

ABSTRACT

There is provided a synchronous control apparatus of high synchronous control accuracy, and the synchronous control accuracy is seldom deteriorated even if input of the position command and detection of the main shaft position are delayed. The synchronous control apparatus comprises a command generating device 1, a main shaft device 2, and a subsidiary shaft device 3. The command generating device 1 includes a memory 7 for storing the main shaft position command increments inputted into a plurality of time points from the past to the present, an output means 7' for outputting the main shaft position command increment $\Delta r_s(i)$ inputted before $(M-1)$ times of samplings in the values stored in the memory 7, a memory 8 for storing the main shaft position increments inputted into a plurality of time points from the past to the present, a calculator 9 for finding prediction values of a plurality of main shaft position increments for several times of future samplings by the dynamic characteristic model of the main shaft device including the delay of d times of samplings and also by the stored main shaft position command increments and the main shaft position increment, and a converter 10 for finding a plurality of subsidiary shaft future position command increments by a plurality of prediction values of the main shaft position increments obtained by the calculator.