

Wafer Alignment marks W_x , W_y , W_θ . Also called Search marks or WGA marks.

These are used to establish wafer position on the stage and orients the X and Y alignment marks on wafer, making them parallel to the Y stage mirror. This is called Wafer Global Alignment (WGA). W_y and W_θ were once separate marks. Now the LSA system picks up the single horizontal global W_y mark on two different, spaced, die.

You must place these marks within the design somewhere (position is arbitrary.)

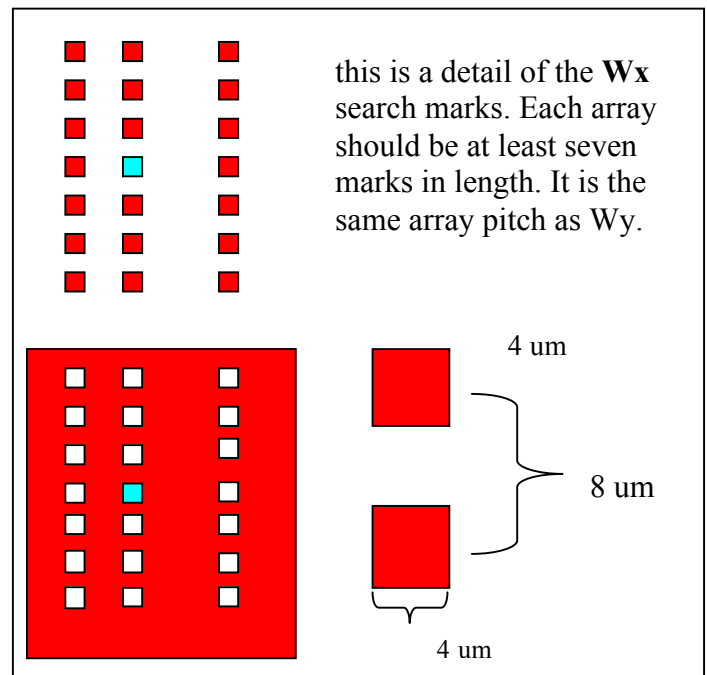
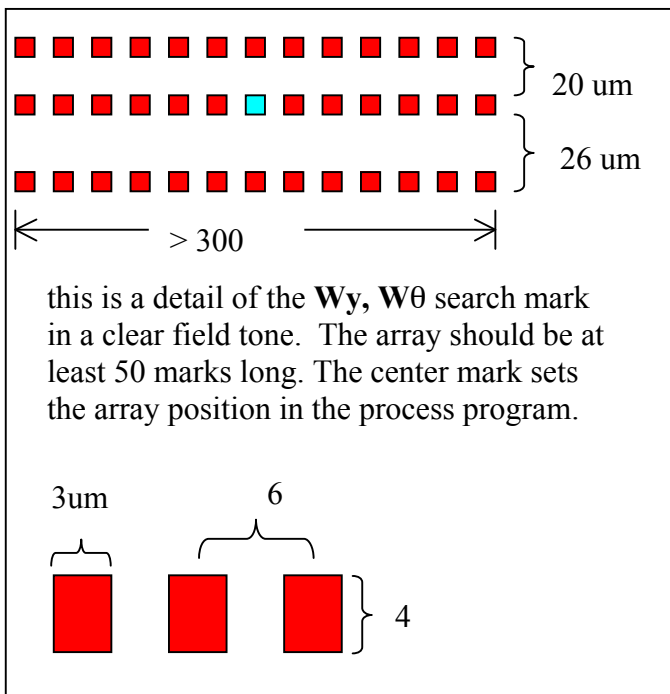
Certain design specifications must be followed:

W_x

- mark unit size = 4.0 x 4.0 μm
- mark unit pitch = 8.0 μm
- arrays with both field tones should be made
- array design should be as shown below
- no foreign patterns/edges within 12 μm

$W_y = W_\theta$

- mark unit size = 3.0 μm (horiz) x 4.0 μm (vert.)
- mark unit pitch = 6.0 μm (horizontal spacing)
- both dark and clear field tones
- array designs as shown below
- no other patterns within 20 μm



The center mark in the array defines the position of the mark in the process program.

W_x & W_y (WGA) marks should be placed on every permanent level that you wish to align to.