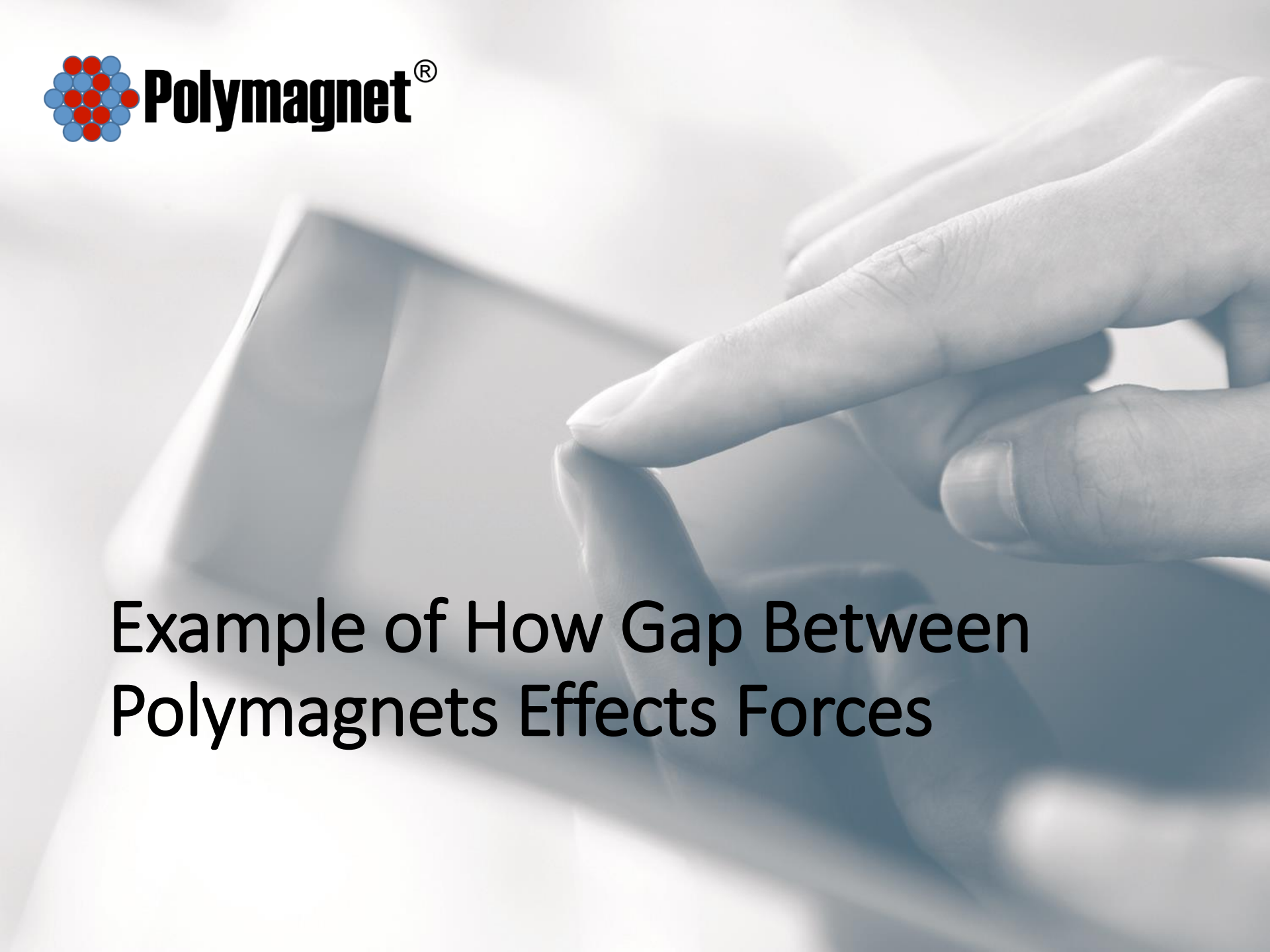
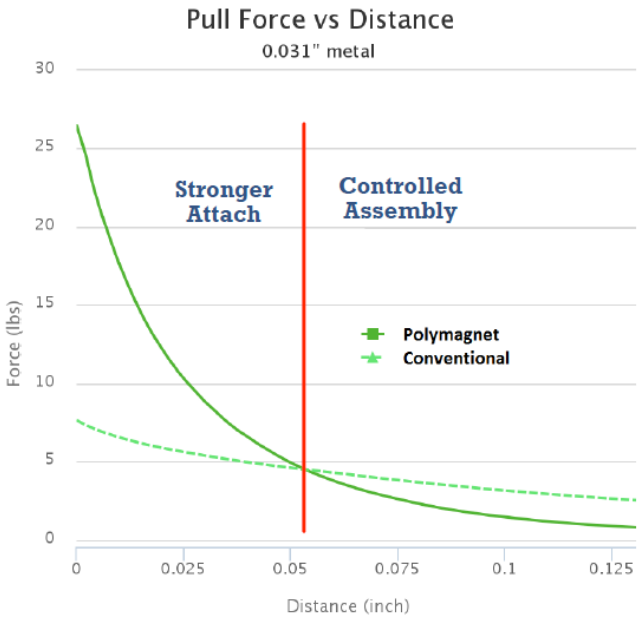


