

What is A Shaded Pole Motor :

The Shaded Pole Motor is a type of induction motor with **very low noise of 30-60dB(A), very long lifetime, low vibration, low speed, low power (about 6 - 100W) and stable running**. It can be widely used for office or home appliances that need very low noise environment.

It is a single-phase induction motor that uses its own method to produce starting torque. Instead of a separate winding like the split-phase and capacitor motors, its start winding consists of a copper band across one tip of each stator pole. This copper band delays the magnetic field through that portion of the pole. When AC power is applied, the main pole reaches its polarity before the shaded portion of the pole. This action causes the shaded poles to be out of phase with the main poles and a weak rotating magnetic field is produced. Because of the low-starting torque, it isn't feasible to build motors of this type larger than 1/20 HP.

The torque characteristics and application of the shaded pole motor are similar to the permanent-split capacitor motors. In place of an auxiliary winding, shaded pole motors have a continuous solid copper loop around a small portion of each stator pole. It's called a "Shading Pole", causes a reaction giving the motor its starting torque.

The speed of induction motors is dependent on motor design. The synchronous speed (the speed at which the stator field rotates) is determined by the frequency of the input ac power and the number of poles in the stator. Generally speaking, the speed at 60Hz is 1.2 times of the speeds at 50Hz. The speeds are also varied by inserting a choke coil in series with the main winding. Taps on the choke coil provide the different speeds.

Because of its simple construction, it is usually the lowest priced motor available. However its low starting torque, except when used in conjunction with speed reduction drives makes it suitable in most cases only for direct fan and blower applications. Power loss is nearly constant between no load and load. Therefore light loading does not reduce motor losses significantly.

Key Characteristics of the Shaded Pole Motor :

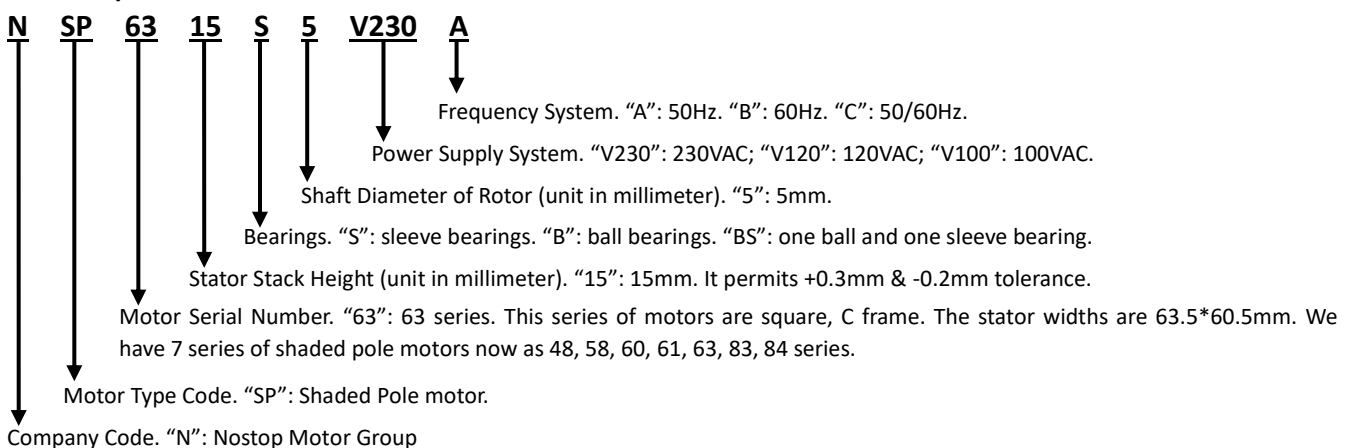
- 1) **Advantages:** Long lifetime, low noise, reliable working & low cost. Continuous use is permitted.
- 2) **Disadvantages:** Low power, low speed, low efficiency & low torque.
- 3) **Voltage:** any as needed. **Motor Power Range:** 0.5~100W. **Speed Range:** for 50 hertz motors are less than 3000, 1500, 1000, and 500 rpm, depending on the number of poles in the original design.

Typical Applications :

Heater, ventilator, microwave oven, small fan, air purifier, humidifier, can opener, refrigerator, etc that need very low noise environment.

How to Read the Model of A Shaded Pole Motor :

For example, Model: **NSP6315S5V230A**:



- For some special models, we might add some additional words to distinguish it from the others at the end of the motor model.