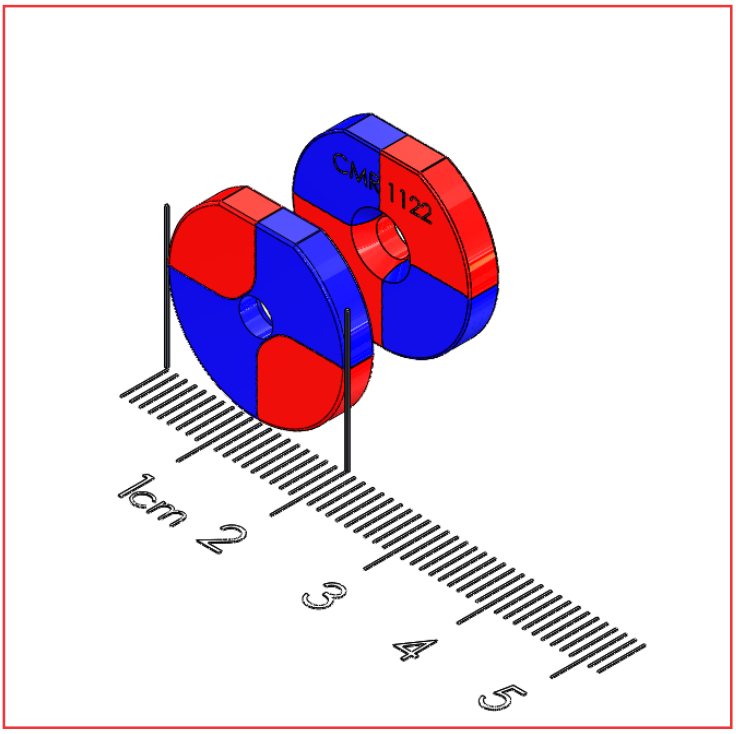
1002279

Twist/Release Polymagnet pair

Twist/Release Polymagnets are engineered to provide a strong attachment/alignment force in portrait/landscape positions and a repulsion force once rotated +/- 90°. To achieve this behavior, these magnets are used in pairs and must be axially aligned. These Polymagnets also exhibit a tightly controlled magnetic field which minimizes interference with sensitive devices.

Twist/Release Polymagnets can also have an alignment feature every 180° meaning the repulsion force would occur when the magnet is rotated +/- 90°. However, this Polymagnet has a stronger magnetic field and may not be suitable for sensitive devices.



Technical Specifications:

Shape Type:	D-Shape	
Diameter:	0.75”	
Weight:	0.02 oz	(0.5 g)
Material:	NdFeB	
Magnet Grade:	N50	
Coating:	Ni-Cu-Ni	
Temperature Rating:	140° F	(60 C)
Holding Force:	21.2 lbs	(94 N)
Torque:	20.1 oz-in	(143 mN*m)

Features and Benefits

- Twist/Release functionality - 90°
- M3 countersink
- 1001122 – D shape 0.75” OD x 0.215” Thick

Polymagnet
CORRELATED MAGNETICS

These Polymagnets exhibit a high holding force when they are rotationally aligned at 0°and 180° and a repel force at +/- 90°. The holding force is at a maximum of 21.3 lbs when the magnets are aligned. When one magnet is constrained and the other rotated, the holding force decreases until it becomes a repel force, reaching a minimum of -7.6 lbs at 90°. As the rotation continues past 90° the attraction force increases in in the direction of rotation until it reaches the maximum force in the 180° position. When the Polymagnets are offset, torque exists toward the position of higher holding force. This torque peaks at 20.2 oz-in.

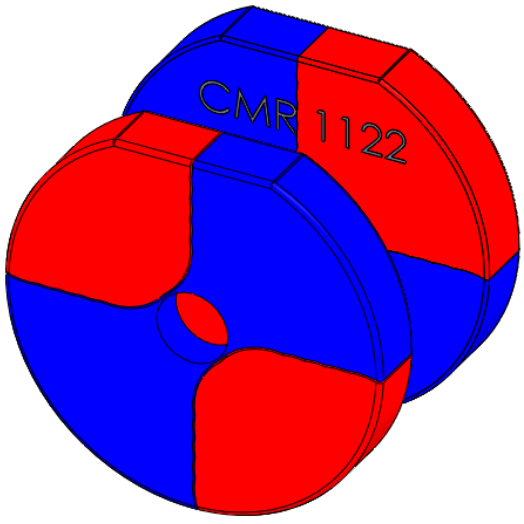
This Polymagnet pair differs from portrait/landscape in behavior as the holding force becomes a repulsion force at +/- 90˚ positions.

