



Motor Data

- **Motor Enclosures**

The selection of a motor enclosure depends upon the ambient and surrounding conditions. The two general classifications of motor enclosures are open and totally enclosed. An open motor has ventilating openings which permit passage of external air over and around the motor windings. A totally enclosed motor is constructed to prevent the free exchange of air between the inside and outside of the frame, but not sufficiently enclosed to be termed air-tight.

These two categories are further broken down by enclosure design, type of insulation, and/or cooling method. The most common of these are listed below.

OPEN DRIP PROOF (ODP)– An open motor in which all ventilating openings are so constructed that drops of liquid or solid particles falling on the motor at any angle from 0 to 15 degrees from vertical cannot enter the machine. This is the most common type and is designed for use in nonhazardous, relatively clean, industrial areas.

ENCAPSULATED – A drip proof motor with the stator windings completely surrounded by a protective coating. An encapsulated motor offers more resistance to moisture and/or corrosive environments than an ODP motor.

TOTALLY ENCLOSED, FAN-COOLED (TEFC) – An enclosed motor equipped for external cooling by means of a fan integral with the motor, but external to the enclosed parts. TEFC motors are designed for use in extremely wet, dirty, or dusty areas.

EXPLOSION-PROOF (XP) – An enclosed motor whose enclosure is designed to withstand an explosion of a specified dust, gas, or vapor which may occur within the motor and to prevent the ignition of this dust, gas, or vapor surrounding the motor. A motor manufacturer should be consulted regarding the various classes and groups of XP motors available and the application of each.

MOTOR INSULATION – Motor insulation is classified according to the total allowable temperature. This is made up of a maximum ambient temperature plus a maximum temperature rise plus allowances for hot spots and service factors. Class B insulation is the standard and allows for a total temperature of 130 degrees C. The maximum ambient is 40 degrees C, and the temperature rise is approximately 75 degrees C.