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Address	Laser Zentrum Hannover e.V. (LZH) Hollerithallee 8 30419 Hannover
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Country	Germany
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PRODUCTS OR MACHINERY

Scientific work and Focus of Group

- Laser processing of glass materials
- Increasing process efficiency
- Structuring of glass surfaces
- Joining processes for glass tubes and plate glass
- Joining processes for glass-metal seams for glass tubes and plate glass
- Forming processes
- Drilling with different laser sources

Laser processing of glass offers significant advantages in comparison to conventional processing methods. Among these are the flexibility of the laser for individual processing and manufacturing. However, laser processing also offers the possibility of overcoming other limitations in standard serial production. For example, microprocessing can be used to generate very small structures, or energy input can be controlled to avoid unnecessary heating of the workpiece. For all processing methods, the analysis of the thermal stresses in the material is of utmost importance, and is considered to be one of the main units of material processing.

The LZH works together in glass processing projects with innovative industrial partners:

- Laser-based joining of glass parts using powder filler material
- Laser welding of glass tubes for solar thermal collectors

Advantages of using Laser Technology for Glass Processing:

- Defined interaction zone, both spatially and temporally
- Precise control of the process temperature
- Chemically neutral
- Possibility for automation

Processing of Glass Tubes

Glass tubing is one of the main elements in solar collectors or chemical plants. The further processing of these tubes using thermal processes is an important element in manufacturing. Laser-based processes such as cutting, joining of glass-glass or glass-metal, as well as forming process can be used. One of the basic precepts for using these processes is controlling the glass viscosity using suitable methods and techniques.

Microprocessing of Glass

Glass processing on a microscopic scale is one of the domains of laser technology. Almost all types of glass can be processed using different laser sources. The range of microprocessing extends from extremely small holes to micro-channels to micro-forms. Of utmost importance in microprocessing is being able to avoid damage to the workpiece, such as micro-cracks or material stress.

Company Profile of **Laser Zentrum Hannover e.V.**

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