Example of How Gap Between Polymagnets Effects Forces

Overview

- Polymagnets are created by starting with a conventionally magnetized magnet and concentrating or otherwise manipulating the field
- Polymagnets have a stronger field close to the magnet surface, but a weaker field at distance when compared to a conventional magnet
- In terms of attachment strength alone, Polymagnets lose their advantage over conventional magnets as the gap between magnets gets larger than 3-4mm
    - Inflection point varies by magnet geometry as well as the Polymagnet pattern
    - Polymagnets are designed for specific gaps
    - Polymagnets still have an advantage over conventional magnets for many more mm in terms of shear forces and torque as well as the ability to perform functions that a conventional magnet cannot

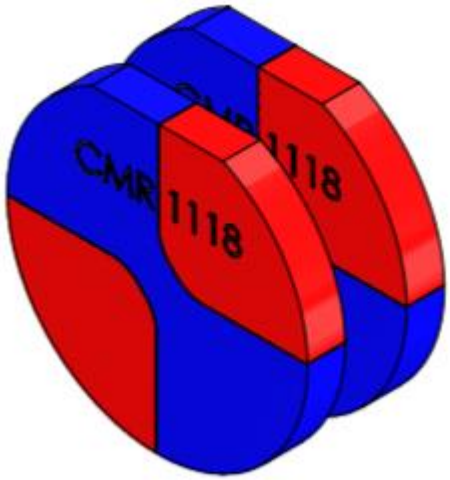


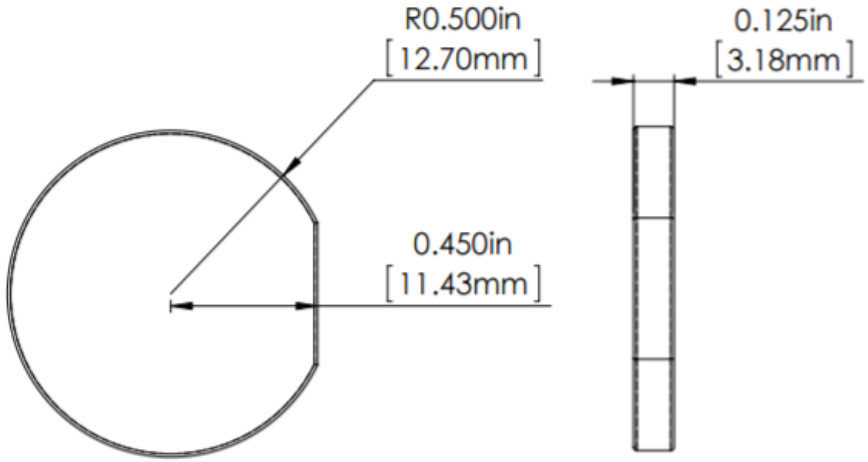
Key Takeaways

- The gap between magnets should be kept to a minimum in all applications, preferably < 3mm
    - Magnets should not be in direct contact, as the NiCuNi coating will eventually wear away and the magnet will oxidize
- Weaker field at distance can be an advantage; the reduced field of Polymagnets make them extremely useful for:
    - Pacemaker safety
    - Credit Card safety
    - Eliminating compass interference
    - Reducing or eliminating interference with sensitive electronics
    - Controlled assembly / less dangerous magnets

