

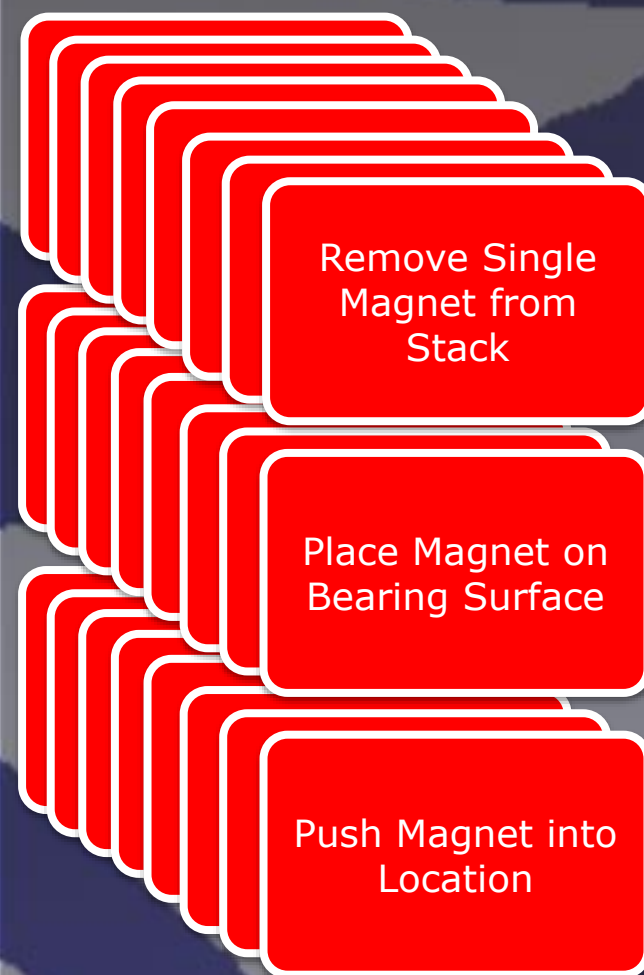
Problem Statement

“There is a need for an ergonomic and efficient magnet insertion process for properly placing magnets on axial bearings.”

Currently:

Technician inserts 8 to 12 magnets by hand, up to 300 bearings per week. Up to 3600 manual insertions!

