

www.polymagnet.com

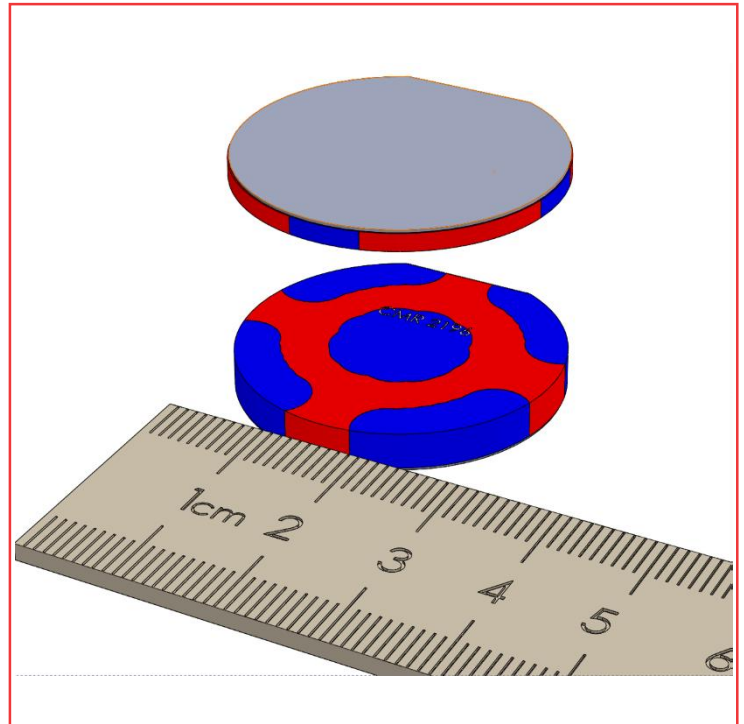
## 1002285

### Large Tablet Polymagnet pair - Portrait/Landscape

Portrait/Landscape Polymagnets are engineered to provide a stronger attachment force as well as a unique 90° rotational alignment force over conventional magnets. Conventional magnets typically do not align with any level of precision when attaching to each other. However, these Polymagnets are designed to provide a high holding force when aligned and very little attractive force when out of alignment, which allows the user to rotate the device easily between locking positions. As these magnets approach alignment they provide a positive force toward the alignment position. These Polymagnets also exhibit a tightly controlled magnetic field which minimizes interference with sensitive devices.

#### Features and Benefits

- Rotational Alignment for mobile phone case/stand connections
- Compass friendly
- Centering force



#### Technical Specifications:

Shape Type:	D-Shape	
Diameter:	1.25"	(31.8 mm)
Weight:	0.06 oz	(1.7 g)
Material:	NdFeB	
Magnet Grade:	N50	
Coating:	Ni-Cu-Ni	
Temperature Rating:	140° F	(60 C)
Holding Force:	19.2 lbs	(87.5N)
Torque:	27.3 oz-in	(193mN*m)

# Technical Data Sheet

## Application Notes

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The Portrait/Landscape Polymagnets provide superior rotational alignment attributes compared to conventional magnets over their working range. These Polymagnets demonstrate a strong holding force while in alignment, 0°, 90°, 180°, and 270°, and a weak holding force once rotated out of alignment. While aligned, in any of the aforementioned positions, the Polymagnet pair is at a maximum force of 19.6 lbs. While keeping one magnet constrained, the holding force reaches a minimum of 10.4 lbs as the other magnet is rotated +/- 45°. As the rotation continues past 45° the holding force increases in the direction of rotation until it reaches the maximum force in the 90° position. When the Polymagnets are offset, torque exists toward the position with a higher attractive force. The torque peaks at 27.3 oz-in.

