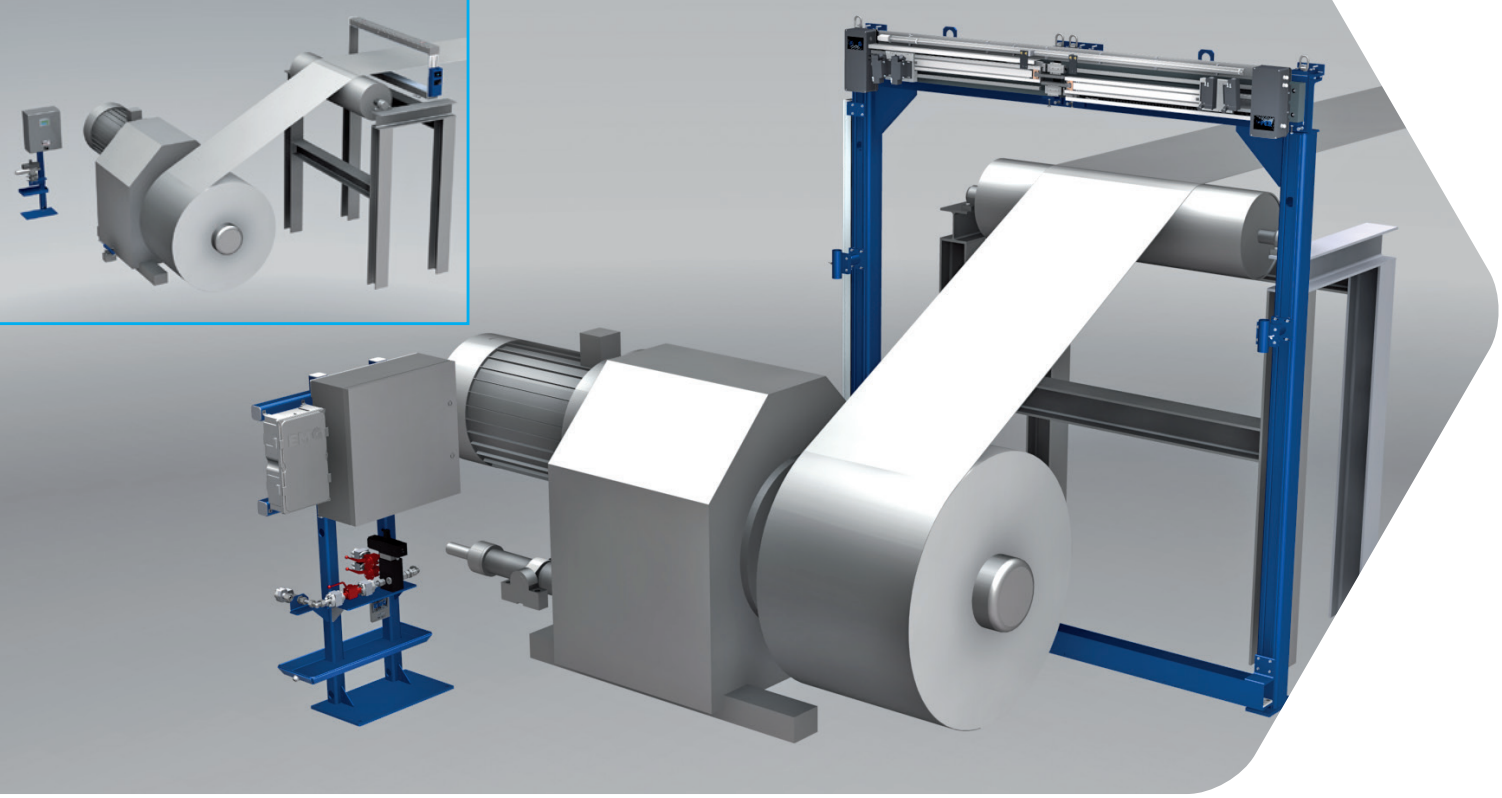

EMG Strip Guiding

Strip guiding on the uncoiler

Application / Function principle

If a strip centre or strip edge guiding system is provided on the uncoiler, the uncoiler moves the coil, from which the strip is being uncoiled, transversally to the line axis and thus acts against lateral deviation of the strip. Deviation of the strip from the reference position is detected by the sensing equipment and transmitted to the electronic control amplifier. The output of the amplifier continuously activates a servo valve which moves the hydraulic cylinder of the uncoiler accordingly, so that the uncoiled strip is returned to the position preselected on the sensing equipment. For control reasons, the sensing equipment should detect any strip deviation close to the uncoiler. The high-frequency alternating light sensing equipment, which is impervious to ambient light, allows a maximum distance between the receivers and the light source of 4 m.

For production lines with a side trimmer or slitter installed immediately downstream of the deflector roll, we can offer an alternative by coupling the uncoiler and the deflector roll mechanically or electro-hydraulically. This design has the advantage that a very high guide accuracy is achieved when using a high-precision measurement, for example the SMI-HE inductive strip centre measurement, or directly in front of the shear.

In lines where the distance to the trimming or slitting knives is greater, an additional steering unit should be installed upstream of the knives and connected to the uncoiler control system, see: High Quality Twin (HQT) system.

Modern fully automated lines, with coil handling equipment in close proximity to the mandrel, frequently leave insufficient space for the sensor, and it has to be positioned after the deflector roll (anchor point). Thus a time delay between the movement of the mandrel and an answer in the sensor is generated. This leads particularly at slow strip speeds to control loop instability.

By using a method patented by EMG which takes into account the strip speed which holds the mandrel in a position control loop a stable control system is possible (see little picture above).