

Replacing contact wheel encoders on cut-to-length lines with a non contact laser to improve cutting accuracy and repeatability.

Understanding the Problem

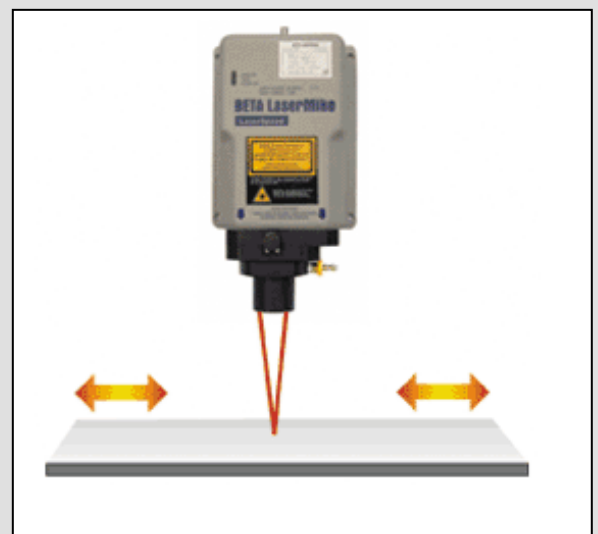
Many manufacturing processes use contact wheels with encoders to measure the speed and length of the product during production. However in many cases this is not as straight forward as it could be because the product being measured is either soft, sticky, coated in oil or subject to rapid acceleration or deceleration. This can lead to inaccurate measurement and on some processes the traditional contact wheels require constant maintenance to ensure reliable measurement. This can be due to particle pick up on the wheel changing its effective diameter or wear of the wheel or the supporting mechanism. For operations where a continuous product is cut to shorter lengths the final lengths can very often be longer than they should be resulting in the manufacturer giving away a percentage of their total yearly production. Measurements conducted on various processes have discovered that very often the typical measurement error with a contact wheel encoder is in the region of 2-5%. However the error is not constant and will vary depending on the product being measured the line speed and the surface coating. This inconsistency makes it difficult for the process engineer to account for these errors in the control system. This means the actual accuracy will vary depending on the product that is being produced. Other processes use the drive rolls as the speed reference for length control, as their primary function is to push the material along there is always an inbuilt slip with this type of arrangement.

LaserSpeed Solution

The LaserSpeed is a direct replacement of a contact wheel and encoder system improving the accuracy and repeatability of measurement. As the LaserSpeed is unaffected by the product surface condition, oil coating, whether the surface is wet or dry, the accuracy and consistency of measurement is much better than can be achieved by a contact wheel encoder.

The LaserSpeed will achieve an accuracy of $\pm 0.05\%$ and a repeatability of $\pm 0.02\%$ irrespective of the product or conditions. Furthermore being non contact the gauge is maintenance free resulting in lower running costs. The LaserSpeed is used on many cut-to-length applications where a flying shear or saw is used in process to cut a continuous product to shorter lengths.

LaserSpeed LS4000



More Information

Connecting a LaserSpeed

The LaserSpeed has a full quadrature output just like a regular rotary encoder. The pulse rate can be configured by the user to emulate the rate of existing encoder. This means that the existing control system does not need to be changed or reprogrammed. Once connected an existing line will benefit immediately from the improved accuracy of using the LaserSpeed.



Applications

The LaserSpeed can be used on all types of cut-to-length line to replace an existing rotary encoder measuring the length entering a shear.

- Stone or Glass wool
- Insulation materials
- Carpet
- Flooring materials
- Gypsum board
- OSB board
- Wood based panels
- Steel or aluminium cut-to-length lines
- Roll forming lines
- Steel processing lines

Benefits

LaserSpeed gauges have no moving parts and are permanently calibrated resulting in significant time and money saving.

- High accuracy and repeatability
- No moving parts to wear out
- Consistency of measurement
- No marking of material
- Measures on oily surfaces
- Material and labour saving
- Quick and easy installation

Learn more

There are three LaserSpeed models in the range the LS4000, LS8000 and LS9000 for more detailed technical specifications please refer to the data sheet '**LaserSpeed Non-Contact Speed & Length Gauge**'

For price, installation or technical advice contact LIMAB UK for further information

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