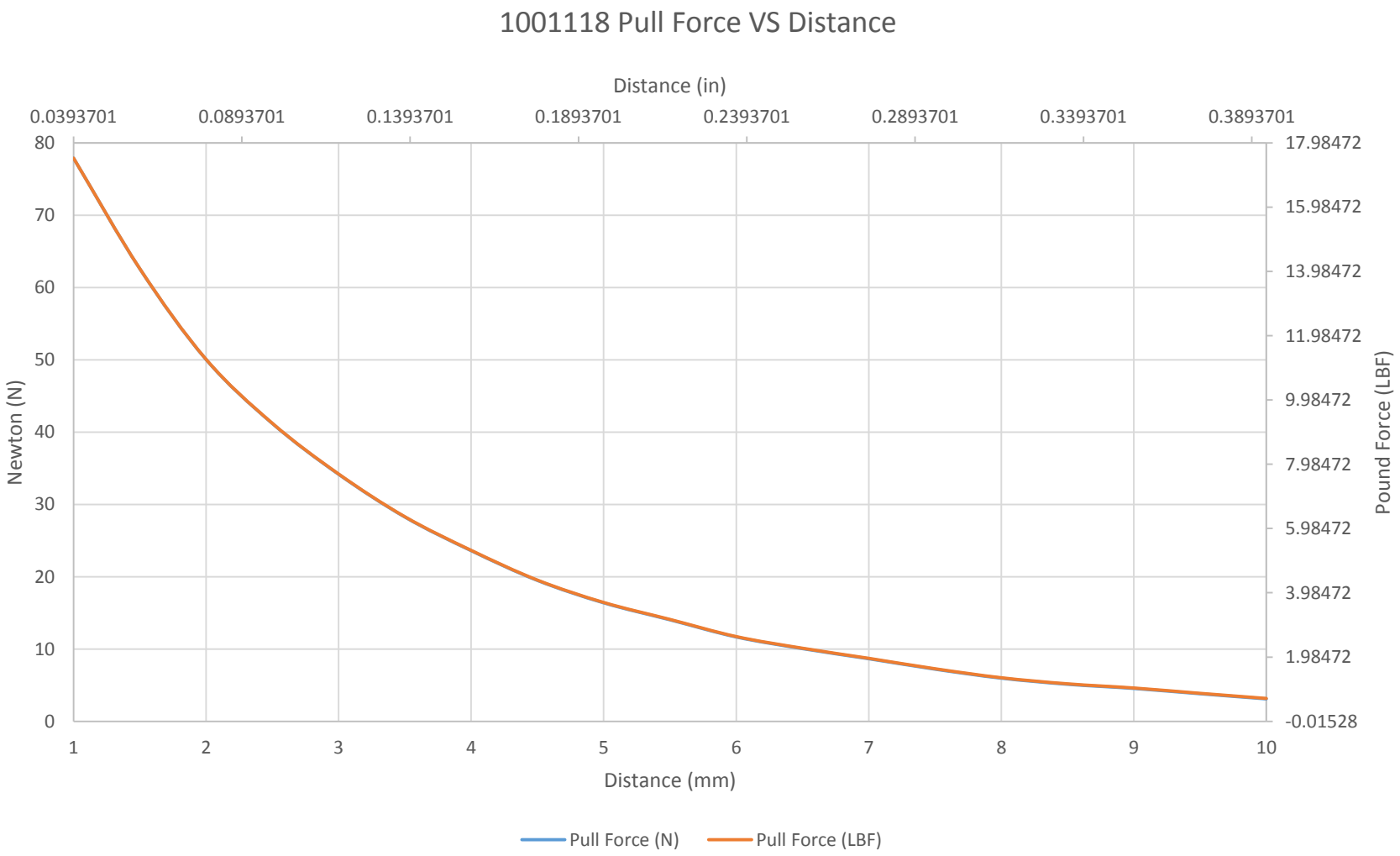
Examples use Polymagnet #1001118

This torque Polymagnet features rotational alignment and torque resistance. A pair of these magnets exhibits a high attract force when rotationally aligned, and a high repel force when rotated 90 degrees in either direction, forming a twist-release mechanism.

