

ABSTRACT

CUTTING APPARATUS AND CUTTING METHOD

Disclosed is a cutting apparatus wherein cooling water is supplied at a flow rate regulated correspondingly to cutting load.

The cutting apparatus has, in a spindle 1, a spindle motor 3, a rotating shaft 4, a rotary blade 8, and a cooling water passage 7. A positional displacement sensor 10 is located at a position facing a flange 9. An electric current measurement unit 12 that measures drive current is connected to the spindle motor 3. A flow rate regulating unit 13 that regulates the flow rate of cooling water is connected to the cooling water passage 7. A measured value $I(t)$ of electric current measured by the electric current measurement unit 12 is compared to a prestored value I_0 of electric current. When the measured value $I(t)$ is greater than the prestored value I_0 , the cooling water is supplied to the spindle 1 at an initially set flow rate. When the measured value $I(t)$ is less than or equal to the prestored value I_0 , the cooling water is supplied at a lower flow rate. By regulating the flow rate of the cooling water to be supplied correspondingly to the magnitude of load current applied to the spindle motor 3, the cooling water is supplied at a suitably regulated flow rate to the spindle 1, so that the use of the cooling water is advantageously economized.

FIG. 1