



FIG. 4.16 (b) Minimum heat input for a single copper wire conducting current I from a region of the cryostat at temperature T_{upper} to a temperature T_{lower} . (We assume that the copper wire has a typical residual resistance ratio of 100 and no heat transfers to evaporating helium gas.) \dot{q}_{\min} is the corresponding minimum heat input. (From McFee 1959.)