*In the images below, north poles are indicated by the red regions, south poles are indicated by the blue regions, and steel is indicated by the grey region.

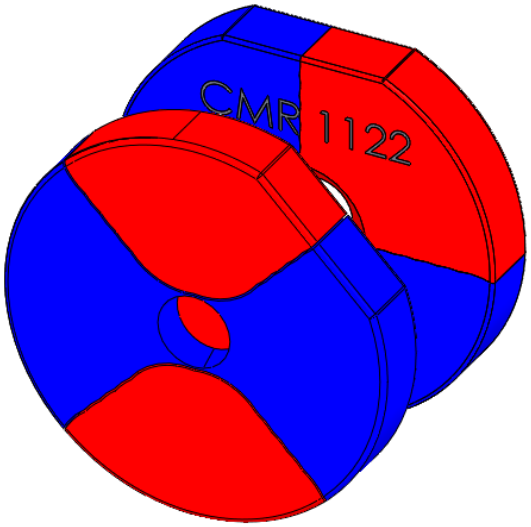
Attract Force:	20.2lbs
Torque:	0 in

Attract Force:	1.3 lbs
Torque:	20.1 oz-in

ALIGNED



45° ROTATION



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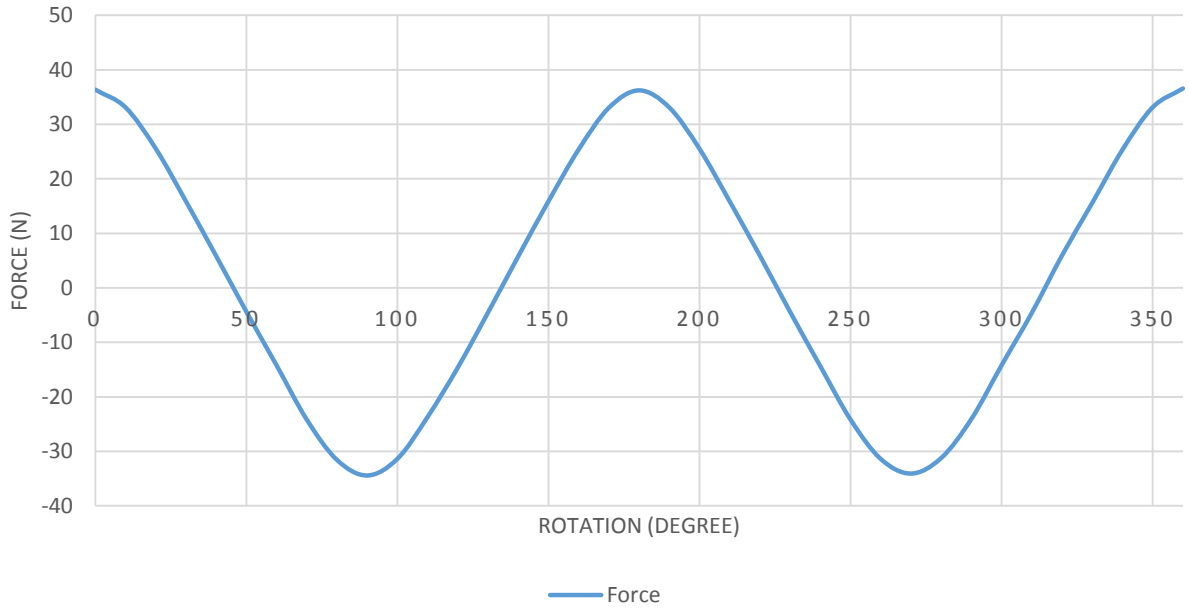
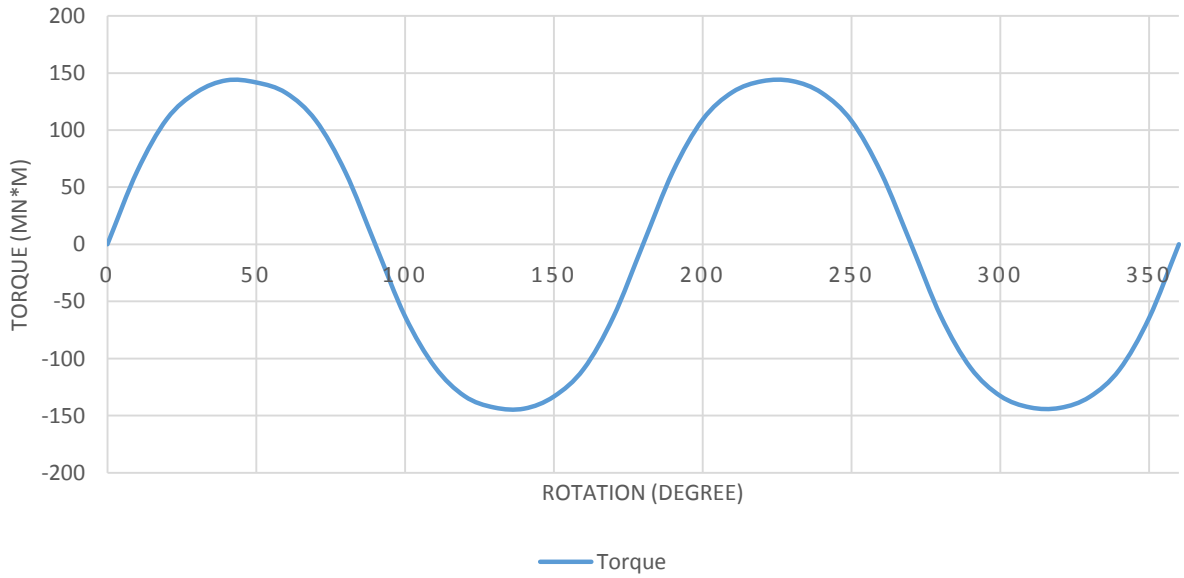
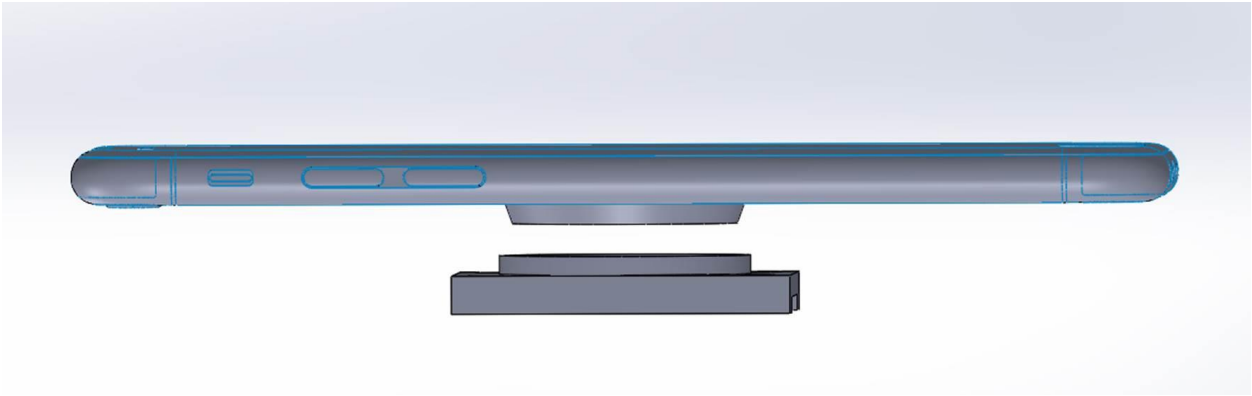
HOLDING FORCE VS ROTATION AT 1.5MM MAGNET TO MAGNET GAP



TORQUE VS ROTATION AT 1.5MM MAGNET TO MAGNET GAP



Polymagnet 1001122 is D-shaped to provide an indexing feature. This aids in the assembly process as well as providing a flat surface to resist torque as the magnets are rotated. In order for this system to work correctly, there must be a mechanical feature which constrains the system as seen in the picture below.



Notes on Performance Data

The performance information provided in this data sheet is derived from test or simulation results of directly comparable magnets of the same size and grade under consistent conditions. The magnets are tested under controlled environmental conditions. Unconstrained application testing may give lower forces due to the magnet tilting or shifting away from target during engagement and disengagement.

Patent Information

Pat. www.cmrpatents.com

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