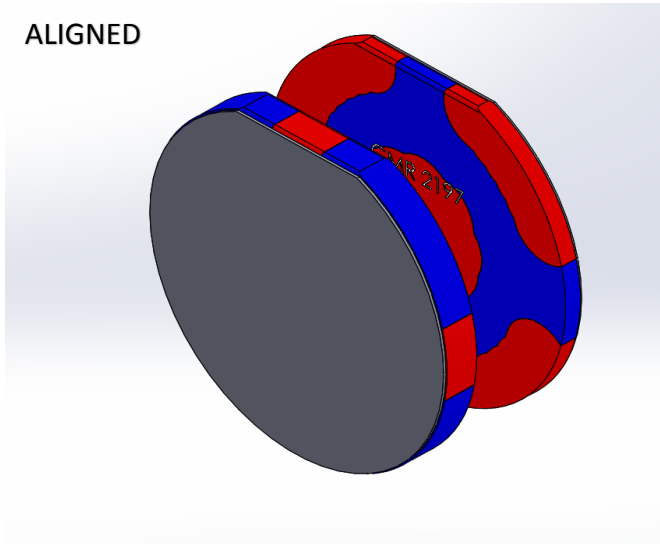
These magnets can be used to align and attach components or accessories. Because of their alignment attributes these magnets can be used to transfer a rotational force across a gap. The alignment force as a function of axial rotation can be seen in the graph below at a separation distance of 1.5mm.

\*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.

