
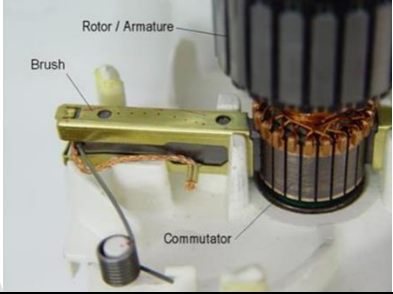
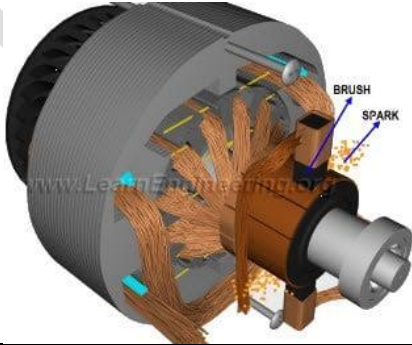



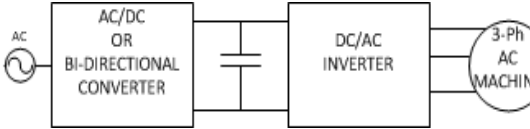
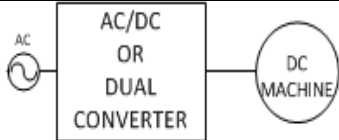
## Lecture Note Electrical Drives

Prepared By: Dr. Shaikh Mohammed Suhel

Ph.D, GATE, M.Tech, B.E. Electrical

### Q: Difference between AC Drives and DC Drives

	AC Drives	DC Drives
<b>Construction</b>	<p>AC Machines are very simple and rugged based on construction.</p> 	<p>Due to presence of Brushes and Commutator makes the DC machine design complicated</p> 
<b>Reliability:</b>	<p>Due to absence of brushes AC motor are more reliable than the DC. It suitable for all location.</p>	<p>DC Drives are less reliable than AC. Due to sparking it not suited for all location.</p> 
<b>Maintenance:</b>	<p>AC motors usually require less maintenance because of brushes and have a larger lifespan than DC motors</p>	<p>Brushes need to replace periodically and as results maintenance is high</p>
<b>Cost:</b>	<p>AC Machines are less costlier than the DC machine</p>	<p>In DC machine, rotor (Armature) and stator (Field) both windings are present, cost is high.</p> 
<b>Time constant:</b>	<p>As weight of rotor of induction motor is less, mechanical time constant of this machine is higher than the DC drives</p>	<p>As Rotor has windings; weight is higher and less mechanical time constant.</p>
<b>Speed</b>	<p>Complex control</p>	<p>Simple control</p>

<b>Control</b>		
<b>Drives structure</b>		 <p>At higher power level, Few times Drives cost is higher than the DC Drives</p>
<b>Application</b>	Limited application. Used in high power DC drives. Underground metro, sugar mill, still rolling etc.	Almost everywhere AC drives (VFD) are now used. Traction, EV, Elevator, Cranes, pumps etc.