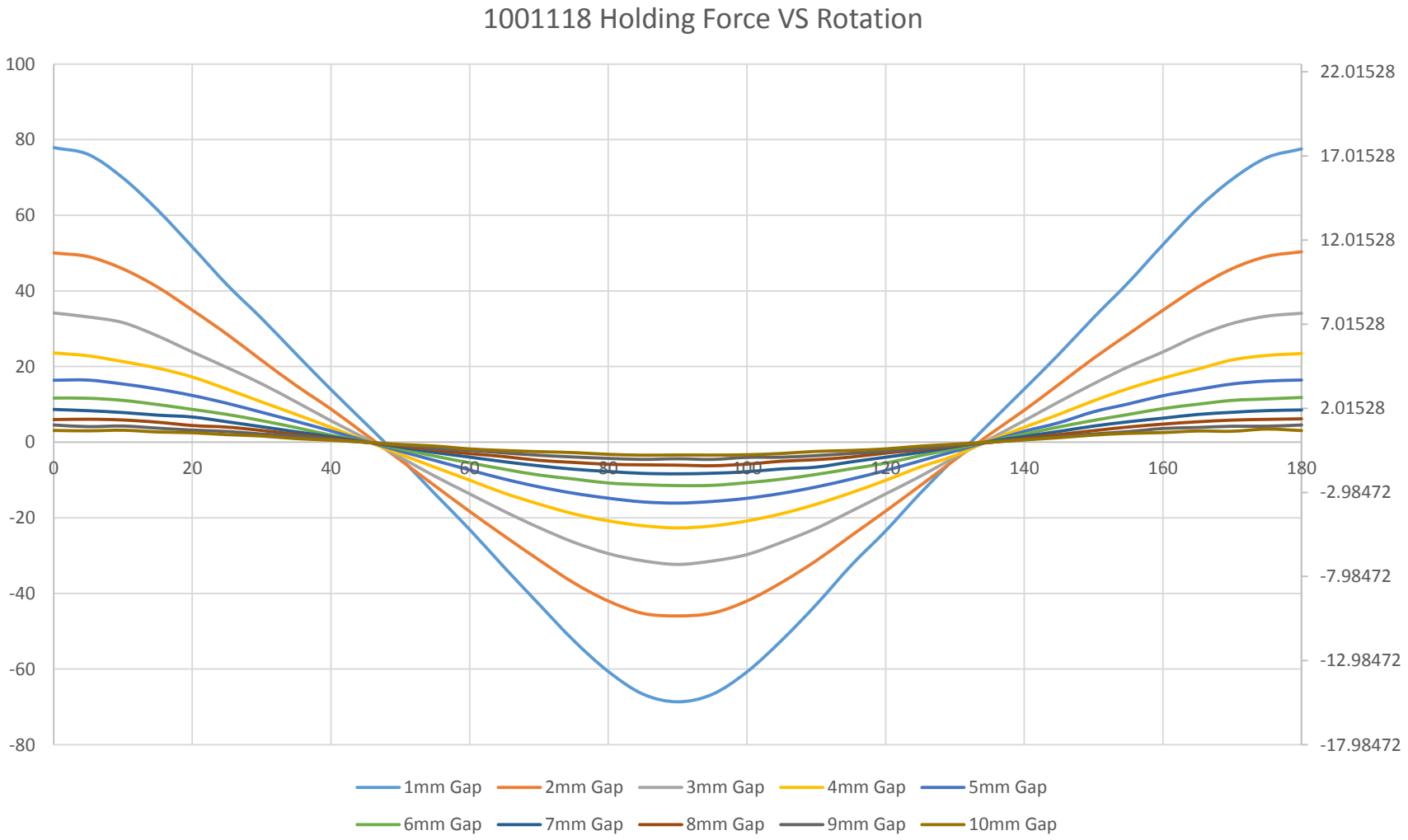




Attachment Force at Alignment at 1-10mm gaps



Attachment Force vs Rotation at 1-10mm gaps



Torque
at 1-10mm gaps