

5.3 Armature voltage control

In this method of speed control, armature is supplied from a separate variable Ac voltage source, while the field is separately excited with fixed rate dc voltage as shown in figure. Here the armature resistance and field current are not varied. Since the no load speed the speed versus I_a characteristic will shift parallel as shown in figure for different values of V_a .

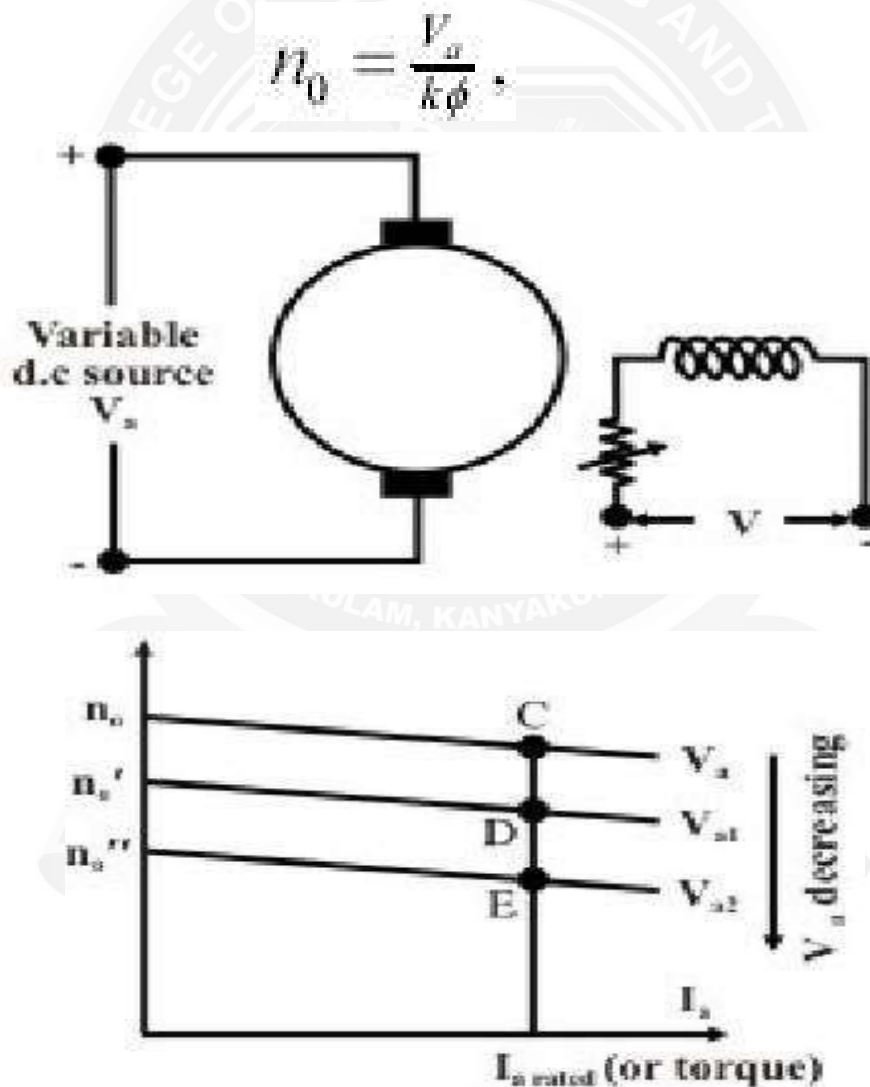


Figure 5.3.1 Armature voltage control

(Source: "Fundamentals of Electrical Drives" by G.K.Dubey, page-242)

As flux remains constant, this method is suitable for constant torque loads. In a way armature voltage control method dissimilar to that of armature resistance control method except that the former one is much superior as next repower loss takes place in the armature circuit. Armature voltage control method is adopted for controlling speed from base speed down to very small speed, as one should not apply a cross the armature a voltage, which is higher than the rated voltage.

