

SURFACE TREATMENT APPARATUS AND MANUFACTURING APPARATUS FOR SEMICONDUCTOR DEVICE

ABSTRACT

5 A surface treatment apparatus (20) applies a hydrophilic treatment to a bonding surface
of a target object (130) bonded to a bonded object using hydrogen bonding, the hydrophilic
treatment being applied prior to the bonding. The surface treatment apparatus includes a support
base (22) and a spray nozzle (26). The support base supports a surface of the target object (130)
opposite to the bonding surface, the target object being one or more target objects. The spray
10 nozzle causes dew condensation temporarily on the bonding surface by spraying, onto the bonding
surface of the target object (130) supported by the support base (22), humidified air having a water
vapor pressure equal to or higher than a saturated water vapor pressure corresponding to a
temperature of the bonding surface.~~A surface treatment device (20) that implements a~~
~~hydrophilization treatment on a joining surface of an object (130), which is joined using hydrogen~~
15 ~~bonds to an object to be joined, the hydrophilization treatment being implemented prior to the~~
~~joining, wherein the surface treatment device (20) comprises: a support base (22) for supporting~~
~~the surface of one or more objects (130) that is on the opposite side from the joining surface; and~~
~~a blowing nozzle (26) that blows humidified air having a water vapor pressure equal to or greater~~
~~than the saturated water vapor pressure corresponding to the temperature of the joining surface~~
20 ~~onto the joining surface of the object (130) supported by the support base (22), thereby generating~~
~~condensation on the joining surface over time.~~

FIG. 2