

a) 3-phase AC is ~~the~~ ^{most} self starting

difference is that AC motors don't include brushes, with reduces need for maintenance and parts replacement AC motors generally have longer life ~~span~~.

5) the typical operation of AC drives are:

- compressor drives
- computers
- conveyer systems
- fans and air conditioners
- hydraulic and irrigation pumps

~~conveyers~~

the basic objective in electronic AC drives is to change a fixed incoming line voltage and frequency to a variable voltage and frequency output. Contrary to DC drives AC drives have the ability to ~~operate~~ operate on AC motor in bypass mode and the motor can still be operating when drive not functioning.

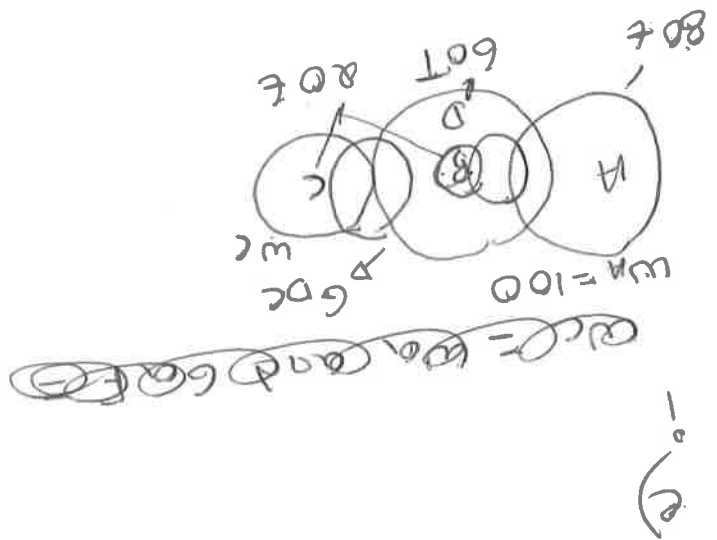
c) the mechanical properties ~~are~~ ^{are} mechanical / variable speed. operates on the principle of variable pitch pulleys the disadvantages is that those tip of drive have tendency to break down and the efficiency is not the greatest due to the belt slipping on the pulleys. two examples AC and DC drives. Helical spur gears that has teeth that are set at angle to gear axis or spur gears where teeth are waste to the spur.

helical spur gears
 advantages / characteristics
 acts smoother than spur
 higher load
 higher speeds
 angular teeth
 greater tooth strength
 advantages
 produce axial thrust that needs to be counted for

(VS)

spur gears
 advantages / characteristics
 straight teeth
 can create gear reduction
 durable
 disadvantages
 noise

Applications
 mechanical applications
 clocks, electric screwdrivers



$w_A = 100$
 $w_B = 100$ and $w_C = 60\%$

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8)

- a) In Figure 1 crevice corrosion is visible, this type of corrosion happens when the area of a localized attack is within the crevices (that normally form around and under washers, seals and bolts.
- In Figure 3 is possible to observe ^{could be} erosion corrosion ^{high temperature} due to high flow condition. or localized turbulence, in this particular case looks like the high shear stress is stripping away protective corrosion and increasing the transport of the corrodant in the system to the metal system.
- In Figure 2 could be dry corrosion this type of corrosion causes uniform loss of wall thickness which is observed in fig 3 and or 1.

A) to implement an energy monitoring and targeting program three components must be in place 1 - consumption data 2 - Driving factor data 3 - the methods of calculating expected consumption.

the first component might come from meters or ammeter such as water reading the second component might include production figures or mileage, degree day statistics

B) An energy audit is a study to establish and quantify the cost of energy inputs to and flows in a organization/facility over a determined period ~~comp~~ with the aim to identify viable and cost effective energy measures to reduce operating costs. can be used to help manage energy use as it involves a monitoring and targeting of energy consumption. It is not only used to lower energy cost but to maintain or control the energy usage as all data can be assessed and reviewed.