



CNC press brake working

Manufacturer of machinery protection systems benefits from advanced bending technology and CAM programming

As a leading manufacturer of bellows and machinery protection systems, Kidderminster-based Beakbane Ltd is in the business of protecting its customers' assets, but when it came to protecting its market-leading position, the company realised that the use of advanced manufacturing solutions was essential.

As a result, Beakbane recently completed a two-year capital investment programme designed to improve its metal-cutting and bending capabilities. This investment included two LVD Easy-Form 135-tonne, 3m, 10-axis CNC press brakes with off-line programming systems. The machines were supplied by Banbury-based LVD Ltd (Tel: 01295 676800).

Beakbane designs and manufactures protective covers (in steel and flexible material) for machine tool applications, and its clients include some of the largest machine tool builders in the world. The company also provides individual solutions for a wide range of equipment protection problems across a range of other industries, including medical, rail and power generating.

Beakbane bought its first LVD Easy-Form press brake in 2008; in January this year, the company added a second Easy-Form machine,

such were the benefits provided by this bending technology. The machines are used to bend large parts to tight tolerances, with the integrated LVD Easy-Form Laser angle-measuring system automatically monitoring and correcting the bend angle in real time to not only ensure excellent quality from the first part, but also reduce set-up time and operator involvement.

Because Beakbane forms large parts, it chose to equip its press brakes with a T1-T2 sheet-following system, which allows one-man operation; this system also enhances angle repeatability, part quality, safety and material handling — plus it improves overall productivity. Unlike conventional pneumatic sheet supports, Beakbane's T1-T2 system is fully programmable and follows a parabolic arc, moving with the system using a combination of axes to ensure that the support arms maintain full contact with the plate during the entire bending process.

The controller automatically calculates the trajectory, lifting arm speed and position — factors that depend on the V-die opening. Beakbane's press brakes are also equipped with LVD's new Cadman Touch CNC system, an easy-to-use intuitive user interface that is designed to minimise operator input.

Off-line and on-line process integration is achieved through LVD's Cadman-B 3-D software, which enables Beakbane to import SAT files directly from its SolidWorks system. Off-line software was a key consideration for Beakbane, because the company wanted a system that could take full advantage of the press brakes' capabilities. Using the centralised LVD database shared between the press brakes and

the off-line software, Cadman automatically calculates bending feasibility, tool set-ups and programs for the press brakes. The system also determines the optimum bend sequence, using 3-D data.

In addition, all the axes — including the CNC crowning system — are calculated by the control and are automatically positioned for optimum bending results. These automated functions keep part repeatability and accuracy at a high level.

Beakbane's managing director, Barry Reeves, says: "Being able to handle customer drawing files through our SolidWorks system and then directly import part data to automatically generate the information for both the tool set-up and the machine program is a significant advantage, as it allows us to offer customers reduced lead times from the point of order to manufacture, and our employees no longer need hard-copy drawings, which in turn reduces operational costs.

"Furthermore, the graphics offered by the 3-D console clearly show the operator a step-by-step simulation of the bending sequence; this facility also serves as a useful training aid. Coupled with the use of the Easy-form Laser angle correction system — and the T1-T2 supports — we are confident that the bending process is more accurate and physically less demanding; it also enables us to save on labour costs. The CNC press brakes have become the mainstay of our bending operations, and the increase in capacity and efficiency that they provide will be essential if we are to take full advantage of the economic upturn when it comes."