



M2M

Dr. Neuhaus Telekommunikation GmbH - *Manufacturing* -



Dr. Neuhaus

Margit Sarcander,

Thomas Toschka

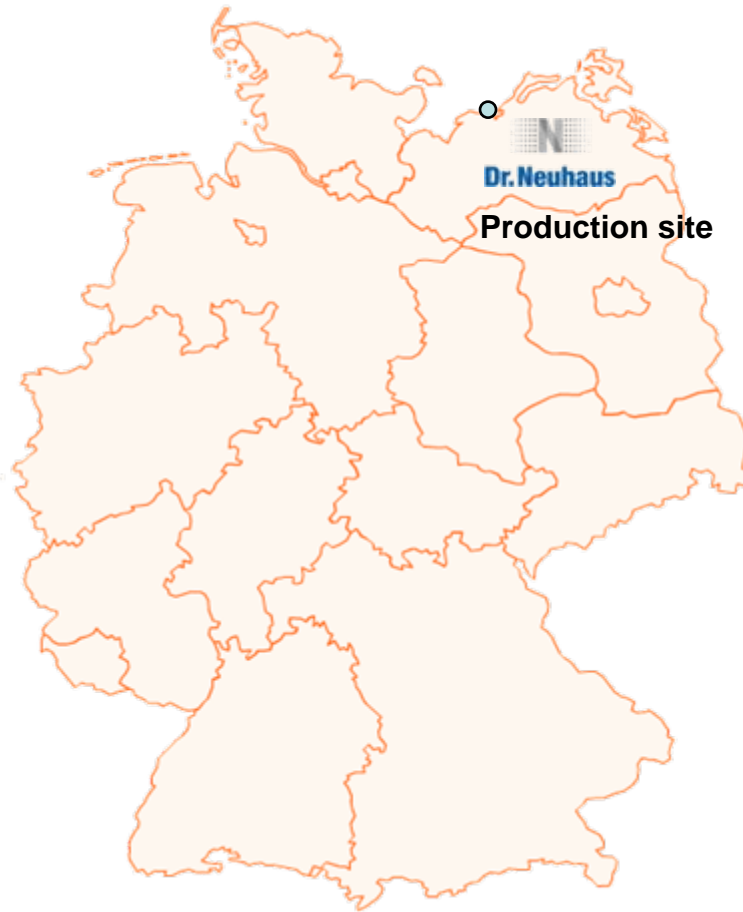
Tel.: +49 (381) 7700 - 336 / - 511

Fax: +49 (381) 7700 - 425

fertigung@neuhaus.de



Dr. Neuhaus – Service Provider in Northern Germany



Location

In the west of the city of Rostock, located on the B105 highway/access to A20, the nearest airport is in Laage, 45 minutes away by car.

Overview of Production Facilities

Capacity

5,000,000 SMD components a week
thanks to flexible working time regulations and
operation in three shifts, capacities can be increased at short notice.

Employees

51 employees
+ 3 apprentices
(in the commercial and electronic depts.)

Building

Production building = 2.400 m²
EGB-equipped production hall with electricity, gas, heat

Address

Dr. Neuhaus Telekommunikation GmbH
Messestraße 20
D-18069 Rostock



Product Overview

Dr. Neuhaus Telekommunikation GmbH has been manufacturing electronic components at its production site in Rostock, Germany, for more than 20 years.



- **Electronic Manufacturing Services (EMS)**

Made in Germany – for your products

We can manufacture anything to your specifications – from electronic components to finished devices.



- **Smart metering**

MUC – The EDL 21/40 system for the household

Collecting data house-to-house is a thing of the past – what counts today is consumption efficiency and transparency.



- **Remote meter reading**

Advanced metering solution for energy data “just in time”

Communication devices, meters designed for seamless connection to the control center via the suitable transmission path (analog, GSM, GPRS, LAN).

