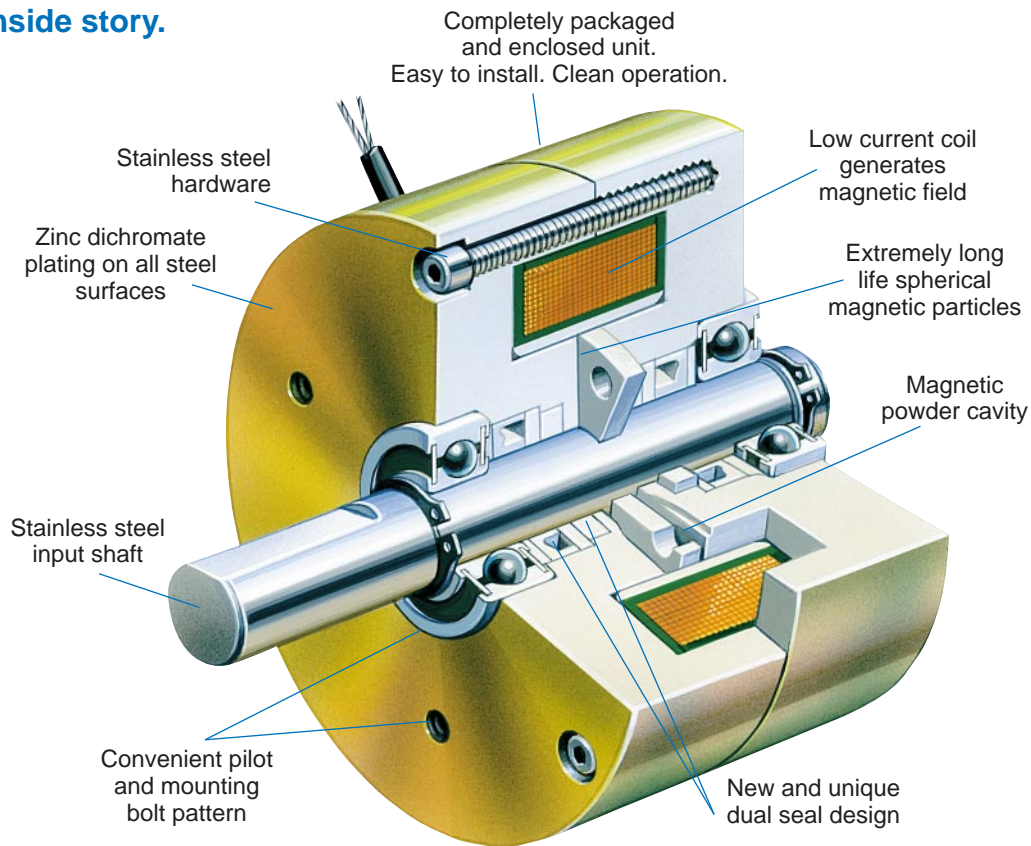


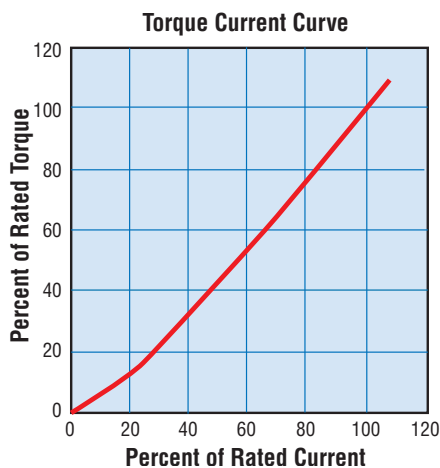
# Design and Operation

## The inside story.



## Operating Principles

The magnetic particle unit consists of four main components: 1) housing; 2) shaft/disc; 3) coil and 4) magnetic powder. The coil is assembled inside the housing. The shaft/disc fits inside the housing/coil assembly with an air gap between the two; the air gap is filled with fine magnetic powder.



### Engagement

When DC current is applied to the magnetic particle unit, a magnetic flux (chain) is formed, linking the shaft/disc to the housing. As the current is increased the magnetic flux becomes stronger, increasing the torque. The magnetic flux creates extremely smooth torque and virtually no "stick-slip".

### Disengagement

When DC current is removed the magnetic powder is free to move within the cavity, allowing the input shaft to rotate freely.

### Cycling

By turning the current to the coil on and off a cycling effect is achieved.

