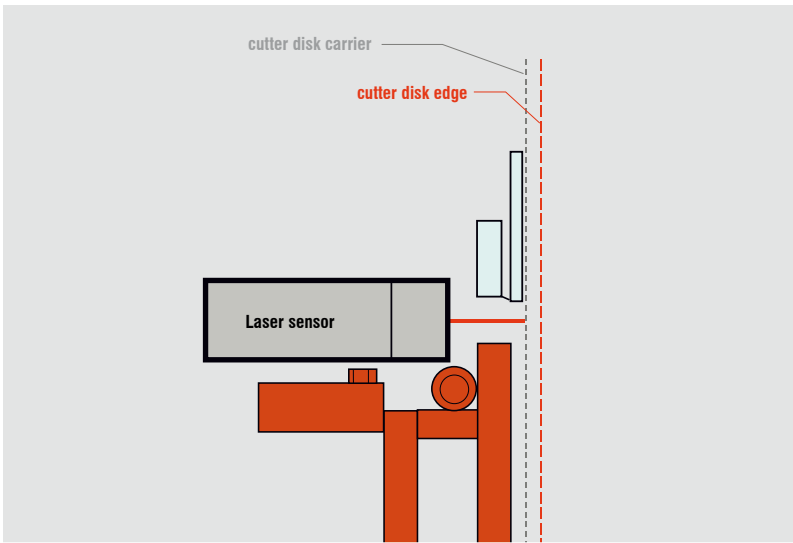




Measurement of the radial deviation of a cutter disk

During the manufacture of veneer strips from laminated wood, the precision of the cutting disk determines the quality of the final product. High demands are made on the veneer strips in terms of dimensional conformance. The thickness of the strips must be less than 1mm and may only exhibit tolerances in the micrometer range. Thicker parts or splinters should never occur. These „fractions“ are only inadequately plastified during the later pressing process of the veneer strips to form a plate material. Consequently, pores, which substantially reduce the quality and strength figures of the veneer strips, occur in the plate cross-section.

The quality of wood plate materials is determined by the quality of the chips or veneer strips. The latter depends to a high degree on the precision of the cutting disk and the associated tolerances (cast body, blade holder, slicing blade) under production conditions and loads.

To maintain the quality criteria the radial deviation of the cutting disk is measured and monitored during the production process with a non-contact laser triangulation sensor from the Series optoNCDT 2300.

This means that high demands are made on the measurement system: Dust, chippings and a shiny target surface must not affect the measurement accuracy.

The cutting disk has a diameter of 3200mm and is fitted with 24 blades. The rotational speed is 180 to 210 rpm. optoNCDT 2300 supplies constant measurement results even under these difficult conditions. A protective housing protects the laser beam from dust and chippings which could impair the measurement result by casting shadows. The integrated high performance optical system ensures precise results, even at the high speed and with the strongly reflecting surface of the cutting disk. The measurement results are output directly to a PC via a serial interface for further processing.

Requirements for the measuring system

- Measuring range: 50mm
- Repeatability: 5µm
- Linearity: 12µm
- Measurement rate: up to 49kHz