Automation System Ensures Faster Skis

The company Blizzard Sport GmbH is one of the best-known manufacturers of winter sports equipment. Famous world cup skiers and Olympic champions such as Mario Matt or Susanne Riesch repeatedly race to success on skis made in Mittersill, Austria. Blizzard relies on JUMO technology to manufacture its internationally sought-after products.

Modern skis are high-tech products that no longer have anything in common with the straightforward "boards" from years past. True racing machines are made from materials such as wood, Titanal, and carbon in a sandwich procedure. These skis consist of several layers. The production process begins with a form corresponding to ski geometry.

The construction is carried out layer by layer with the coating, the edges, and a plating for the edges. A fiber layer of polyester, carbon, or other materials and, if necessary, an aluminum alloy is then frequently inserted. Afterwards comes a wood core, side panels, and above the wood core comes another fiber layer along with additional reinforcement materials if necessary. The ski surface forms the seal. The entire construction is set in the form and glued using epoxy resin under heat and pressure in a press.

The materials used for construction must withstand extreme conditions. This is where innovative hot melt adhesives and duroplastic adhesives made of polyurethane come into play. These can withstand the icy cold, constantly wet conditions, and extreme vibrations. A ski like this may well consist of more than 30 components. Modern skis are baked

Gluing the skis, a process referred to as "baking", is of particular importance for the quality of the final product. This is a very precisely coordinated process in which the measurands temperature and pressure must be continually monitored and controlled. Blizzard chose the JUMO mTRON T automation solution for this task. The modular system with its universal input and output modules, flexible connection technology, and comprehensive communication/evaluation/automation software can be used in a vast range of industries.

The heart of JUMO mTRON T is the central processing unit with a process map for up to 30 input/output modules. The CPU contains superior communication interfaces including a web server. For individual control applications, the system has a PLC (CODESYS V3), program generator and limit value monitoring functions, and math/logic modules. The available

input /output modules include a multichannel controller module, analog input modules with 4 and 8 channels, a four-channel relay module, and the configurable digital input/output module with 12 channels.

Above all, the executives at Blizzard were most impressed by the system's ease of operation. After only completing a five-hour training program, an employee programmed and successfully implemented the entire project. In the future, additional ski presses will be equipped with the JUMO mTRON T system.

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Fig. 1: Blizzard Sport GmbH in Mittersill, Austria
Blizzard Sport GmbH

Fig. 2: Modern skis are "baked" in presses such as these

Fig. 3: The installation situation of the automation system

Fig. 4: Process screen