Precision welding creates the continuous band from strips of cold rolled steel. CREDIT: LAMEBO

Maximising precision and minimising waste in splitting

Italian band knife manufacturer Lamebo, established in Turin in 1969, makes splitting knives for many different industries, including tanneries and leather goods manufacturers. Leather splitting requires maximum precision and attention to be paid to all the processes involved in its manufacture. The rectified splitting band knife plays an important role and can make all the difference. It is very important not to confuse brushed blades with rectified blades, as it's very difficult to identify the difference for the end user. A brushed blade doesn't bring the same benefits, but only a blade producer can immediately see the difference between one and the other.

Essentially unchanged since its introduction in the 1800s, the working of the band knife splitting machine is simple in its explanation, that of splitting through the full cross-sectional thickness of the hide or skin. In practice, however, the operation is less simplistic and an often-overlooked aspect of this is the blade itself. When talking about rectification of the surfaces of the knives, this means a levelling treatment aimed at guaranteeing the same uniform thickness on the full circumference, along the length of the blade, coupled with smooth surfaces, and with an extremely low degree of roughness. At the same time, with regards rectification of the edges, this relates to the turning of the edges of the blade aimed at eliminating or very much reducing the oscillation of the blade when running. These two areas of rectification, that together combine stricter tolerances in width, thickness and running accuracy, generate several positive results:

- ***Maximum precision in the splitting*** – modern splitting machines are able to work to very fine tolerances, with some machinery manufacturers claiming one tenth of a millimetre.
- ***Increase in the number of pieces split*** – with a smooth surface and constant thicknesses the blade passes through the material more easily and quickly.
- ***Waste material*** – precise splitting results in reduced waste as the operation can be done "right first time".
- ***Longer life of the blade and consequently fewer blade changes*** – whilst cost of the consumable materials may not be a major cost, the down time associated with replacement is. By reducing the frequency of changeovers, costs can be reduced.
- ***Lower consumption of grinding stones*** – if the blade runs perfectly, the use of the grinding stones decreases, consuming them at a slower rate. Conversely, If the blade

does not run straight, the photocell detects the movement and 'calls' the blade to the grinding stones more frequently.

- ***Quicker blade change and setting up of the machine*** – with its precise and constant thickness, the final set up of the machine, such as aligning the pushers and gapping the jaw plates, is made easier.
- ***Wear and tear on other parts of the splitting machine*** – considering other aspects such as reduced grinding, fewer splitting passes, and a more accurate set up, the other parts of the machine that include drive motors, bearings and rollers all stand to benefit from reduced use and wear and tear.

Lamebo's workshop near Turin manufactures continuous band knives for use on any make of splitting machine. CREDIT: LAMEBO

Last but not least, the pre-sharpening of the bevel plays a relevant role in terms of saving time, as it reduces the time taken for the setup and the first sharpening procedure. In terms of blade consumption, it reduces the risk of working the first bevel too fast causing overheating of the blade and consequently wasting of the blade , and in terms of saving costs and quality, the better is the sharpening edge the better is the splitting performance and consequently the lower waste of leather.

Clearly, a precision blade allows the tanner to achieve high splitting performances with a substantial savings of time and cost that, especially in the current climate, should not be ignored.