light.
shapes.
surfaces.

3dshape
Concealed from the Eye
Rising quality demands in industry and increasing documentation needs in the medical field lead to new performance requirements for surface measurement technology. Optical 3D sensor technology offers innovative solutions for meeting these needs. It enables rapid, precise and non-contact three-dimensional acquisition of the most diverse surfaces. With its variety of measurement principles, 3D-Shape GmbH covers a broad spectrum of applications, proving to be an ideal partner for your measurement needs.

With the innovative measurement principles of 3D-Shape, three-dimensional images of microscopic to full, meter-sized objects can be generated. Exacting measurement demands are met with the highest precision. The sensors developed by 3D-Shape are in place worldwide – in the automotive and electronics industries, medical technology, tool making, optical systems and many more. User-friendly analysis software facilitates optimal processing and analysis of three-dimensional data. Customer-specific solutions can be realized upon request.

Direct cooperation with end-users enables 3D-Shape to implement emerging needs into measurement solutions in a timely manner. In cooperation with system integrators, complex systems also realized on the production line.

Company history

3D-Shape GmbH was founded in March, 2001 in Erlangen, Germany. The founders’ many years of know-how, acquired at the Institute of Optics, Information and Photonics of the Friedrich-Alexander University of Erlangen-Nuremberg (Max-Planck-Research Group) flowed directly into the development of optical measurement systems for medical and industrial use. To this day, close collaboration with the Institute of Optics, Information and Photonics as well as with other external laboratories adds to the technological competence of 3D-Shape.

CEOs Dr. Peter Ettl and Dr. Xavier Laboureux

Scientific Advisor Prof. Gerd Häusler
Measurement Techniques
and Fields of Application
From medicine to industrial surface inspection – the potential applications of three-dimensional precision measurement technology are far from being exhausted.

**Fringe Projection in Medicine**

Our fringe projection technology is based on fast hardware and carries out measurements of body parts in a fraction of a second. Its speed and complete lack of radiation enable its use with children. For the first time, the combination of the three-dimensional meshes and high-resolution texture allows scientific evaluation of three-dimensional data, for example for study and documentation purposes.

With FaceSCAN®D, faces and heads are measured three-dimensionally, for oral and maxillofacial surgery for example, as well as for jaw orthopedic uses. With the aid of our mirror construction, the entire head from ear to ear is measured in a single exposure. BodySCAN®D can be used for the measurement of large-area body parts (e.g. in cases of scoliosis) all the way to small skin segments (e.g. with psoriasis and cellulitis). The sensor’s robust construction allows for easy use and rapid commissioning without additional waiting time.

**Deflectometry for Free-Form Inspection**

On the basis of phase-measuring deflectometry, it is possible for the first time to measure smooth free-form surfaces and three-dimensionally without contact. A full-area surface measurement is completed in seconds and achieves a local sensitivity in the nanometer range and shape accuracy in the micrometer range.

SpecGAGE®D measures optical elements such as eyeglasses, lenses and mirrors as well as wafers [including those with surface texture], solar cells and painted and polished work pieces. Large-area objects like car windshields can also be tested for local defects and waviness.

**White-Light Interferometry for Industrial Quality Inspection**

The KORAD®D sensor family is used for laboratory applications as well as quality inspection in industrial mass production. Rough and smooth surfaces, at varying stages of processing, can be measured in seconds – acquiring the full area, three-dimensionally and without contact. As a result, accuracy in the nanometer range is achieved.

Applications for KORAD®D lie in the automotive and electronics industry – for example the inspection of seal surfaces, deep drill holes or printed circuit boards. Further examples of the versatile application areas are medical technology, optical systems, tool making, material testing, and many more.
The 3D-Shape Full-Service Concept

100% Benefit of a 3D Measurement System
In our projects we offer customers the Full-Service Concept: From feasibility studies to individual trial measurements to hotline, calibration, and post-sales service. In doing so we are geared to quality management standards so that we can deliver 100% of the benefit of the 3D measurement system. Together with our sales and service partners, we serve companies with highly advanced technology.

Furthermore, our products are continually being developed through direct customer contact and adapted to new requirements and specifications – so that our customers achieve long-term investment security.

### References

- AREVA NP GmbH
- BEGO GmbH & Co. KG
- Carl Zeiss AG
- Fachhochschule Merseburg
- Forschungsinstitut für Optronik und Mustererkennung (FGAN-FOM)
- Fraunhofer Institut Produktionstechnologie (IPT)
- JENOPTIK Laser Optik Systeme GmbH
- Mund-Kiefer-Gesichtschirurgie Dr. Dr. Wolfgang Kater
- LEXI
- LPKF Motion & Control GmbH
- Medizinische Hochschule Hannover
- Robert Bosch GmbH
- Rodenstock GmbH
- Rupp + Hubrach Optik GmbH
- RWTH Aachen
- Siemens AG
- Schneider GmbH & Co.KG
- Uniklinik Erlangen
- Uniklinik Frankfurt
- Uniklinik Tübingen
- Uniklinik Würzburg
**How to find us.**

**Autobahn Frankfurt - Nürnberg A3, Tennenlohe exit,** Bundesstraße B4 towards Erlangen (North). At the first traffic light, take a right onto Gebbertstraße, continue straight ahead until you reach Henkestraße after approximately 1.5 km, and take a right onto Henkestraße. After 50 m turn left into the parking lot of the IZMP.

**Autobahn Nürnberg - Bamberg A73, Erlangen- Zentrum exit,** take a right onto Werner-von-Siemens-Straße towards Erlangen-Zentrum. Continue straight ahead on Werner-von-Siemens-Straße until you reach the traffic light after the gas station. Take a right onto Henkestraße, at the first light proceed straight ahead, then take left into the parking lot of the IZMP.

*Innovations-Zentrum Medizintechnik und Pharma*

5 minutes from Erlangen central station
25 minutes from Nuremberg airport