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ELECTROMAGNETIC BRAKING SYSTEM

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ABSTRACT

In braking system the frictional forces are used to transform kinetic energy which comes in moving body due to which heat is generated by the braking pads. By using more in friction type braking system the temperature of the braking pad rises and the effectiveness is reduced. Eddy current is created by the motion between magnet and metal.

INTRODUCTION

WORKING PRINCIPLE

Working as per Faraday law of electromagnetic induction According to this law whenever a conductor cuts magnetic lines of forces and emf is induced in it.

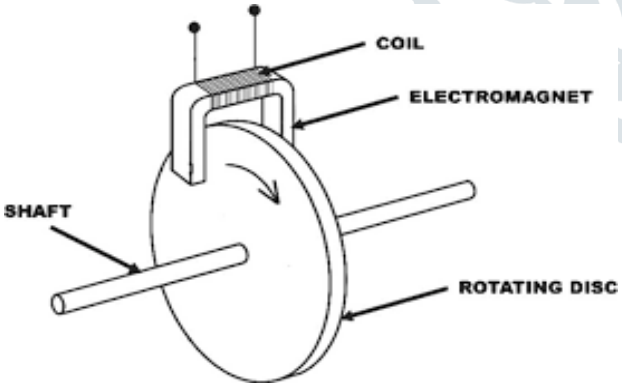

Figure 1.1 Electromagnetic brake

TYPES OF ELECTROMAGNETIC BRAKES

There are many types of electromagnetic brakes. The most widely used type is the single face design. Since electromagnetic brakes started becoming popular, the variety of applications and brake designs has increased dramatically-

SINGLE FACE BRAKE

POWER OFF BRAKE

PARTICLE BRAKE

HYSTERESIS POWER BRAKE

MULTI DISK BRAKE

PARTS OF BRAKE SYSTEM

Following are **Parts of the brake system:** Brake Pedal, Master Cylinder, Brake Pads, ABS Control Module, Brake Booster, Disc Brakes, Drum Brakes, Emergency Brake, and Pedal Wheel

METHODOLOGY

The proper planning is done before starting the project and checked the raw materials required for testing .The steps like creating innovating ideas in mind and writing on paper and check which idea can help more than design and drawing is done to make the prototype model. **FABRICATION**:

In this process the working start as per the design made to make prototype to get the reality on the design selected and effectiveness is also checked. The Fabrication is done as per the specification and design which is already made in the beginning.

TESTING:

The model is tested to check if it meets all the objectives and the model is again made to test whether there has to be done any improvement or any modifications to it. After the test is done completely the model is then made to implement.

RESULT AND DISCUSSION

- Area of the Electromagnet = 12.4 m
- Current & Voltage supplied (I/V) = 7amp/230volts
- Length of electromagnet (L) =90 mm.

Let the plate & wheel assembly maximum weight is to be considering approx. 2kg. This is 19.62N.

F is the force in Newton.

B is the magnetic field in Tesla.

A is the area of the pole faces in square meters.

μ is the permeability of free space.

RESULT

Hence the reacceleration of the electromagnetic braking system by using manual method takes place according to the braking time.

CONCLUSION

This system is more reliable than other systems of braking. The brake linings would last considerably longer before requiring maintenance Furthermore; the electromagnetic brakes prevent the danger that can arise from the prolonged use of brake beyond their capability to dissipate heat.

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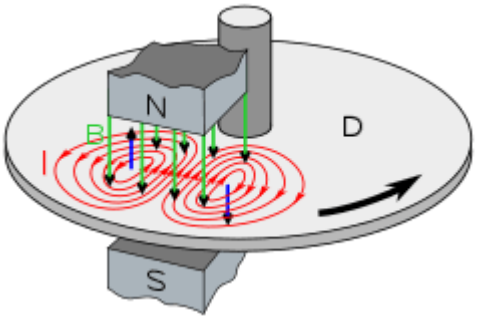
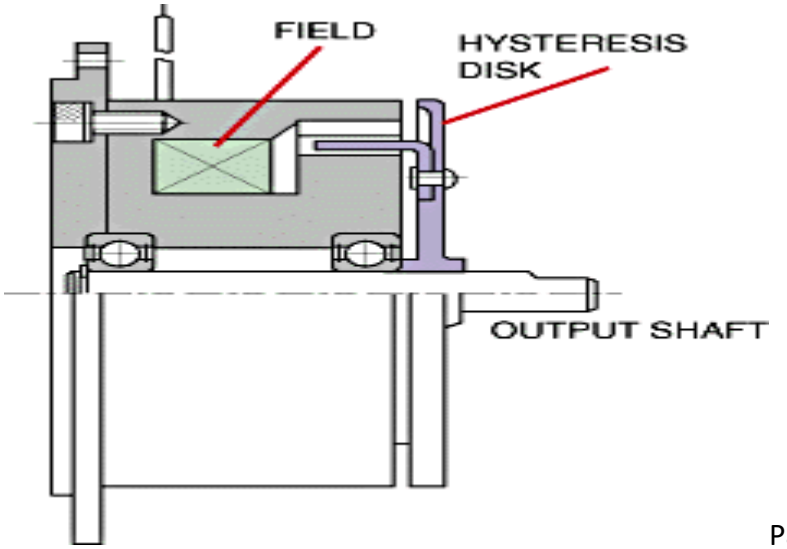


Magnetic brake



Particle brake