



Main Windings Inside An Industrial DC Motor



This is the type of Industrial DC Motor we are discussing. A Shunt Wound DC motor.
 This motor has 2 winding circuits:
 An Armature Circuit and a Field Circuit.
 Also the motor has Interpoles (Commutating Field) and Shunt fields.
 The interpoles are there to prevent arcing at the commutator brushes.
 Sometimes there can be a Series, wide, flat, high current winding of a few turns, wound over the Shunt fields, connected in series with the Armature. This effectively makes the motor what is called a Stabilized Shunt motor.



In the end view of the disassembled motor you see 4 narrow windings, Interpoles, and 4 wide windings, Shunt fields.
 The Shunt windings each have hundreds of turns in them of small gauge copper wire and the Interpole (Commutating) windings have much, much fewer turns of a much larger gauge copper wire.
 The Interpoles are connected right into the main Armature circuit so the same high armature current flows through the armature and the interpoles. The Interpoles have to be connected in the Armature circuit in such a way that the Polarity is correct or the motor will not operate correctly. Also the Field windings have to be connected with the correct voltage polarity.



Here we see the Armature with its winding and the Commutator, where all the Armature wires connect to. Brushes ride on the Commutator surface and they provide the means of feeding the necessary Armature current into the Armature itself.
 In general the Armature Circuit has leads A1 and A2, also the Shunt Field, which is often dual voltage rated has leads F1, F2, F3 and F4.
For those of you wanting, as a guide, sample winding Resistance and Inductance information see this [link](#).