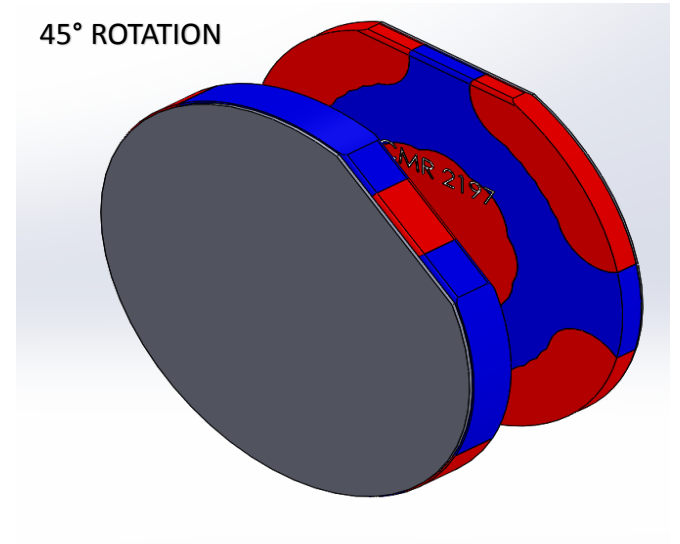
Holding Force:	19.6 lbs
Torque:	0 in

Holding Force:	10.4 lbs
Torque:	27.3 oz-in

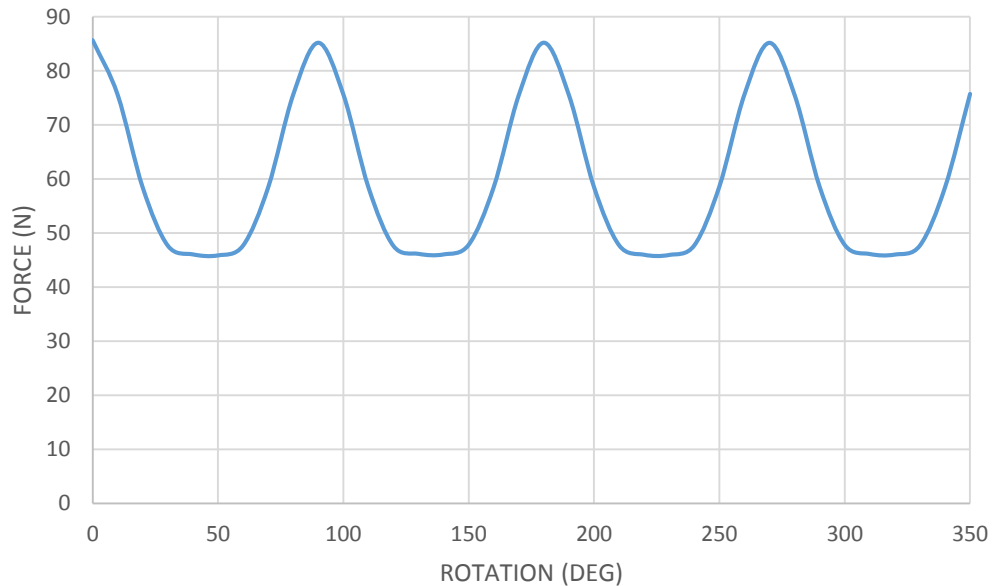
ALIGNED



45° ROTATION

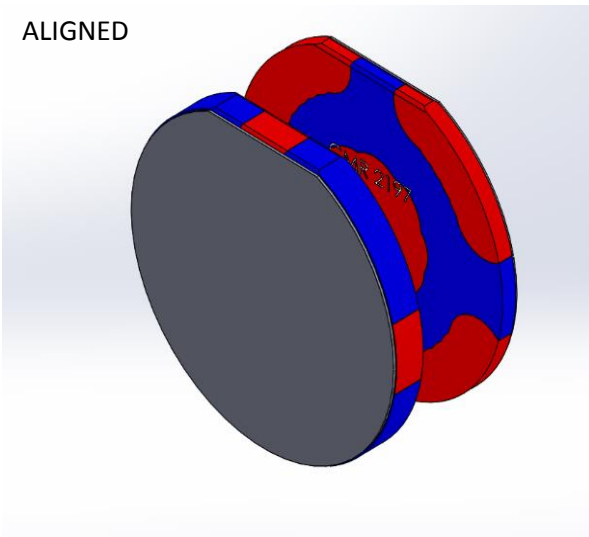


### HOLDING FORCE VS ROTATION AT 1.5MM MAGNET TO MAGNET GAP

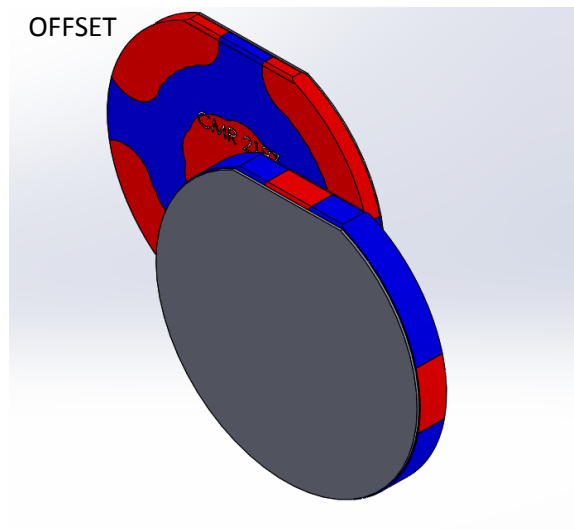


These Polymagnets also provide a self-centering force as the magnet is moved away from the center position. Once the magnet is moved off center the attractive force decreases and the shear force increases, pulling the magnet back towards the center position. This decrease in attractive force minimizes friction and allows self-alignment of the system.

