Claims

1. Installation for polishing semiconductor wafers, comprising
at least two polishing machines for the simultaneous double-sided polishing of semiconductor wafers;
one or more carriers which lie on a polishing pad of a respective lower polishing plate of the polishing machines and have recesses for receiving semiconductor wafers;
an overhead-mounted transport system for delivering a cassette which contains semiconductor wafers for polishing;
assigned to each of the polishing machines, a vertical transport system for taking the delivered cassette from the overhead-mounted transport system, and comprising an integrated wafer lifter for lifting the semiconductor wafers for polishing out of the cassette;
a robot which moves autonomously to the at least two polishing machines and which has a manipulator for taking the semiconductor wafer for polishing from the wafer lifter, for inserting the semiconductor wafer for polishing into one of the recesses and, at the end of a polishing operation, for lifting the polished semiconductor wafer out of the recess;
assigned to each of the polishing machines, an x/y linear unit having a wafer gripper for taking the polished semiconductor wafer from the manipulator of the autonomously moving robot and for depositing the polished semiconductor wafer into a wet transport container with integrated wafer receiver; and
a driverless transport vehicle for transporting the wet transport container to a cleaning unit for polished semiconductor wafers.

2. Installation according to Claim 1, characterized by 3 to 10 polishing machines.

3. Installation according to any of Claims 1 or 2, characterized in that the wafer gripper possesses end effectors which hold the semiconductor wafer at a wafer edge and which dip between slots of the wafer receiver of the wet transport container.

4. Method for polishing semiconductor wafers, comprising

the providing of at least two polishing machines for the simultaneous double-sided polishing of semiconductor wafers;
the delivery of semiconductor wafers for polishing in a cassette by means of an overhead-mounted transport system;
the lifting of a semiconductor wafer for polishing out of the cassette by means of a wafer lifter of a vertical transport system;
the taking of one of the semiconductor wafers for polishing from the wafer lifter of the vertical transport system or from a centring station by a manipulator of an autonomously moving robot;
the insertion of the semiconductor wafer for polishing into a recess of a carrier of the at least two polishing machines by the manipulator of the autonomously moving robot;
the removal of a polished semiconductor wafer from one of the recesses of the carriers by means of the manipulator of the autonomously moving robot;
the taking of the polished semiconductor wafer from the manipulator of the autonomously moving robot by a wafer gripper of an x/y linear unit;
the depositing of the polished semiconductor wafer into a wafer receiver of a wet transport container by the wafer gripper;
the transfer of the wet transport container from the x/y linear unit to a driverless transport vehicle; and
the transporting of the wet transport container by means of the driverless transport vehicle to a cleaning unit for polished semiconductor wafers.

5. Method according to Claim 4, comprising the polishing of some of the semiconductor wafers on at least one of the polishing machines, while the autonomously moving robot takes one of the semiconductor wafers of some other of the semiconductor wafers, inserts it into one of the recesses or removes it from one of the recesses.