

50 Years of Engineering & Innovation

KARLHEINZ HINZE OPTOENGINEERING



1955: The world's smallest light-bulb

Company Karlheinz Hinze Avia Messtechnik developed for NASA what was then the world's smallest light-bulb (D=0.7mm, L=5mm, 0.8mA, 500h operating hours, vibration-proof), and the related technological requirements for production of such micro-small lamps. With this development, the company realized the production of digital displays in micro-engineering for the first time in history. K.H. Hinze founded the MINIATURE LAMP ENGINEERING CO. in New York.

1968: The age of aviation begins for big engines

According to the requirements of engine manufacturer Pratt & Whitney and General Electric, and in close cooperation with Deutsche Lufthansa, company Hinze Avia Messtechnik develops the most advanced optical diagnosis systems for the inspection of airplane engines. This development allowed for reliable and very quick inspection of the critical segments of engines and documentation of damages in combustion chambers and at the turbine blades without need of disassembly. The international technical press praised the development: "A quick look saves 500 man hours".

1984: What does the interior of nuclear reactors look like?

For the German research center "Forschungszentrum Jülich", company Hinze developed a "video inspection system unequalled in the world" (according to the rating of the technical press). For the first time ever, this development allowed to enter the core of a nuclear reactor under extreme conditions (radiation, high temperature) in order to inspect the condition of the dome reflectors.

1989: Nuclear reactor converted to green meadows

For total disassembly of the critical contaminated areas of the nuclear power station Niederaichbach, company Hinze developed optical systems that served as "eyes" for the remote-controlled demolition robots.

1991: Light in the dark of the smallest vessels

With new micro-optical systems, developed with a major contribution of company Hinze, cardiologists and neurologists explored new methods of diagnostics, leading to video recordings from the inside of the live heart.

1994: Robots learn how to see

New kinds of camera systems were developed for a well-known German machine engineering company. These camera systems allow for automatic positioning of welding and punching robots. We continuously improved and minimized these instruments. Until today, they are widely used by the world's biggest airplane manufacturers.

1995: Planning of neurosurgery

As an associated partner in a project of "Deutsche Forschungsgesellschaft für Luft- und Raumfahrt", company Hinze Optoengineering GmbH invented an optical system that transmits images for the functional, neurological diagnostics of the relevant brain sections during nuclear magnetic resonance tomography.

1998 – 2005: These years saw the development of

- Flexible and rigid micro endoscopes down to 0.4mm provide never seen insights
- Radiation-, heat- and pressure- resistant optics for process control
- High magnification, high resolution optics for video microscopy applications
- High tech CCD cameras for industrial and medical applications
- Sub-miniature video cameras down to 3.5 mm diameter
- Video inspection systems for monitoring of fire rooms up to 1200°C
- Miniaturized video inspection systems for tube and bore inspection
- Digital Image Processing systems for industrial automation and quality control
- Hard and software for digital imaging and machine vision

COMPANY PROFILE

The company has been owned and managed as a private family enterprise since its establishment 50 years ago.

When the optician Karlheinz Hinze founded the engineering company in 1955, his starting capital was his technical skill, his creative ideas and his inventive mind. He was able to turn abstract ideas into practical action in the whole range of applied optic.

From 1956 to 1985 his main activities have been in the development of new visual aircraft engine inspection systems under the trade name AVIASCOPE and he was a pioneer and inventor in this high specialized technical field. Besides this the company developed and designed during the years a wide variety of optical and opto-electronical instruments and equipments for inspection, control and non destructive testing.

Beside these activities Karlheinz Hinze have had a distributing and consulting contract with the company Carl Zeiss Jena between the years 1957 and 1979.

When the two sons of the founder Michael and Joerg entered the company an important further step was taken for improving practical implementation of the company's basic goals. To offer customers of today and tomorrow top-quality, efficiency products, to guarantee an excellent consulting and to make every endeavour to provide individual solutions to every visual inspection problem.

In 1986 an important decision was made: The experience and know how in the high technology fields of optic and microelectronic was concentrated into development and designing a new generation of medical diagnostic instruments and equipments for minimal invasive surgery and image transmission under the brand name MedicaScope, MedicaLight and MedicaVision.

Since 1996 the company is registered under the name Karlheinz Hinze Optoengineering GmbH & Co.

A close co-operation with very important customers all over the world, with governments, universities and not least with institutes and laboratories guarantees new future oriented high-tech products which are competitive in price and quality.

TECHNOLOGY, INNOVATION and CREATIVITY were the keystones on which the founder and his sons continued to build up the company, supported by the hard work of a loyal staff.

The employees and the staff in four contracted high specialized workshops are committed to teamwork. So an idea is only considered new until it is superseded by a better one. And this goes on from day to day in all fields. Hard work, precision and care should be decisive for work in the future.

REFERENCES

ABB	Ford
AEG	Gas Turbine Research Est., India
Airbus Industries	German Ministry of Defence
ALCAN Aluminium	International Atomic Energy Agency
ALFA Romeo	Kernforschungszentrum Jülich
Allianz Zentrum für Technik	Krupp
Asea Atom	Kuwait Oil Company
Audi	Lloyd Werft
BASF	Lufthansa
Bayer	M.A.K.
BMW-Rolls Royce	Mannesmann
Boeing Corporation	Max-Planck-Institute
Bosch	Mercedes-Benz
Brötje Automation	Ministry of Space
Ciba Geigy	Noell
Daewoo	Phillips
Danfoss	Rheinmetall
DESY	Royal Dutch Shell
DLR	Ruhrgas
Dornier	Siemens
Dynamit Nobel	Swedish Underwater Technology
EADS	Volkswagen
Esso	Wacker Chemie
FIAT	Zahnradfabrik Friedrichshafen
Fraunhofer Gesellschaft	Züblin
.....and many more	