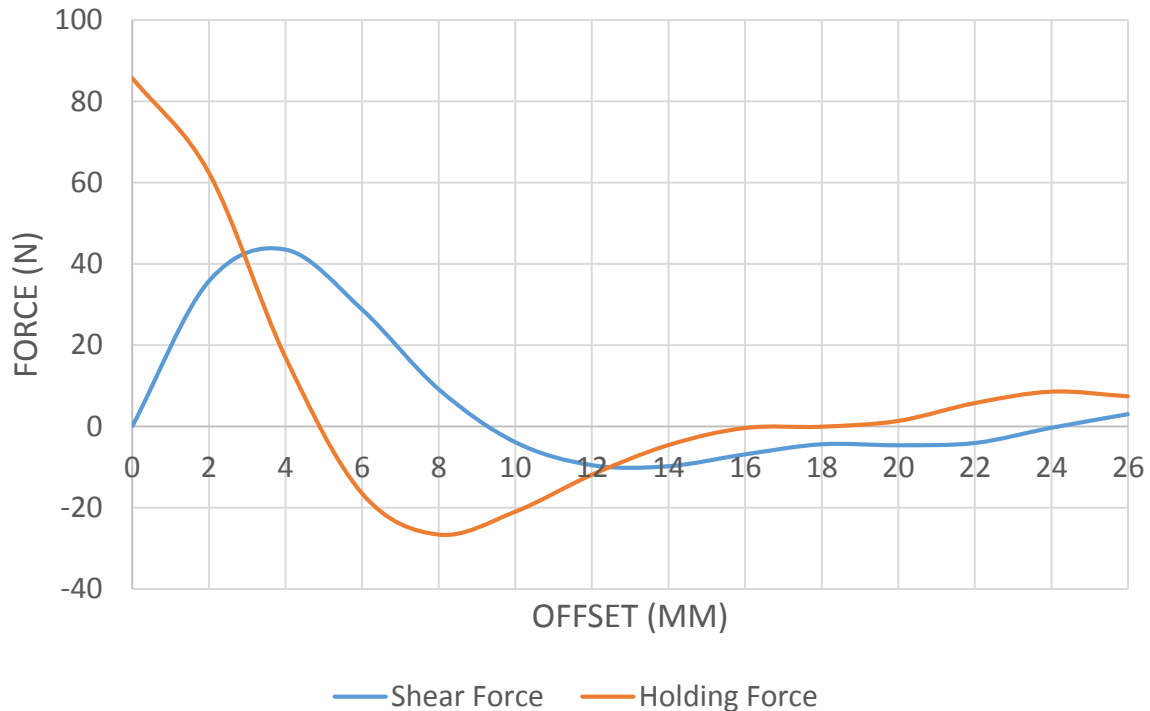
ALIGNED



OFFSET



### HOLDING FORCE AND SHEAR FORCE VS DISPLACEMENT AT 1.5MM MAGNET TO MAGNET GAP



These Polymagnets are D-shaped to provide an indexing feature. This aids in the assembly process and also provides a flat surface which resist torque as the magnets are rotated. It is recommended to use a material with a high coefficient of friction on one of the surfaces. This will increase the mechanical shear force of the system.

