In February 2014 IMS got the order for a contour measurement of stainless steel billets. The system is designed to measure the billet contour in parallel of two strands. The gauge will be installed close to the exit of the caster. Based on the well known laser contour measurement for flat products, the system software was improved to merge individual sensors to get the full outline contour of the product.

The output of the gauge is transmitted to the production control system. Any contour defects are evaluated to carry out necessary adjustment of the casting process.

Furthermore the volume of the billet is integrated until the target weight is achieved. This allows a weight optimized cutting of the billets. The tracking of the cut position is also realized by the IMS system.

The optional surface inspection of the billets is planned for the second phase of this project.
3D Sensor
A various number of 3D sensors are the essential components of the gauge. These sensors do a precalculation of the image and provide the position of the laser line for 3D measurement as well as a 2D picture of the surface.

Line Laser
Further key components are the line lasers. Important quality data are straightness and homogeneous power distribution over length of the laser line as well as long life time and preparation for harsh environmental conditions.

Geometry
To measure the outline shape of the billet, three or four 3D Sensors are necessary. For this project, it was decided to use 3 sensors and to pass on the bottom sensor for lower maintenance effort.

Measured Values of the Two Cast Billets
- Contour of single sides
- Outline contour of the full product
- Radii of the edges
- Parallelism of the sides
- Hot to cold calculation of the measured dimensions
- Target weight based cutting control

Contour measurement systems for hot and cold applications are supplied by IMS for more than ten years. They are included in nearly all radiometric thickness profile gauges to measure the strip cross and length contour and further product parameters.