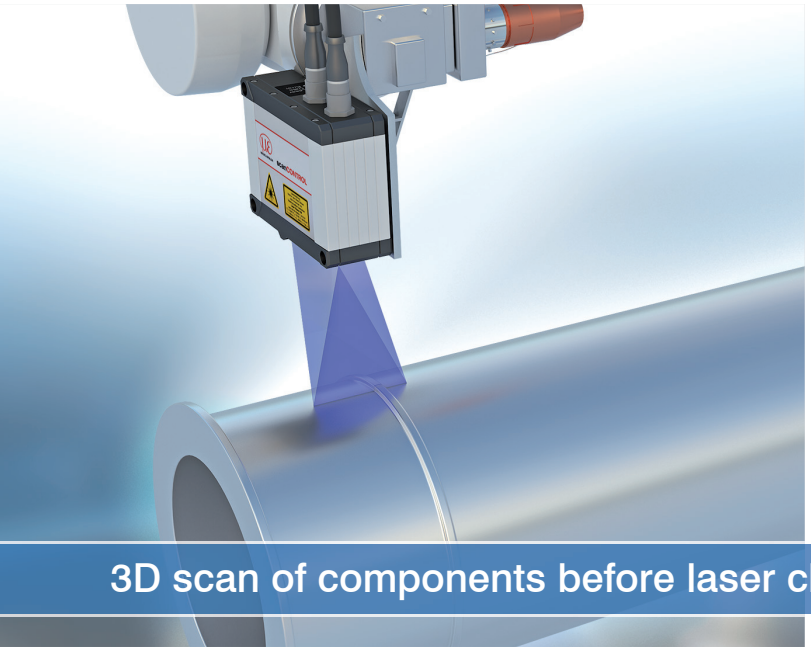
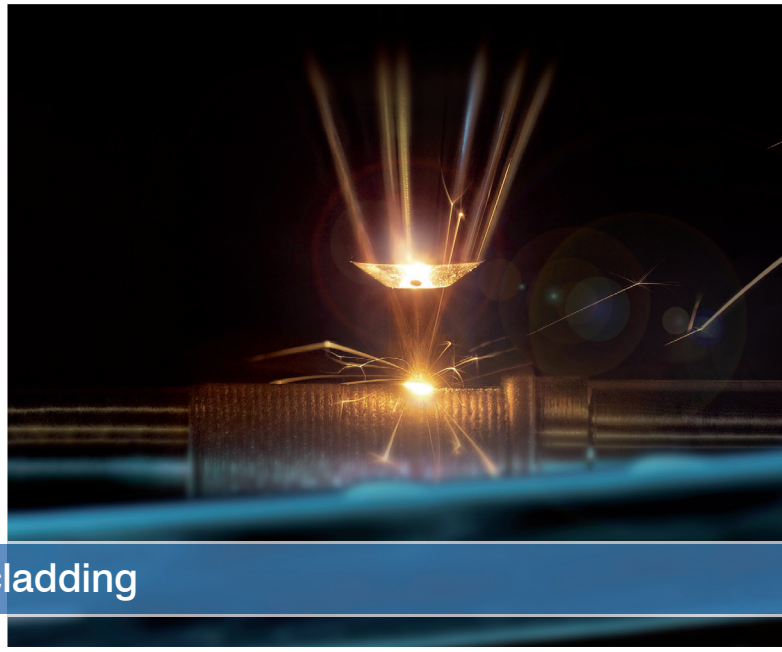
A338

Laser scanners
scanCONTROL





3D scan of components before laser cladding

With laser cladding, the component surface is melted by a laser beam and joined to form a new, pore-free layer by the addition of a powdered filler material. Laser profile sensors optimize this process as these can be used to detect free forms as well as form deviations before laser processing.

The components are first detected by a scanCONTROL laser scanner. If required by the component geometry, this is done from several directions. Regardless of the reflection properties of the material, the sensor constantly provides reliable measurement values. The raw data can be transferred directly to the customer's software, combined with a 3D model and used to calculate and plan an optimal path planning. In addition, the nozzle can be placed at the correct distance from the surface and then guided along the calculated path. The result is a new, even and full surface. Different sensors can be used depending on the intended use such as repair, 3D printing, joining or coating.

The scanCONTROL 3050-50/BL is ideally suited to this. This sensor offers a measuring range of 50 mm and an x-resolution of 2,048 measuring points per profile at a measuring rate of up to 10 kHz. Its blue laser line enables precise measurements on metallic surfaces. In contrast to a camera solution, laser profile scanners enable the creation of a 3D model and are also more surface-independent in terms of contrast. The higher precision, as well as the various integration and processing possibilities of the acquired measurement data, also offer significant advantages in this application. Compared to tactile measurements, the required cycle time is considerably shorter thanks to non-contact measurements.

Requirements for the measurement system
- Reliable measurements on various metallic surfaces
- Easy output of raw data at high speed

Ambient conditions
- Sensor integrated in processing cell, conditions thus variable

System design
- Sensor: Typical LLT 3050-50/BL with 50 mm measuring range but other measuring ranges also possible (depending on the component)
- Software: Direct connection to the customer's PC for transmission of raw data and evaluation in the customer software

Advantages
- Precise 3D measurement for optimal component processing
- Measurement independent of surface or contrast
- Fast measurement for short cycle times