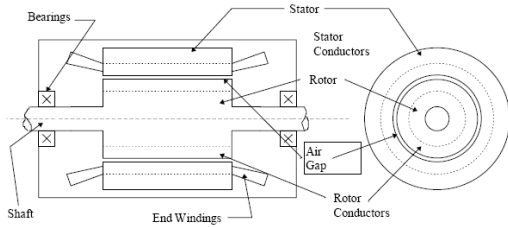


Construction

- Major parts are rotor (armature) and stator (field).

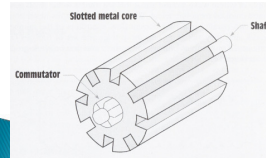


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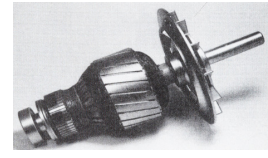
Armature

- More loops of wire = higher rectified voltage
- In practical, loops are generally placed in slots of an iron core
- The iron acts as a magnetic conductor by providing a low-reluctance path for magnetic lines of flux to increase the inductance of the loops and provide a higher induced voltage. The commutator is connected to the slotted iron core. The entire assembly of iron core, commutator, and windings is called the armature. The windings of armatures are connected in different ways depending on the requirements of the machine.

Loops of wire are wound around slot in a metal core



DC machine armature



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Armature Winding

Lap Wound Armatures

- Are used in machines designed for low voltage and high current
- Armatures are constructed with large wire because of high current
- Eg: - are used in the starter motor of almost all automobiles
- The windings of a lap wound armature are connected in parallel. This permits the current in each of each winding to be the same and provides a higher operating current
- No of current path, $C=2p$; p : no of poles

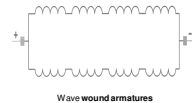


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Armature Winding (Cont.)

Wave Wound Armatures

- are used in machines designed for high voltage and low current
- their windings connected in series
- When the windings are connected in series, the voltage of each winding adds, but the current capacity remains the same
- are used in the small generator in hand-cranked megohmmeters
- No of current path, $C=2$



Wave wound armatures

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Armature Winding (Cont.)

Frogleg Wound Armatures

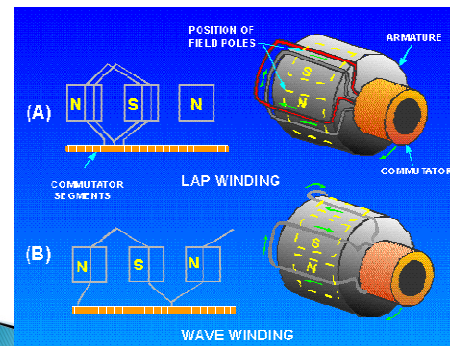
- the most used in practical nowadays
- designed for use with moderate current and moderate armatures voltage
- the windings are connected in series parallel.
- Most large DC machines use frogleg wound armatures.



Frogleg wound armatures

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Armature Windings (Cont.)



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