

# Micronic LRS series



Top performance on display

# Micronic laser pattern generators for TFT-LCD and color filter photomasks

The Micronic LRS laser pattern generators are designed for high quality chrome display photomasks. The field proven performance with unsurpassed mura control has made the systems the de facto industry standard for large area flat panel display applications. There are systems optimized for different kinds of displays allowing the user to select the system ideal for his requirements. The LRS11000 systems can expose masks up to 1100x1100 mm and 900x1200 mm sufficient for generation 6 and some generation 7 photomasks. The LRS15000 is designed for photomasks up to 1300x1500 mm which is sufficient through generation 8.

## LRS15000-TFT3

The latest addition to the LRS family. The system is designed for advanced generation 8 TFT-LCD photomasks including Gray Tone Masks (GTM). It is capable of exposing masks up to 1300x1500 mm with a 0.75  $\mu\text{m}$  resolution. With nine exposure beams the system combines the very high resolution with high throughput. The system features an improved scalable real time data path that matches the increased resolution.

## LRS15000-TFT2

Designed for generation 8 TFT-LCD and Color Filter (CF) photomasks. The technology with five exposure beams allows high resolution to be combined with high throughput. The system is also available in a higher throughput version with 25% increased writing speed.

## LRS11000-TFT3

An advanced TFT-LCD pattern generator for similar to the LRS15000-TFT3. The system is designed for Gray Tone Masks and large area Low Temperature Poly Silicon (LTPS) masks.

## LRS11000-TFT2

A pattern generator similar to the LRS15000-TFT2 designed for TFT-LCD and color filter photomasks.

### Key Specifications

System	Maximum mask size [mm]	Application	Minimum Lines / Spaces [ $\mu\text{m}$ ]	Throughput [ $\text{mm}^2/\text{min}$ ]	CD uniformity [nm]	Registration [nm]	Butting [nm]	Address resolution [nm]
LRS15000-TFT3	1300 x 1500	TFT, GTM	0.75	750	70	170	70	10
LRS15000-TFT2	1300 x 1500	TFT, CF	1.5	1250*	100	350	100	25
LRS11000-TFT3	1100 x 1100, 900 x 1200	TFT, GTM, LTPS	0.75	750	70	120	70	10
LRS11000-TFT2	1100 x 1100, 900 x 1200	TFT, CF	1.5	1000	100	350	100	25

\* With High Throughput (HT) option

### Options

The Distortion Control function makes it possible to adjust the coordinate system of the pattern. This can be used to compensate for systematic deviations elsewhere in the display manufacturing process, e.g. distortion in aligner optics

The Alignment option can be used to expose a second layer on a photomask accurately aligned to the first exposure.

The Z-Correction function corrects for registration errors

caused by flatness variations on the rear of the mask. These deviations are compensated for each mask individually, providing better overlay within a mask set over the entire active area. The function also corrects for registration errors caused by contamination between the mask and the stage. The Z-correction function is available for the LRS15000-TFT3.