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PRODUCTS OR MACHINERY

The microSHAPE laser micromachining system is a modular platform designed for high accurate and high dynamic processing of large and flat substrates. The highly versatile system allows to combine different laser processes as well as the processing with multiple laser process heads. The availability of several handling and inspection options enables the system to be a highly efficient production platform.

microSHAPE is an industry-proven solution for all kind of ablative and non ablative cutting or structuring processes. This includes filamentation, thermal laser separation, half cut or full cut, and engraving processes. The microSHAPE is suitable for the laser micromachining a variety of substrates, e.g. glass, metals, polymer, ceramics, display stacks and coated substrates.

Display and Smart Glasses

Glass materials such as borosilicate, aluminum silicate (e.g. Gorilla®), quartz and other types of specialty glass are used in many applications due to their unique properties such as thermal and dimensional stability, surface quality, hermeticity, process compatibility and optical performance and as flat and hollow glasses in many industries.

In order to process the glass materials, many manufacturers now use laser technology. Laser processing of glass enables rapid, highly precise and highly reproducible processing of brittle glass substrates. Compared to conventional processing methods, laser processing scores with:

- Free-form geometries
- Internal contours
- Best surfaces- and edge quality
- Minimal chipping
- Possibility for processing coated substrates
- No masks, wear parts and other expedients necessary

The processes range from laser cutting through the production of filaments/modifications, laser drilling up to layer-by-layer ablation to the manufacturing of 3D structures. In addition, the laser is ideally suited for removing coatings thanks to its high selectivity. Furthermore, laser engravings can be generated on the surface or inside the material.

The processing of the glass materials takes mostly place in the form of round substrates such as wafers all the way to large-area panels. Increasing the production throughput requires the processing of ever larger panels or even the conversion of wafer processing to panel processing.

Typically, in industrial applications, rigid glasses with a thickness of greater than 0.3 mm are used. Currently, the latest developments are being pushed towards thinner and more flexible substrates. This trend offers the opportunity for new applications and designs. For manufacturers, this means above all the conversion to new and flexible production technologies.

With the microSHAPE™ laser systems, 3D-Micromac offers unique processing technologies and innovative process management for the cost-effective and high-quality processing of wafers and large glass substrates. All processes meet the requirements of industrial customers and guarantee clean and gentle processing as well as excellent processing quality.

microSHAPE™ – Laser System for Processing of Flat Glass

The microSHAPE™ laser system is a modular platform for the precise and highly dynamic processing of glass panels up to panel sizes of Gen 8.5 and various applications, for example:

Production of displays:

- Laser cutting of cover glass and coated glass
- Cutting of carrier substrates made of glass, for example OLED carrier
- Laser drilling of vias

Life-Science

- Laser cutting of glasses for medical and optical diagnostics
- Cutting biochips or high performance slide

Semiconductors, electronics and sensors

Laser cutting or separating glass substrates or wafers into chips
Cutting coated substrates
Processing vias

Company Profile of **3D-Micromac AG**

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