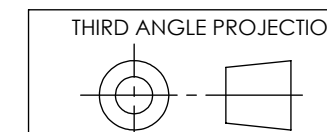
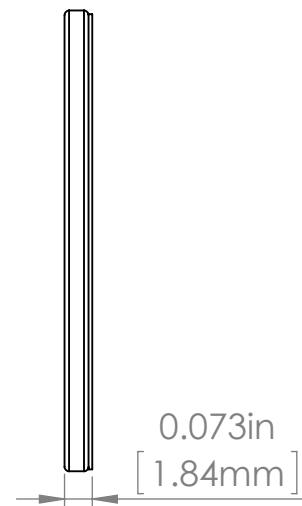
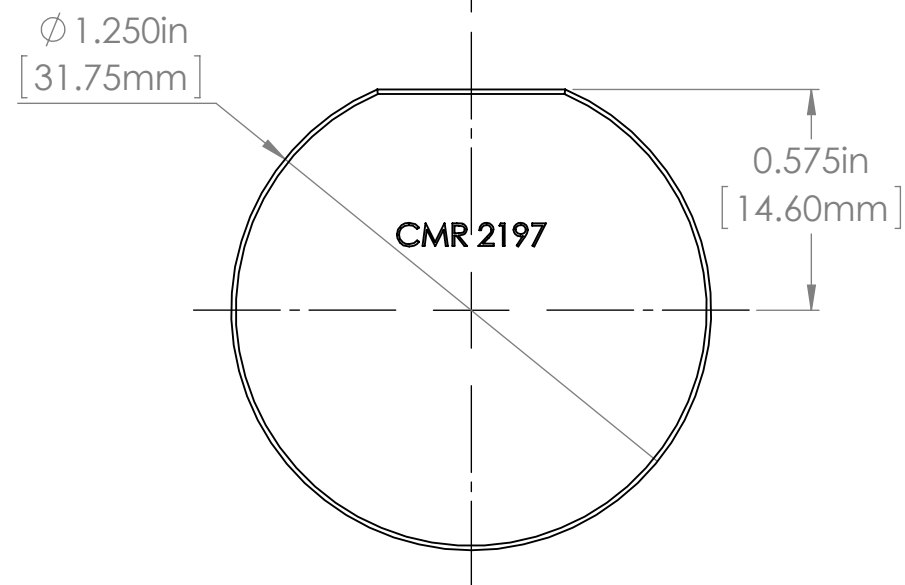
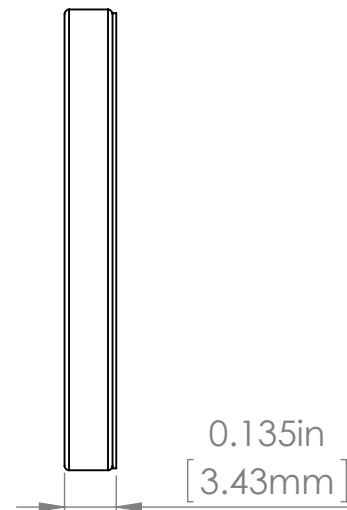
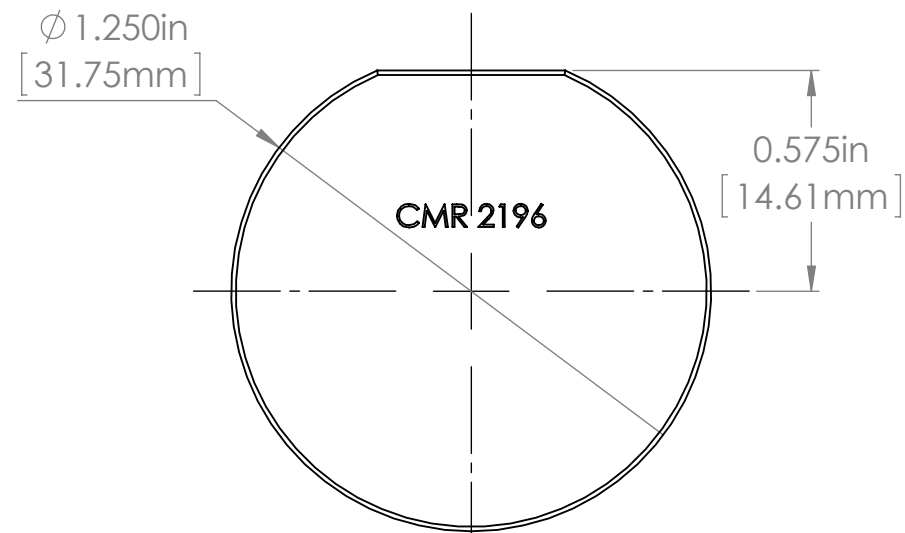
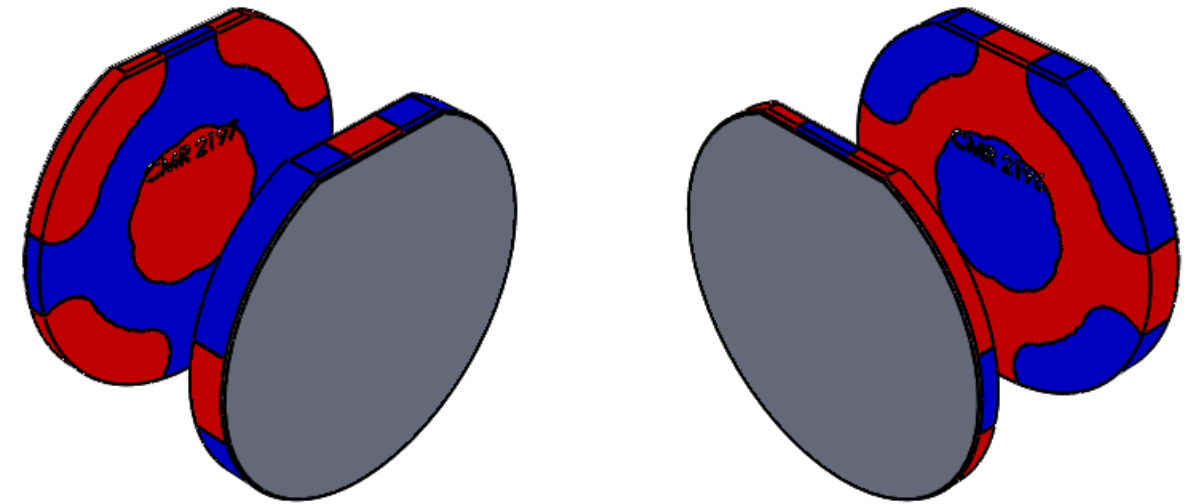
#### Notes on Performance Data

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](http://www.cmrpatents.com)

Primary magnet face is marked with CMR PN.  
 Markings must be aligned and facing each for proper performance.



UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 ANGLES ±0.1°  
 2 PL ±0.01 (.25mm)  
 3 PL ±0.005 (.13mm)

		
PART NO 1002285		
SIZE <b>B</b>	DWG. NO. 1002285-APP	REV 0
SCALE: 2:1	RELEASE DATE:	SHEET 1 OF 1