TARGOMAT

The system for precise registration for the entire multilayer process
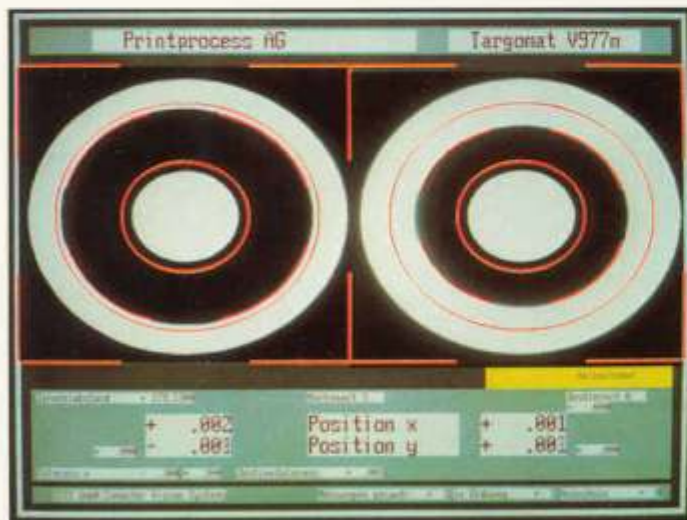
TARGOMAT

The TARGOMAT is a two-spindle drilling machine for automatic positioning, centering and drilling.

Range of Application

- ◆ Drilling of registration holes into artwork originals
- ◆ Drilling of innerlayer targets
- ◆ Drilling of targets after pressing, for tooling of the panels in the CNC-drilling machines (without X-raying)
- ◆ To place registration holes for further steps in production, e.g. screen printing, solder mask, AOI-checks, scoring etc.
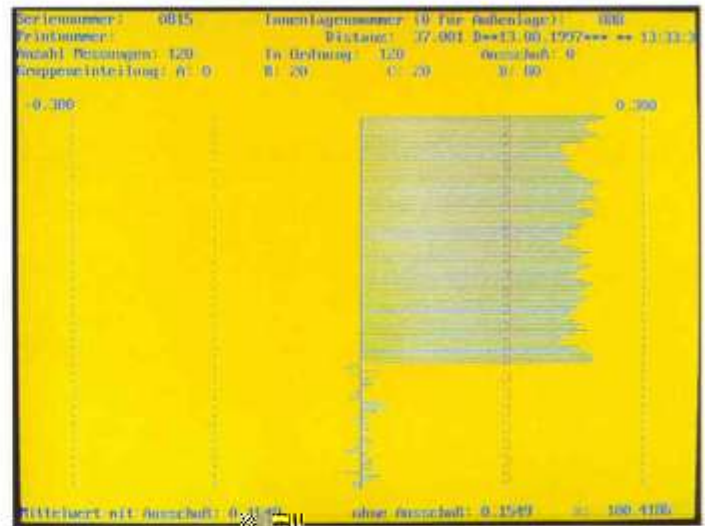
Special Features

- ◆ Optic with target circles, which are digitally adjustable.
- ◆ PC Pentium industrial computer
- ◆ Siemens-PLC
- ◆ Image acquisition through transmitted light (reflected light optionally)
- ◆ No harmful exposure to X-radiation
- ◆ High productivity
- ◆ Air-driven high-precision spindles
- ◆ Automatic or manual operation
- ◆ Possibilities for automation
- ◆ Preselectable Inches/mm

Statistical Process Control

- ◆ In the above example, the innerlayers were for appr. 0.2 mm longer than the nominal size.
- ◆ By compiling of groups to match within the upper and lower limit range, the total registration of the package is considerably improved.
- ◆ After pressing, the boards shrink to +/- 0.03 mm within the nominal size..
- ◆ All data collected can be stored and printed out.

Display Representation

- ◆ Automatic centering within a preselected adjustment tolerance (from 0,001mm on).
- ◆ Indication of all significant measuring parameters on the screen
- ◆ Display in various languages

Precise Image Reading

Specially developed measuring lenses plus sophisticated software algorithms enable reproducable resolution of the lens coverage of 1/10 Pixel converted, which corresponds to a measuring accuracy of 0,001mm.

Examples for Positioning of Targets:

References holes for innerlayers and outerlayers, for drilling, exposing, screen printing, scoring etc.

Deviation in the centre = 0
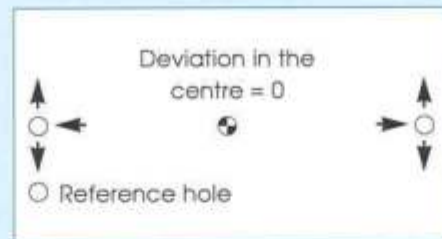
○ Reference hole

For centering holes with AOI, screen printing, scoring etc.
Centering in one axis only.

Deviation 0

Optimal Reference Target:

The image processing becomes optimally supported through the standard target.
Other targets which correspond standard specifications are also readable. To achieve high precision of measuring accuracy, the targets are checked for possible defects, e.g. etch defects, distortion, indentation, frayed holes.
Badly deformed targets become automatically segregated.

6 - 7 mm

13 mm

0,5 - 1 mm

Drill∅ –0,4 mm
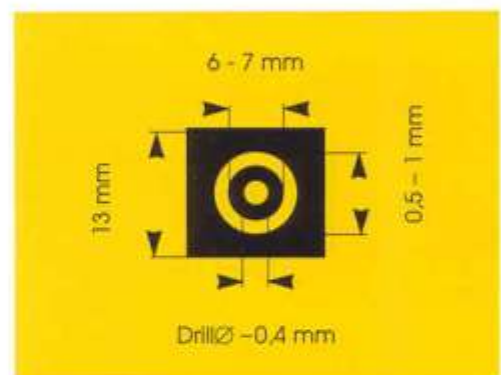
Options:

- ◆ Reflected light for image processing
- ◆ Third drilling spindle for reference hole

- ◆ Loading unit
- ◆ Unloading unit
- ◆ Extended version – target distance up to 820 mm

Technical Data:

- ◆ Positioning accuracy of registration holes < 0.015 mm
- ◆ Output up to 330 boards/h with the unloading unit
- ◆ Hole spacing continuously adjustable from 180 to 620 mm adjusting accuracy +/- 0,005 mm
- ◆ Drill diameter 1 – 5 mm
- ◆ Board thickness 0,05 mm bis 6 mm

- ◆ Dimensions: L.x B.x H. : 1,55 m x 0,65 m x 1,30 m
- ◆ Net weight: 460 kg
- ◆ Current: 220/110V 3A/5A
- ◆ Air connection: minimum pressure 6 bar, 200L/Min.
- ◆ ... ter: 3500 L/Min. 200 mbar