- **PMR**

Professional mobile radio and business communication

Personal emergency signal device with professional mobile communications

GSM/GPRS gateway for fax applications without a landline



- **M2M telemetry**

GPRS/EDGE/HSPA/LAN routers and modems

Solutions for wireless and wired M2M communications based on IP networks.

Quality Management

Certified:

- DIN EN ISO 9001 und
- DIN EN ISO 14001
(environmental certification)

The partnerships we have maintained with our customers over so many years are convincing proof of our high quality awareness.

Extensive checking and testing in purchasing, production and shipping are the guarantee of consistently high quality “made in Germany”.



SMD Technology



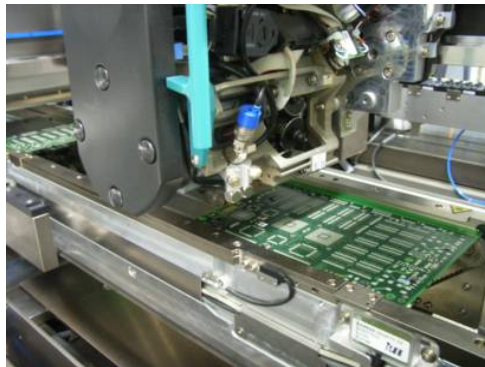
- Fully automatic assembly line (Siemens Siplace HF, S20, F5)
- All popular component forms from chip 0201 to QFP and BGA (Ball Grid Array)
- Reflow soldering using nitrogen
Vapor-phase soldering (for special cases)
- Through-hole reflow (THR) or pin-in-paste
- Supporting materials: single-layer printed circuit boards single to double-sided multi-layer, μ Via, Flex
- Capacity up to 5,000,000 components per week or 40,000 pcs/h



SMD Technology

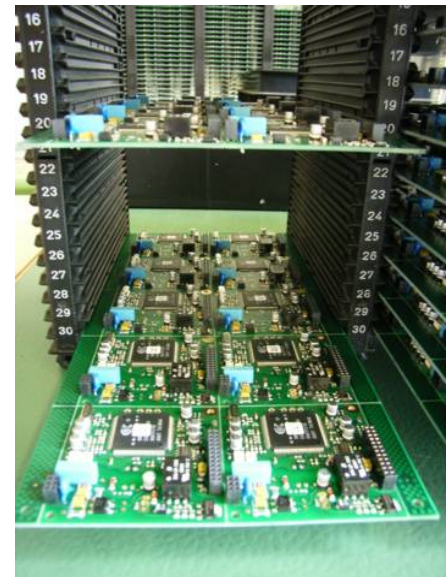
Statistics for 2009

- 370,000 components produced with 200 elements on average
- 250 different products (without assembly variations) and refittings on the main line
- 100,000 simple components on the second line



Through-hole Technology (THT)/Special Components

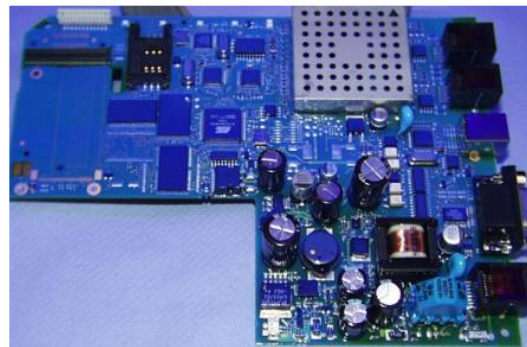
- Manual assembly of conventional wired components and all special components
- Assembly on laser benches
- Component preparation incl. programming of all popular programmable circuits (PROM, EPROM, EEPROM, FLASH, microcontrollers), special Data I/O Sprint programmer with a wide variety of different adapters available
- Technologies: Dual-wave soldering using nitrogen, manual soldering



