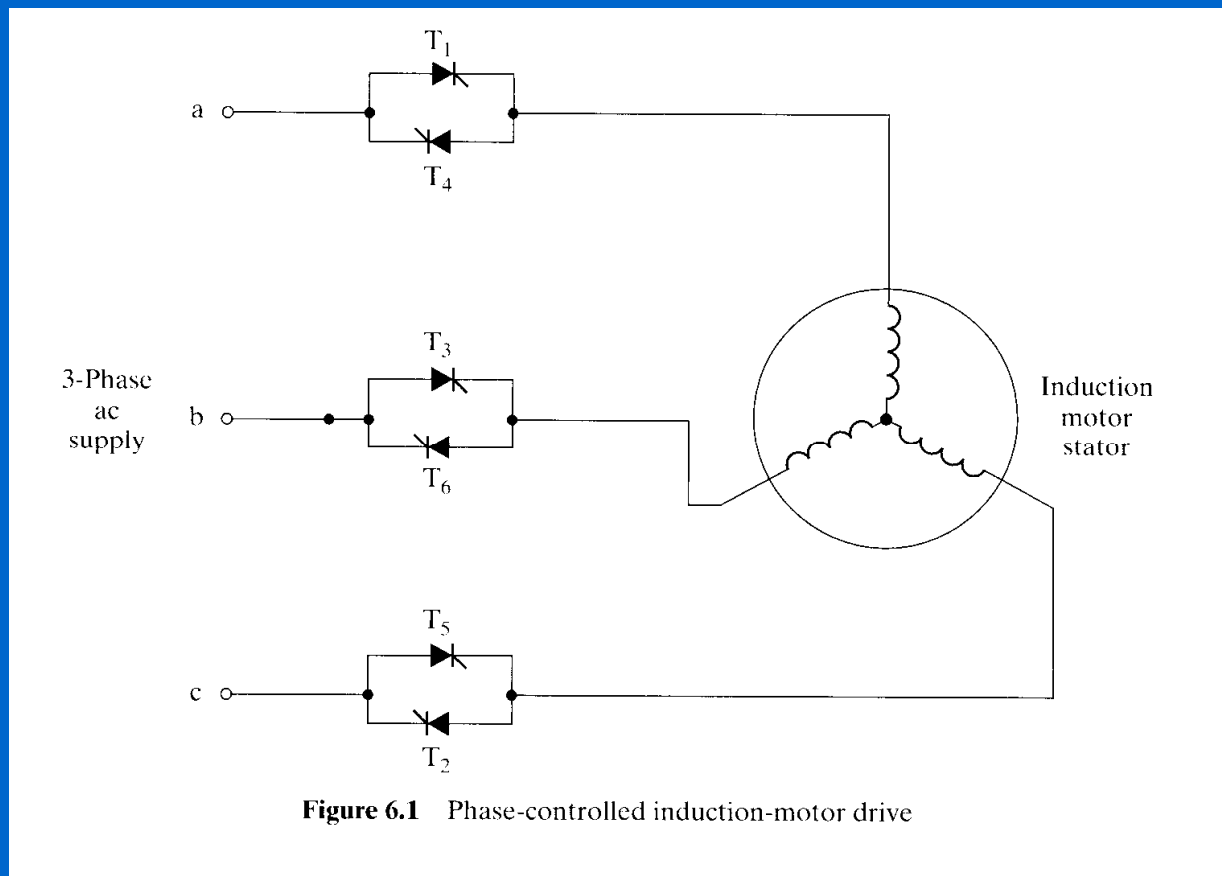# 6 Phased-Controlled induction-motor drives

- The rotor speed of the induction motor

$$\omega_m = \frac{\omega}{P/2} = \frac{2}{P}\omega_s(1-s) = \frac{4\pi}{P}f_s(1-s)$$

  related to poles, slip or frequency.

