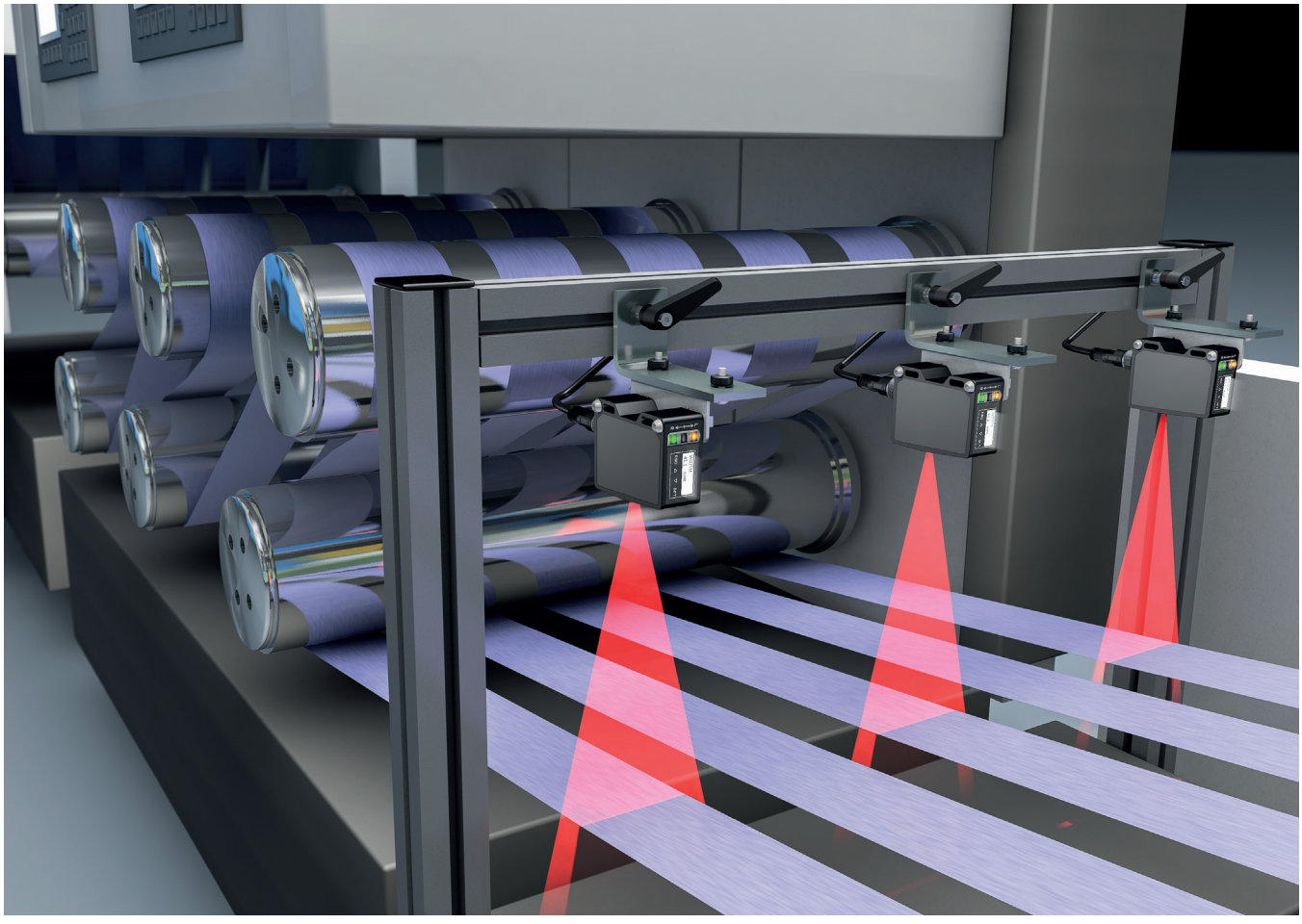
PRECISE EDGE CONTROL IN HARSH ENVIRONMENTS

Bitumen sheets for roof coverings are being produced on a company's production line. Each sheet consists of a carrier layer which is first impregnated with bitumen, then given a bitumen coating on both sides and sprinkled with granulate. Before the sheets pass through a cooling zone, a film is applied so that the sheet does not stick together when rolled up during packing. As the production line has several guide rollers and drums, the edge of the sheet must be checked at various positi-ons in order to ensure that the final product has a uniform coating.

Previously, a number of line sensors with reflectors were used to perform this task. However, in the impregnation, coating and cooling zones, the reflectors located underneath the edge of the sheet were often soiled with liquid bitumen residue as well as granulate, and this repeatedly resul-ted in fault messages.

This problem was solved by replacing the line sensors with multifunctional light section sensors. The light section sensors with protection class IP67 and an operating temperature range up to max. +50°C were installed above the guide rollers and drums to be moni-tored. The device's laser line is reflected by the bitumen sheet and reaches a two-dimensional optical receiver which enab-les precise mapping of the edge position. The position value is converted by the sensor into a so-called position-proportional analog signal and processed by the PLC (programmable logic control-ler) of the system for edge control. In this way, it was possible to implement an easy-to-use, cost-effective and above all highly precise edge control system on the bitumen sheet production line without the need for soiling-prone reflectors.



The light section sensors were installed above the bitumen sheet that has to be monitored.
Image: ipf electronic