A Lattice Design to Reach the Theoretical Minimum Emittance for a Storage Ring, D. EINFELD[*], M. PLESKO[**], J. SCHAPER[*], [*]FHO EMDEN, [**]University of Ljubljana - The theoretical minimum emittance (TME) for a storage ring is given if both the horizontal betatron and the dispersion function have a minimum in the middle of the bending magnet and furthermore meet special values. In most of the storage rings the emittance is of a factor 2 to 5 higher as the TME-value. The TME can be reached with a new type of lattice composed of a combined function bending magnet and a quadrupole dublett at each side followed by a drift space of 2 to 3 m: DRIFT-Q(d)-Q(f)-BENDING-Q(f)-Q(d)-DRIFT. With a 20 degree bending magnet it is possible to reach with this type of lattice an emittance down to 9 nmrad at 3 GeV (which is only 14% higher as the TME-value). With a circumference of 250 m and 18 unit cells (20 degree bending magnet) it is possible to use up to 50% of the circumference for the installation of insertion devices. With a 10 degree bending magnet (3 GeV) it is possible to reach an emittance of 1.5 nmrad.