

Abstract

Method for positioning a substrate linearly and
detecting its position and apparatus for implementing
5 the method

Substrates (1) transported in a pick-and-place
robot have previously been detected with the aid of an
ultrasonic or reflex light sensor, the linear transport
10 (2) was braked and the substrate was moved against a
stopper which can be inserted mechanically, so that the
position of the substrate (1) is known. The fixed
position of the stop means that, in this case,
substrates (1) of different sizes are always stopped at
15 a location which is not necessarily suitable for
optimum assembly paths and short assembly times.

By arranging a sensor (10) with a sensor field
(13) that can be positioned freely over the assembly
field (x) of the pick-and-place robot, the position of
20 a transported substrate (1) within the assembly field
(x) can be determined. The sensor (10) detects a
predefined substrate feature (9) at a predefined
braking position (x1) in the assembly field (x), the
linear transport (2) is braked, so that the substrate
25 (1) with the feature (9) comes to rest at an assembly
position (x2). The sensor (10) measures the substrate
feature (9) which has come to rest at the assembly
position (x2) and, by using the measured position,
determines the position of adjustment marks (15) which
30 are arranged on the substrate and which are then
measured accurately using an adjustment sensor (14)
fitted to the assembly head (4).

FIG 3