

8000/800 Series: Cautions as to Air Cut Amounts

Caution

We have found a case that setting an air cut amount smaller than the recommended one causes the wheel and wafer to hit each other at high speed, causing a trouble. Setting a too small air cut amount causes abnormal wheel wear, breakage of wafers or wheels, and machine failure.

This technical newsletter informs you of the role of air cut in order to prevent troubles due to change of an air cut amount.

Role of air cut

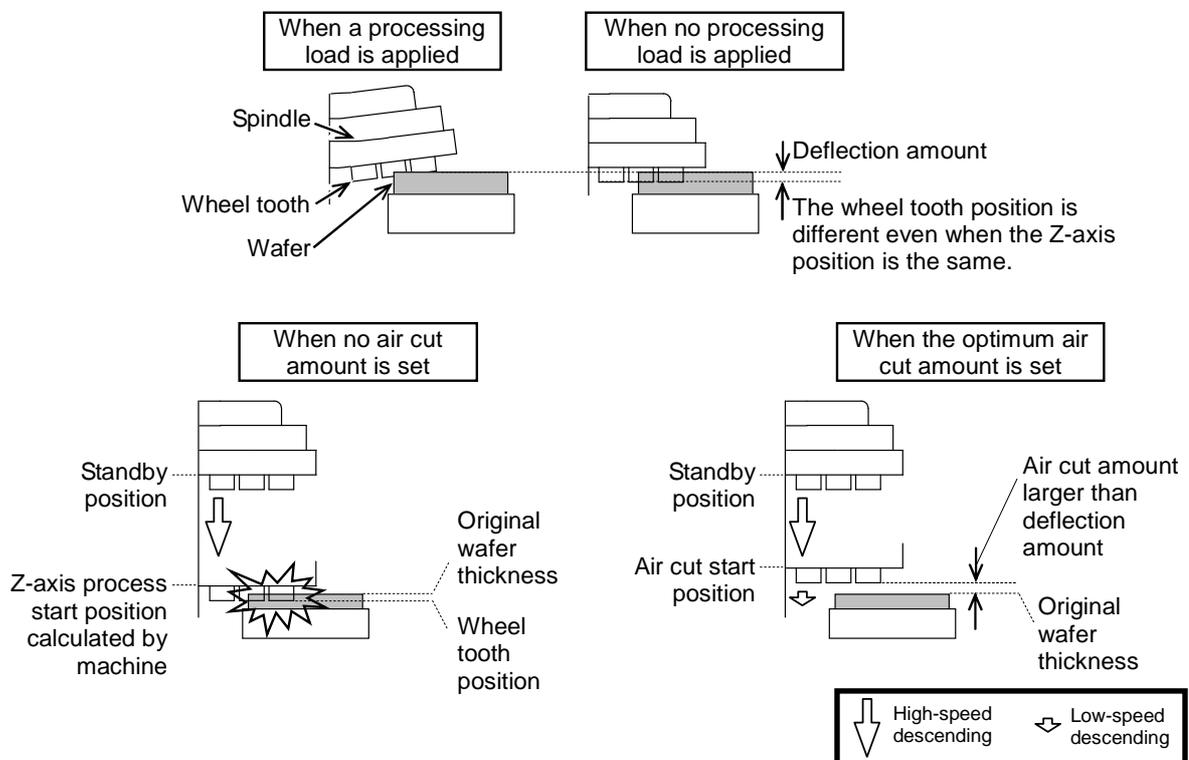
Slowing down the descending speed of the Z-axis (the feed speed during processing) from the position of "Original wafer thickness" + "Air cut amount" prevents the wheel and wafer from hitting each other at high speed.

When setting an air cut amount, you should take into account not only Variation in original wafer thickness but also Machine deflection amount due to process loads as described below.

• Machine deflection amount due to process loads

In order to keep track of the wear amount of a wheel, the machine records the Z-axis position during processing and calculates the Z-axis position to start processing the next wafer. However, processing loads cause machine deflection. Because of this, when there is no load applied (such as before starting processing), the tooth position of the wheel becomes lower even when the Z-axis position is the same.

Therefore, if the Z-axis moves down to the processing start position calculated by the machine at high speed, the wheel and wafer hit each other at high speed. In order to avoid this, it is necessary to set an air cut amount larger than the machine deflection amount.



• Variation in original wafer thickness

If the thickness of the wafer actually loaded is larger than the specified one, the wheel and wafer hit each other at high speed.

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Optimum air cut amount

The machine deflection amount varies because the processing loads are different depending on the application.

If it is unknown, perform test cut and check the optimum air cut amount.

Inquiries

Please contact your local DISCO sales representative or DISCO service office if you have any questions regarding this matter.
