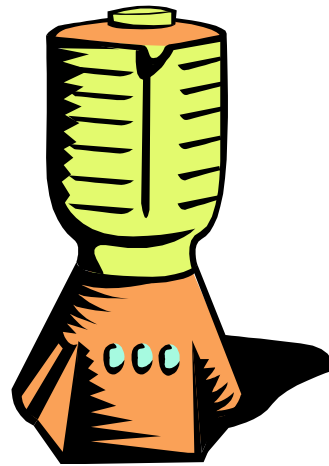
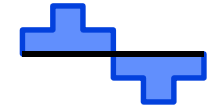


Introduction

What is an adjustable speed drive?

- Industrial machinery is often driven by motors that have provisions for speed adjustment.
- These motors are simply larger versions of the motors that many people use every day when they operate appliances such as food blenders or electric drills.
- In industrial terminology, these motors are called “adjustable speed drives.”



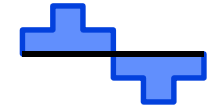


Introduction

Course objective

- This training course attempts to promote an intuitive understanding of the operation of adjustable speed drives.
- The theoretical details have been simplified as much as possible.

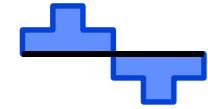




Introduction

Types of Adjustable Speed Drives

- Speed adjustment techniques have been used in transmitting mechanical power to machinery since the earliest use of powered machinery.
 - Before electric motors were invented, mechanical speed changers were used to control the mechanical power provided by water wheels and steam engines.
 - When electric motors came into use, means of controlling their speed were developed almost immediately.
 - Today, various types of mechanical drives, hydraulic drives and electric drives compete with one another in the industrial drives market.



Introduction

Variable Frequency Drives

- A variable frequency drive (VFD) is a special type of power supply for an AC motor.
- The power from the utility company has a constant voltage such as 120, 240 or 480 volts (in the USA).
- It is alternating current (AC) that reverses direction 60 times every second (60 Hz).
- A VFD converts 60 Hz power to variable frequency power with voltage proportional to frequency.
- Reducing the frequency reduces the motor speed proportionally.
- The voltage must be reduced in proportion to the frequency reduction to keep the motor from drawing too much current.