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Sommario/riassunto	Three concepts of high temperature superconductor cables carrying kA currents (RACC, CORC and TSTC) are investigated, optimized and evaluated in the scope of their applicability as conductor in fusion magnets. The magnetic field and temperature dependence of the cables is measured; the thermal expansion and conductivity of structure, insulation and filling materials are investigated. High temperature superconductor winding packs for fusion magnets are calculated and compared with corresponding low temperature superconductor cases.