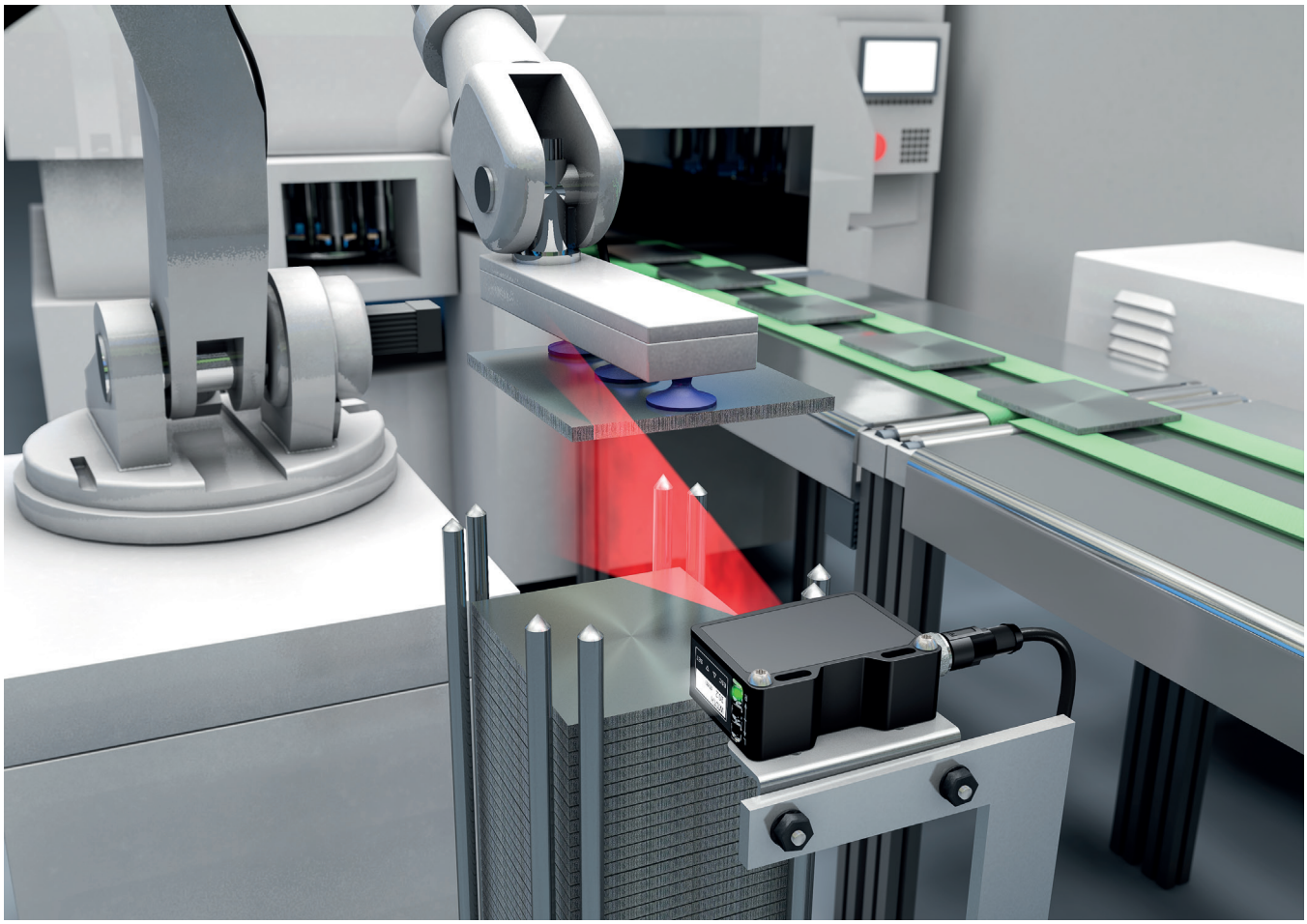
RELIABLE DOUBLE SHEET CONTROL IN METAL PROCESSSING

A supplier to the automotive industry processes (e.g. shapes) metal blanks for vehicle body compo-nents. For this purpose, a robot lifts a metal blank from a stack using a va-cuum sucker and feeds the blank into a shaping press. As the metal sheets are coated with oil on both sides, several blanks can stick to each other when lifted from the stack of sheets. If this is the case, transport of the metal blanks must be stopped immediately in order to prevent major damage to the shaping die of the press.

When looking for a reliable sensor solution which would ensure safe processing during this phase of automated production, the supplier finally decided on a multifunctional light section sensor for dou-ble-sheet control.

The light section sensor was installed in the system in such a way that the sensor‘s laser line can scan the side of the metal blanks lifted by the robot. For technical reasons, how-ever, the sensor had to be mounted at an angle of 20°. By measuring the edge width of the sheet, it is now possible to reliably determine whether, instead of one metal blank, the robot‘s vacuum sucker has picked up two or more sheets. If required, the sensor can also determine the exact number of sheets that have been picked up by the robot. Double sheet control can be performed either by outputting an analog signal which is evaluated by the PLC (programmable logic controller) of the system, or alter-natively by defining switching thresholds which are within the tolerances required for control.



The light section sensor was installed in such a way that it could laterally detect the lifted metal blank.
Image: ipf electronic