

ABSTRACT:

Circuit arrangement for powering a two-phase asynchronous motor

A circuit arrangement is described for powering a two-phase asynchronous motor comprising two windings which each have one end connected to a first and a third node, respectively, and which both have another end connected to a second node, the nodes each being arranged to receive one of three alternating voltages (U_1 , U_2 , U_3) whose sinusoidal fundamental waves at least substantially correspond in frequency (fundamental frequency).

An improvement of this circuit arrangement, so as to achieve an even more significant reduction of the power dissipated in preferably all the switching circuits connected to the nodes, is obtained in that

- 10 - the second alternating voltages (U_2) to be applied to the second node has a rectangular waveform of fundamental frequency,
- the first and the third alternating voltage (U_1 and U_3 , respectively) to be applied to the first and the third node, respectively, are given such a lead and such a lag as regards the phases of their sinusoidal fundamental waves that the resulting voltages (U_A , U_B) across the windings have a phase angle relative to one another which corresponds to the (mechanical) angle between the windings,
- 15 - the first and the third alternating voltage (U_1 , U_3) each comprise time intervals with constant (non-modulated) voltage values and time intervals which are positioned symmetrically in time relative thereto and in which the voltage is pulse modulated with a given duty cycle and with a switching frequency which is high relative to the fundamental frequency,
- 20 - only the first or the third alternating voltage (U_1 or U_3) in each time interval being pulse modulated and the respective other (third or first) alternating voltage (U_3 or U_1) being constant (non-modulated), and the duration of the time intervals with a pulse modulated voltage as well as the duty cycle in each of these time intervals being determined in accordance with a desired amplitude ratio between the voltages (U_A , U_B) across the windings.
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