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ABSTRACT

There is provided a high-pressure dome type compressor which comprises a motor using a rare earth magnet and has stable performance. There are provided a compression element 3 and a DC motor 5 for driving the compression element 3 in a casing 2. The motor 5 is disposed in a high pressure area 6, which obtains a high temperature and high pressure due to a discharged gas. The motor 5 includes a rare earth/iron/boron permanent magnet having an intrinsic coercive force of 1.7 MA/m^{-1} or greater in a rotor and has a rated output or 1.9 kW or higher. An inverter 10 controls a current to be supplied to the motor 5 such that a temperature of the motor 5 becomes equal to a predetermined temperature or lower and that an opposing magnetic field generated in a stator of the motor 5 has a predetermined strength or less. Therefore, since the rare earth magnet of the motor 5 does not obtain a high temperature and is not exposed to a strong opposing magnetic field, the magnet is hardly demagnetized. Thus, performance of the motor 5 and further performance of the high-pressure dome type compressor 1 become stable.