

Two-phase synchronous electric motor with permanent magnets comprises a stator and a rotor with permanent magnets. The stator consists of an even number of stator sections of two types, A and B, arranged alternately along an axis and shifted relative to each other along a circumference by an angle corresponding to half a pole pitch, with the axis of pole teeth of type A sections coinciding with the axes of interpole gaps of adjacent type B sections. Wherein each stator section has pole teeth with concentrated windings, the polarity of adjacent teeth within one section alternates, the windings of all type A sections are connected together and form phase A, the windings of type B sections are connected together and form phase B, the electric motor is configured to supply each phase with independently controlled currents shifted by 90 electrical degrees, and the rotor consists of one or more sections with permanent magnets. Wherein magnets are arranged with alternating polarity - north/south poles along a circumference, and the number of poles in each rotor section is equal to the number of poles of the corresponding stator section.