deliveries started to take off exponentially.

In 2013, the 100th vacuum pump turbo blower was supplied to South Africa. Only two years later, Runtech had delivered over 200 units of this winning solution to papermakers in every corner of the world.

“We look forward to deepening our cooperation with The Switch and continuing the results of our perseverance and development,” says Kimmo.

For The Switch, Runtech’s orders have represented growing serial production for high-speed solid rotor induction machines. These have been delivered together with The Switch drives.



THE SWITCH TURBO MOTOR AND DRIVE BENEFITS

- High availability
- Reduced maintenance need
- High efficiency
- Compact and lightweight design
- Advanced rotor and stator technology
- Full speed control