

WHAT IS CLAIMED IS:

1. A wafer processing method for processing a wafer having a chamfered portion formed at a periphery thereof, comprising:

a tape attaching step of attaching a protective tape to a front surface of the wafer and making a diameter of the protective tape coincide with a diameter of the wafer;

a holding step of holding the wafer through the protective tape by a holding table such that a back surface of the wafer is exposed;

a grinding step of grinding the back surface of the wafer held by the holding table with use of grinding stones so as to thin the wafer to a thickness thinner than half of an original thickness, to reduce the diameter of the wafer, and to form a protruding portion where the protective tape protrudes from the wafer; and

a contracting step of heating and contracting the protruding portion of the protective tape after the grinding step is carried out.

2. The wafer processing method according to claim 1, wherein

in the contracting step, hot air is jetted to the protective tape, and

a time period for jetting the hot air and a temperature of the hot air sufficient for contracting the protruding portion of the protective tape is determined in advance.

32. A grinding apparatus ~~for grinding a wafer that has a chamfered portion formed at a periphery thereof and is attached, at a front surface thereof, to a protective tape having a diameter same as that of the wafer,~~ comprising:

a holding table for holding ~~a~~the wafer through ~~a~~the protective tape, the wafer having a chamfered portion formed at a periphery thereof and is attached, at a front surface thereof, to the protective tape having a diameter same as that of the wafer;

a grinding unit comprising a grinding wheel including a plurality of grinding stones for grinding the wafer held by the holding table; and

a heating unit that heats and contracts a protruding portion where the protective tape protrudes from the wafer, the protruding portion having been formed as a result of reduction in diameter of the wafer when the wafer is ground by the grinding unit to be thinned to a thickness thinner than half of an original thickness.

43. The grinding apparatus according to claim 32,

further comprising:

a cleaning unit that cleans the wafer having been ground by the grinding unit,

wherein the heating unit heats the protruding portion of the protective tape attached to the wafer having been cleaned by the cleaning unit.

5. The grinding apparatus according to claim 3, wherein

the heating unit jets hot air to the protective tape, and

a time period for jetting the hot air and a temperature of the hot air sufficient for contracting the protruding portion of the protective tape is determined in advance.