

The Superconducting Magnet System for KEKB B-Factory, Y. AJIMA, R. OHKUBO, T. OGITSU, N. OHUCHI, N. TOGE, K. TSUCHIYA, KEK - An asymmetric two-ring electron-positron collider for B-physics, KEKB, is now under construction. This machine has only one interaction point, where the electron and positron beams collide at a finite crossing angle of ± 11 mrad. In the interaction region, four superconducting magnets will be used: solenoid field compensation magnets (S-R and S-L), and final focusing quadrupole magnets (QCS-R and QCS-L). The QCS-R and QCS-L are iron-free magnets with an inner coil diameter of 260 mm, an effective length of 400 mm, and a nominal gradient of 20.5 T/m. The S-R and S-L produce a solenoidal field of 5.4 T and 4.5 T, respectively. These four magnets have to be installed completely inside the detector solenoidal field of -1.5 T. Therefore, the magnets and cryostats have to withstand forces due to the magnetic field of the coils themselves, and their interaction with the detector solenoid field. This paper describes the detailed design of these magnets, cryostats, and the cooling system.