

Innovativeness as the driving force

Recommended by experts.

If someone in Switzerland wants to have an extraordinary staircase, he will inevitably come across the creative minds of Treppenbau.ch AG. The people working in Bazenhaid are innovative staircase manufacturers from the bottom of their hearts. There is a good reason for the company's advertising based on the slogan: **Do you plan something crooked?** That is to say that their staircase constructions start at a point, where others leave off because it gets too complicated. The result are staircases designed, processed and installed with the aid of state-of-the-art technology.

For the management team around production manager Daniel Kern, CNC-programmer Adi Scherrer and Wendelin Brägger, team manager work preparation department, the spatial connection of two floor levels presents more than an architectural challenge. The traditional company, which started out as a carpentry shop in 1977 and was among the first Swiss companies employing a 5-axes CNC-milling machine in 1992, has built up a considerable reputation with its innovative projects over the last 40 years.

Where, however, are the strong points of the company to be found? A question Daniel Kern answers as follows: „The innovative gene of our employees when dealing with CNC-technology distinguishes us from our competitors“. „Most projects start when architects or joiners contact us with a certain idea in mind. At this moment our work begins with advice and information as to how wishes can be realised and where there are limits with respect to the static structure“, Adi Scherrer adds. Modern equipment, such as a laser tachymeter, is used to measure demanding project sites at an accuracy of one millimeter, and based on these measurements unorthodox solutions are established and implemented.



Spiral staircase at the centre of an administrative building of SSB. A filigree wooden staircase has been built around a load-carrying concrete structure.

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5-axes unit with cardanic 24 kW spindle while drilling horizontal holes.



5-axes machining of a round newel post.



Production manager (managing director) Daniel Kern and machine operator Simon Wohlgeninger during quality inspection.

Programming skills are one aspect, the other being the new CNC-machining centre. Backed up by 25 years of experience, they easily agreed on the profile of the machine: sturdy, long-lasting, great motor power and an automatic table. Kurt Kutschmann, area sales manager Switzerland for Reichenbacher, was well aware of the specific challenges to be met. He knew that flexibility would be the decisive criterion in every respect, as very different shapes and materials were to be processed by this line: apart from the traditional elements of a staircase also individually shaped components with any radius and lengths of up to 5,000 mm.

The VISION-III Sprint is perfectly equipped for this task. The machine table has 10 automatic beams, displacement is 8,700 x 2,145 mm and more than impressive at 670 mm for the Z-axis. „Nevertheless, we sometimes work with a minimum clearance between milling head and component because saw blades with a larger diameter are used time and again“, Adi Scherrer says. This is due to often very intricate shapes. Of course, the line is equipped with everything that defines a modern machining centre: apart from the 5-axes machining unit this is a multi-spindle drilling unit including 4 horizontal drilling spindles, an automatic plate magazine for 24 tools, a pick-up place for a big saw blade, a tracing spindle unit with tracing bell – and much more.

One project is particularly suitable for explaining the need for sophisticated CNC-technology. At the heart of the spiral staircase in the administrative building of SSB is a load-carrying concrete structure, which had been measured 3-dimensionally to the millimetre by means of a tachymeter, and around which a filigree wooden staircase was to be built. Characteristic are, among other details, 21 different lateral balustrade stringer elements, which were bonded using the sandwich technology to form the blanks to be processed by milling on the CNC-line. The bottom view presented the greatest challenge. „Double-curve, massive negative and positive forms were used to veneer small propeller-shaped bonded oak plates, which were subsequently cut to the required dimensions on the CNC-line and attached to the bottom of the staircase according to the tongue-and-groove principle – Wow effect guaranteed“, says managing director Daniel Kern with obvious pride.

80 percent of the line's production time are dedicated to staircase manufacturing. The other 20 percent are used for service tasks, such as the creation of intricate wooden structures and of free forms, like table elements, furniture, boarding for concrete work, round columns and arches, walls or funnel formwork. The components are milled, packaged and then installed on site – everything must be a perfect fit. Apart from wood, also Corian, acryl and HPL-plastics are machined on the CNC. The variety of materials provides for creative scope, as the material is decisive with respect to the role, but predominantly also the visual effect of a component.