

7 Series operation of motors

In the case of series operation the motors shafts of the two machines are connected to the same load and also the two armatures are series connected. This forces a common armature current through both the machines and the torques developed by the machines are proportional to the flux in each machine. Series operation of series motors is adopted during starting to improve the energy efficiency. This method is ideally suited for shunt and compound machines with nearly flat torque speed characteristics. Such machines can go through high amount of dynamics without the fear of becoming unstable. This configuration is used in steel mills. Having two smaller machines connected to the shaft is preferred over there in place of one large machine as the moment of inertia of the motors is much reduced, thus improving the dynamics.

