The Trützschler Group, headquartered in Mönchengladbach, Germany, is a world-renowned manufacturer of high-quality machines and plants for spinning preparation and the nonwovens industry. A good example of the optimization of processing and fabrication solutions at Trützschler is cleaners for cotton, such as its CL-C Cleanomat cleaners. “By consistently using consumption-optimized IE2 motors, we set a very high standard with regard to energy efficiency,” explains Peter von Dreusche, head of electrical design and electronics development at Trützschler.

Most of the company’s spinning preparation plants are used in three-shift operation, often in the textile regions of Asia and in Brazil. Due to the worldwide rise in energy prices, customers today pay close attention to energy consumption when looking at the return on investment (ROI) – including outside the European economic area, where EU Directive 640/2009 has applied since June 16, 2011, stipulating that the IE2 efficiency requirement be met for three-phase induction motors between 0.75 kW and 375 kW.

**Early switch to IE2 standard**

The company switched all the drives in its spinning machines to the IE2 standard early on, including the cleaners in the Cleanomat series. These are some of the most effective cleaners in the world, with up to three cleaning rollers for a high degree of purification combined with minimal fiber loss. The cleaning shafts are driven by three-phase induction motors from Siemens. The opening roller drive requires 4 kW, the two sawtooth roller drives 3.8 kW each. The motors provided by the automation partner made a custom configuration possible during the switch to IE2 motors, and the industry-proven availability of the motors contributes to the high availability and tool life of the machines.

The cotton is usually delivered in tightly pressed bales. A robot mills off these bales and blows the fibers through an airlock to the next processing steps, with the flow rate reaching up to 1,000 kg/h. In the first step, foreign matter is removed through a centrifugal cleaner; the cotton is then dissolved into individual fibers with lengths of up to 30 mm. Different types of raw cotton are mixed uniformly before this step to be able to guarantee a consistent quality – the recipe. The parallel fibers are then bundled into thumb-thick skeins and placed in cans, with processing outputs of about 200 kilograms per hour. During a complicated control process, six to eight individual strands are then turned into drawing frame slivers. These fiber slivers can later be processed into high-quality yarn in the spinning machines.

**Significantly lower power consumption**

Due to the energy-efficient solutions necessary for complying with the IE2 standard,
the machines have become more economical in their operation. “We use motors between 0.19 kW and 18.5 kW, making energy savings of quite a few percentage points possible,” explains von Dreusche. The higher the number of operating hours and the nominal output, the more significant the absolute power savings are compared with IE1 motors. However, the practical businessman lists additional reasons for using the IE2 motors from Siemens. First is the high quality of the products – the basis for a long-term supplier relationship. Also important to him was the efficiency with which the motors could be switched. The support of the manufacturer during the changeover – which affected all series and included the adaptation of CAD drawings, order lists, and so on – confirmed his choice: “Siemens has the right solution even for special cases.”

Due to the compact design of the motors, the construction did not need to be changed. So far, the space provided in the Trützschler machines has always been sufficient for an equivalent IE2 motor, even in machine modules with a very compact build. It was also possible to retain the maintenance and service intervals, and in some cases even to extend them, since due to their construction the IE2 motors are lower in maintenance than those of the previous series from the same manufacturer.

Expert partners

For the head of electrical design, delivery reliability is an important factor in the selection of a motor supplier. After all, about 100 of the described cleaners alone leave the Trützschler factories every year. This is why the switch to IE2 motors is a double success for von Dreusche: “With Siemens, we have an expert partner operating worldwide, and with the new IE2 motors, we can document the cost-effectiveness of our solutions for our global customers – that goes over well.”

“Energy measures such as the general switch to IE2 motors by Siemens improve the return on investment of our solutions.”

Peter von Dreusche, Head of Electrical Design and Electronics Development, Trützschler GmbH & Co. KG

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