- Pole-amplitude-modulated motors operate

  with a change of winding connections

  in a very limited

  but stepped form of speed control

- The slip speed control is effected through the variation of applied voltage or

  insertion of external resistors in rotor or stator

- Efficiency is poor at low speeds with slip-controlled drive systems.

- This chapter studies slip control with stator voltage control and slip energy-recovery control

6.2 Stator voltage control

- Phase-controlled induction motor drive

Figure 6.1   Phase-controlled induction-motor drive

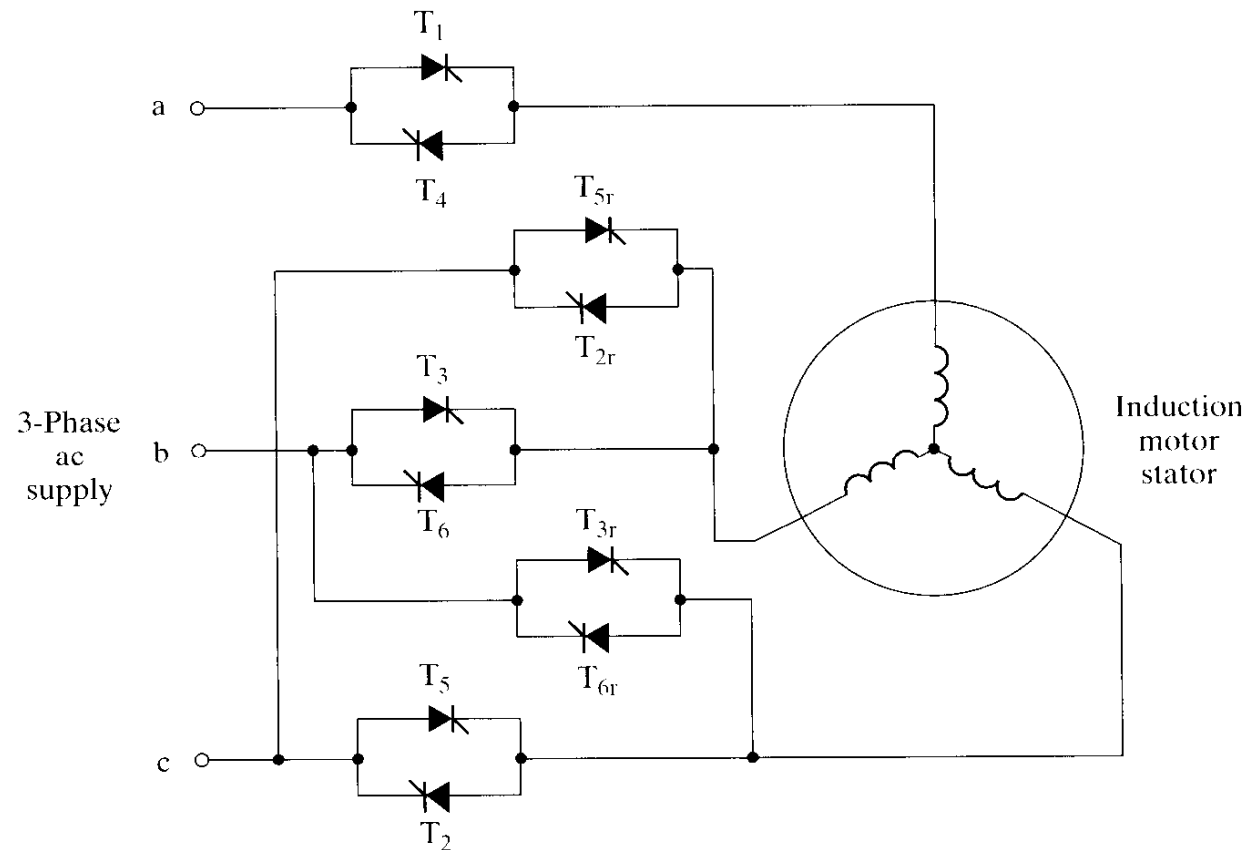# • Reversible phase-controlled induction-motor drive

Figure 6.2   Reversible phase-controlled induction-motor drive