

(hereinafter referred to as the “second odd-numbered wafer W2O”) is shown as a diagonally hatched strip, and an even-numbered substrate wafer 100 (hereinafter referred to as the “second even-numbered wafer W2E”) is shown as a cross-hatched strip.

[0038] FIG. 5 is the most basic timing chart. As shown in FIG. 5, the transfer robot 28 first transfers the first odd-numbered wafer W1O (light ink) from the wafer transfer apparatus 12 to the first bonding station 14f (t1). The bonding process is executed on the first odd-numbered wafer W1O at the first bonding station 14f. As shown in FIG. 5, the time required for this bonding process is significantly longer than the time required for transfer. Therefore, the transfer robot 28 transfers the second odd-numbered wafer W2O (diagonally hatched) from the wafer transfer apparatus 12 to the second bonding station 14s (t2) while the bonding process is being executed on the first odd-numbered wafer W1O.

[0039] When the bonding apparatus 16 at the first bonding station 14f completes the process (t3), the transfer robot 28 collects the first odd-numbered wafer W1O to the wafer transfer apparatus 12, and then transfers the first even-numbered wafer W1E (dark ink) to the first bonding station 14f. The bonding process is executed on the first even-numbered wafer W1E at the first bonding station 14f. The bonding process of the second odd-numbered wafer W2O is completed (t4) while the bonding process is being executed on the first even-numbered wafer W1E. In this state, the transfer robot 28 collects the second odd-numbered wafer W2O to the wafer transfer apparatus 12, and then transfers the second even-numbered wafer W2E (cross-hatched) to the second bonding station 14s. After that, the same process is repeated.

[0040] As described above, while the bonding process is being executed at one bonding station 14, the substrate wafer 100 is supplied or collected to the other bonding station 14. With such a configuration, since the timings of supply and collection of the substrate wafers 100 are staggered at the first and second bonding stations 14f and 14s, one wafer transfer apparatus 12 can be shared by the plurality of bonding stations 14. In addition, as a matter of course, the transfer timings of the substrate wafers 100 at the two bonding stations 14f and 14s are staggered so that

odd-numbered wafer W2O (diagonally hatched) to the second bonding station 14s via the pre-aligner 30 (t3, t4) while the first odd-numbered wafer W1O is subjected to bonding.

[0048] When the bonding process of the first odd-numbered wafer W1O is completed, the transfer robot 28 transfers the first odd-numbered wafer W1O to the first standby stage 32f instead of the load port 26 (t5). When this transfer is completed, the transfer robot 28 subsequently transfers the first even-numbered wafer W1E (dark ink) to the first bonding station 14f via the pre-aligner 30 (t6). Further, in this example, the bonding process of the second odd-numbered wafer W2O is completed (t7) during the standby period of the first odd-numbered wafer W1O. Therefore, in this example, the substrate wafer 100 at the second bonding station 14s is replaced (t7, t8) during the standby period of the first odd-numbered wafer W1O.

[0049] After that, while the bonding process of the first even-numbered wafer W1E and the second even-numbered wafer W2E are being executed, the standby time of the first odd-numbered wafer W1O and the second odd-numbered wafer W2O elapses, and both wafers are sufficiently cooled. In this state, the transfer robot 28 collects the substrate wafer 100 from each standby stage 32 and transfers it to the load port 26 (t9, t10). After that, the same procedure is repeated.

[0050] As described above, in the example of FIG. 7 as well, one transfer robot 28 and one pre-aligner 30 can be shared by the plurality of bonding stations 14. In order to replace the substrate wafer 100 at the second bonding station 14s while the substrate wafer 100 is standing by on the first standby stage 32f, as a matter of course, in the case of setting the time of the bonding process in each of the first and second bonding stations 14f and 14s to $tb1$ and $tb2$, the time difference in the transfer timings of the substrate wafers 100 in the two bonding stations 14f and 14s to td , and the standby time of the substrate wafer 100 on the first standby stage 32f to tw , it is required that $tb1 + tw > td + tb2$, and in the case of $tb1 = tb2$, the standby time must be greater than the time difference (that is, $tw > td$). In other words, during the standby period of the substrate wafer 100 handled by one bonding station 14, the substrate wafer 100 is replaced at

the other bonding station 14, whereby the time difference t_d of the transfer timings of the substrate wafers 100 at the two bonding stations 14f and 14s can be shortened, and the overall processing time can be shortened.

[0051] Next, an example in which the standby of the substrate wafer 100 handled by one bonding stage 22 and the replacement of the substrate wafer 100 on the other bonding stage 22 do not overlap will be described with reference to FIG. 8. In the example of FIG. 8 as well, similarly to FIG. 7, when the bonding process for the first odd-numbered wafer W1O is completed, the transfer robot 28 transfers the first odd-numbered wafer W1O from the first bonding station 14f to the first standby stage 32f, and then transfers the second even-numbered wafer W2E to the first bonding station 14f (t_5 , t_6). In the example of FIG. 8, the standby time of the first odd-numbered wafer W1O ends (t_7) before the bonding process of the second odd-numbered wafer W2O is completed. Therefore, the transfer robot 28 transfers the first odd-numbered wafer W1O from the first standby stage 32f to the load port 26 before replacing the substrate wafer 100 (t_8 , t_9) at the second bonding station 14s. After that, when the bonding process of the second odd-numbered wafer W2O is completed, the second odd-numbered wafer W2O is transferred to the second standby stage 32s, and then the second even-numbered wafer W2E is transferred to the second bonding station 14s (t_8 , t_9).

[0052] As described above, in the example of FIG. 8 as well, one transfer robot 28 and one pre-aligner 30 can be shared by the plurality of bonding stations 14. Further, according to the example of FIG. 8, the standby time at the first standby stage 32f and the standby time at the second standby stage 32s do not overlap. Therefore, according to this configuration, it is not necessary to provide two standby stages 32, and one standby stage 32 can be shared by the two bonding stations 14f and 14s. In this case, it is necessary to satisfy $t_{b1} + t_w < t_d + t_{b2}$, and if $t_{b1} = t_{b2}$, it is necessary to satisfy $t_w < t_d$.

[0053] Next, another example will be described. FIG. 9 is an image diagram showing another disposition example of the mounting apparatus 10. In the example of FIG. 9, two