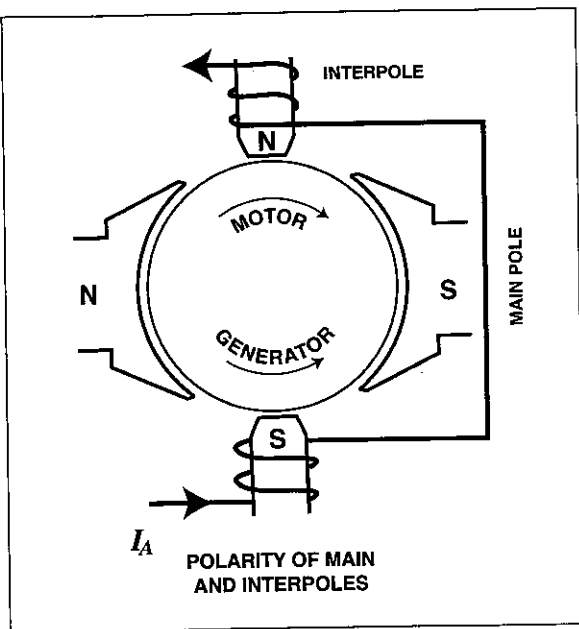


FIELD POLARITIES OF DC MACHINES



The diagram above shows the polarity of interpoles with respect to the polarity of the main poles.

For a **motor**, the polarity of the interpole is the same as that of the main pole **preceding** it in the direction of rotation.

For a **generator**, the polarity of the interpole is the same as that of the main pole **following** it in the direction of rotation.

FULL-LOAD CURRENTS OF DC MOTORS* (RUNNING AT BASE SPEED)

*For conductor sizing only.

FULL-LOAD CURRENT IN AMPERES†

HP	RATED ARMATURE VOLTAGE					
	90V	120V	180V	240V	500V	550V
.25	4.0	3.1	2.0	1.6	—	—
.33	5.2	4.1	2.6	2.0	—	—
.5	6.8	5.4	3.4	2.7	—	—
.75	9.6	7.6	4.8	3.8	—	—
1	12.2	9.5	6.1	4.7	—	—
1.5	—	13.2	8.3	6.6	—	—
2	—	17	10.8	8.5	—	—
3	—	25	16	12.2	—	—
5	—	40	27	20	—	—
7.5	—	58	—	29	13.6	12.2
10	—	76	—	38	18	16
15	—	—	—	55	27	24
20	—	—	—	72	34	31
25	—	—	—	89	43	38
30	—	—	—	106	51	46
40	—	—	—	140	67	61
50	—	—	—	173	83	75
60	—	—	—	206	99	90
75	—	—	—	255	123	111
100	—	—	—	341	164	148
125	—	—	—	425	205	185
150	—	—	—	506	246	222
200	—	—	—	675	330	294
OVER 200 HP						
Approx. Amps/hp	—	—	—	3.4	1.7	1.5

†These are average direct-current quantities.

Branch-circuit conductors supplying a single motor shall have an ampacity not less than 125 percent of the motor full-load current rating.

Rated armature current varies inversely as rated voltage.

Example: 40 hp motor, 300 volt armature

$$\text{Armature current} = 140 \times \frac{240}{300} = 112 \text{ amps}$$

The above table is based on Table 430.247 of the *National Electrical Code*®, 2011. *National Electrical Code*® and *NEC*® are registered trade marks of the National Fire Protection Association, Inc., Quincy, MA 02269.