Coating

Asymtec Selective Coating Systems

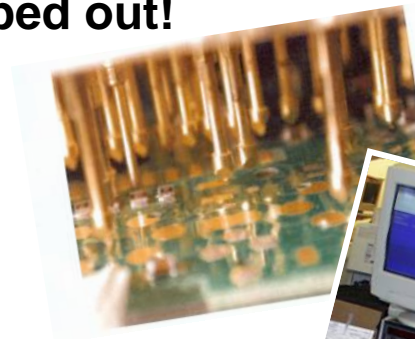
- Coating of components/printed circuit boards to protect them against dirt, moisture and other adverse environmental effects
- Computer-supported coating machine with spray process for environmentally friendly coating using the newest solvent-free coatings
- Gentle drying process in the drying chamber



Checking and Testing

100 % testing done on all products shipped out!

- In-circuit test
- Electrical function test
- Visual inspection
- Test equipment and adapter construction
(own testing software)



Checking and Testing

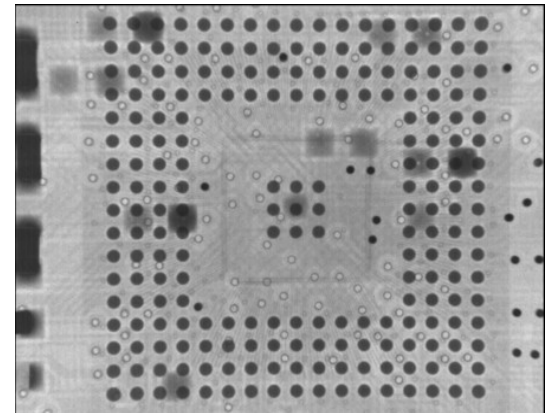
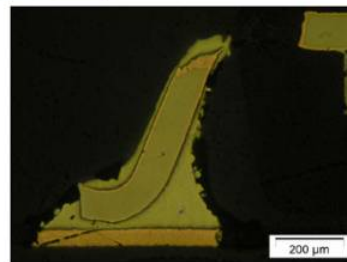
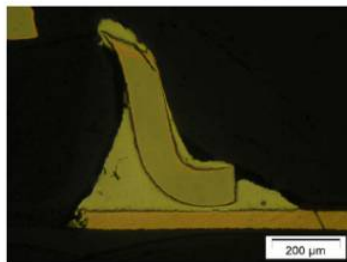
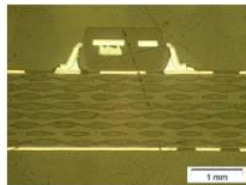
Further tests for process monitoring and evaluation

- Temperature test (burn-in)
- Durability test (run-in) in conditioning cabinet
- Lab testing (photomicrograph, x-ray images)



(Abb. – PIN of a transmitter, 60x enlargement)

Probe 1:



Assembly and Packaging

Assembly of the electronic components in the device enclosure



- Antenna mounting and component wiring
- Application of type plates and labels (thermal transfer printing using CAB printers of the latest generation)
- Final packaging in shipping packaging including such accessories as CD, mounting materials and technical documentation ...

Logistics (Purchasing, Warehousing and Shipping)

We process all our business consistently from receipt of order to final shipping in our ERP system

What we can do for you:

- Purchasing
- Optimized, efficient storage of components on paternoster shelving and in the conditioning cabinet
- Interim storage of finished articles
- Worldwide shipping directly to your customers and customs processing

Our shipping department works together with well-known shipping service providers.





Our Goal

Long-term partnerships and satisfied customers

- Quality
- Strict adherence to delivery dates
- Competent technical consulting services
- High flexibility due to close proximity to the customer
- Quick, effective reactions to change
- Market-driven, transparent pricing policy

Your Personal Contact to Us



- **Mrs. Margit Sarcander**
Tel.: +49 (381) 7700 336
Fax: +49 (381) 7700 425
- **Mr. Thomas Toschka**
Tel.: +49 (381) 7700 511
Fax: +49 (381) 7700 425
- **E-mail:** fertigung@neuhaus.de

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