

Title (en)
DETERMINATION OF START COMMUTATION IN SYNCHRONOUS SERVO DRIVES

Title (de)
BESTIMMUNG DER STARTKOMMUTIERUNG IN SYNCHRON-SERVO-ANTRIEBEN

Title (fr)
DETERMINATION DE LA COMMUTATION INITIALE DANS DES SERVOCOMMANDES SYNCHRONES

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Abstract (en)
[origin: WO2005006535A1] The invention relates to a method for carrying out start commutation of synchronous servo drives by means of two coupled control loops, a current control circuit and an angle control circuit. The current control circuit is coupled by means of the transversal i_Q current via a minimised Clarke-Park transformation (1, 2) associated with said circuit and the angle control circuit is coupled to the current control circuit by means of the field angle α . The Clarke-Park transformation (1) associated with the current control circuit contains, as an input, two phase currents (i_U , i_V) and the field angle α and, as an output, the motor current vector i_M . The Clarke-Park transformation (2) associated with the angle control circuit contains, as an input, the field angle α and the transversal current i_Q and, as an output, the voltage branches u_U , u_V , u_W . The angle control circuit contains an incremental position sensor signal (13). A ramped desired value (5) is predetermined by the current control (7). A constant angle desired value (8) is predetermined by the angle control (9). The angle control (9) is embodied in such a manner that it has a faster dynamic than the current control dynamic (7) of the signal (20) which is impinged upon by the current control (7) by rotating the magnetic field. The method can be controlled, in all positions, by the input of an S-shaped disturbance variable signal (11) in the angle control (9). The shaft of the electric drive (16) can be mechanically blocked in the position thereof during initialisation of the start commutation and is regulated exactly to the same position as in the beginning after the initialisation of the start commutation.

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