● Operator Step ● Automated Step

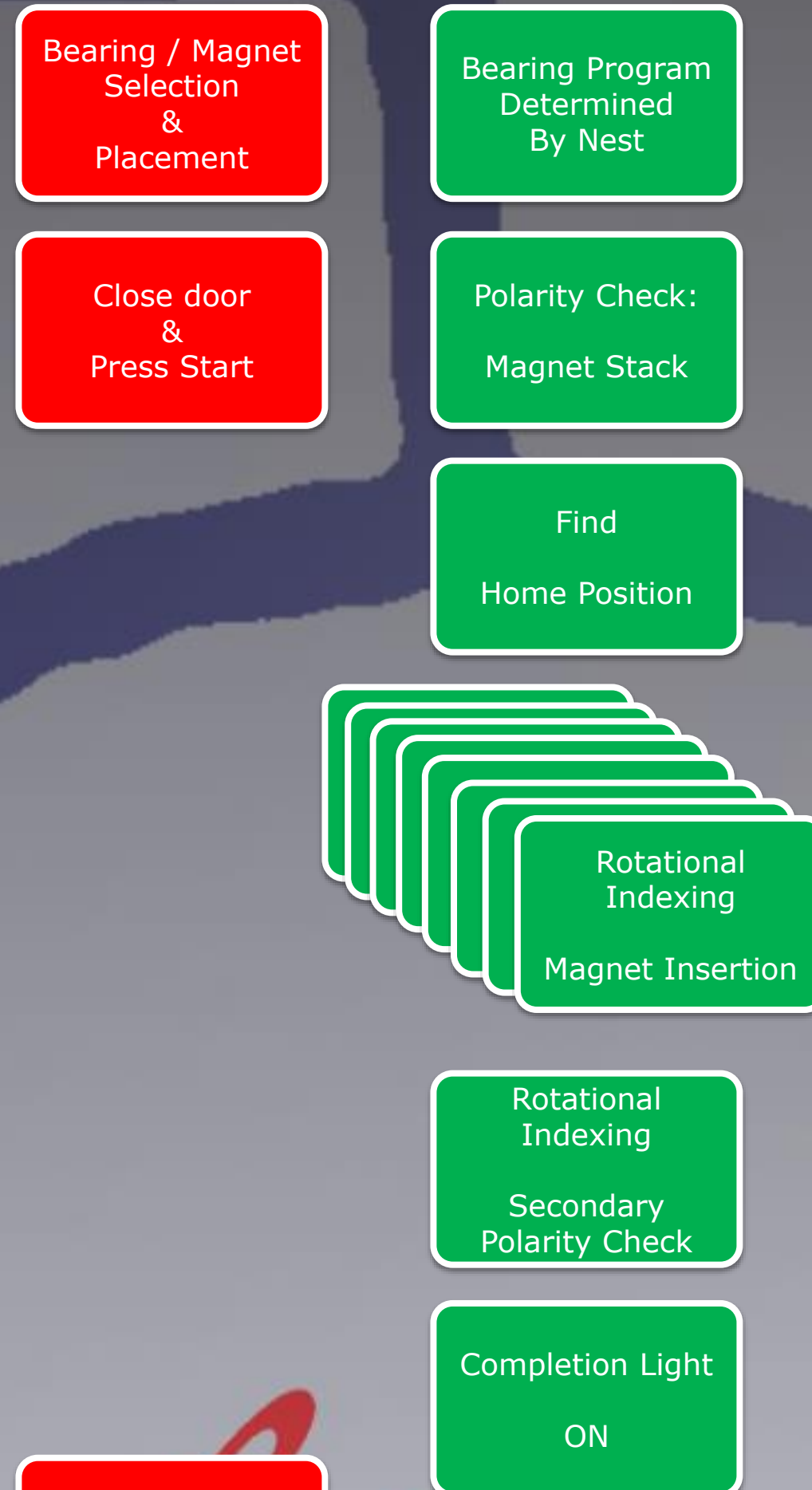


24 to 36 operator steps per bearing

Goal:

Design automated process that reduces amount of operator input. Improve ergonomics and quality.

● Operator Step ● Automated Step

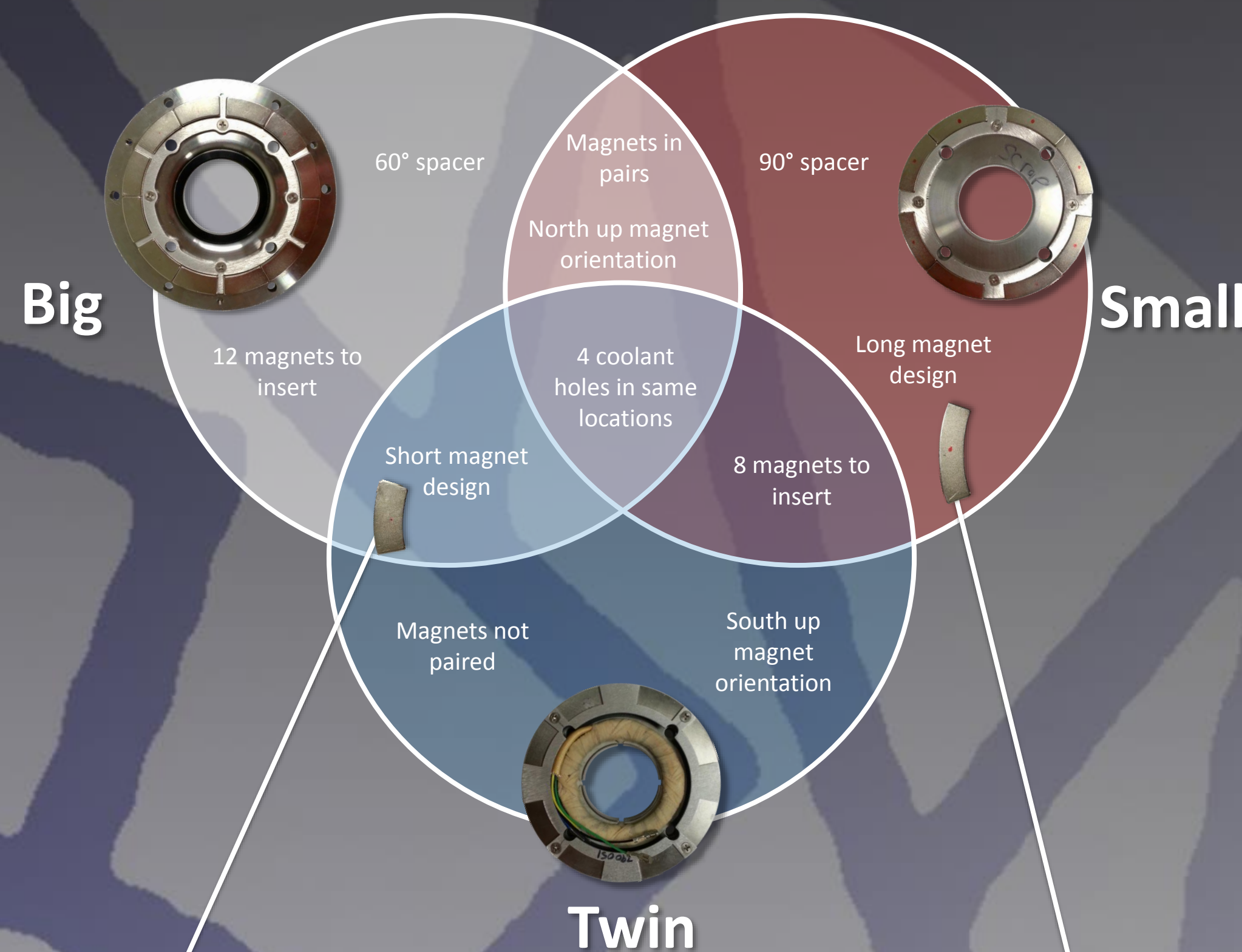


Remove Completed Bearing

3 operator steps per bearing

Analysis

Bearing Features



Magnet Features

Magnets come in stacks with plastic spacers, pre packaged from manufacturer.

Force required to insert =

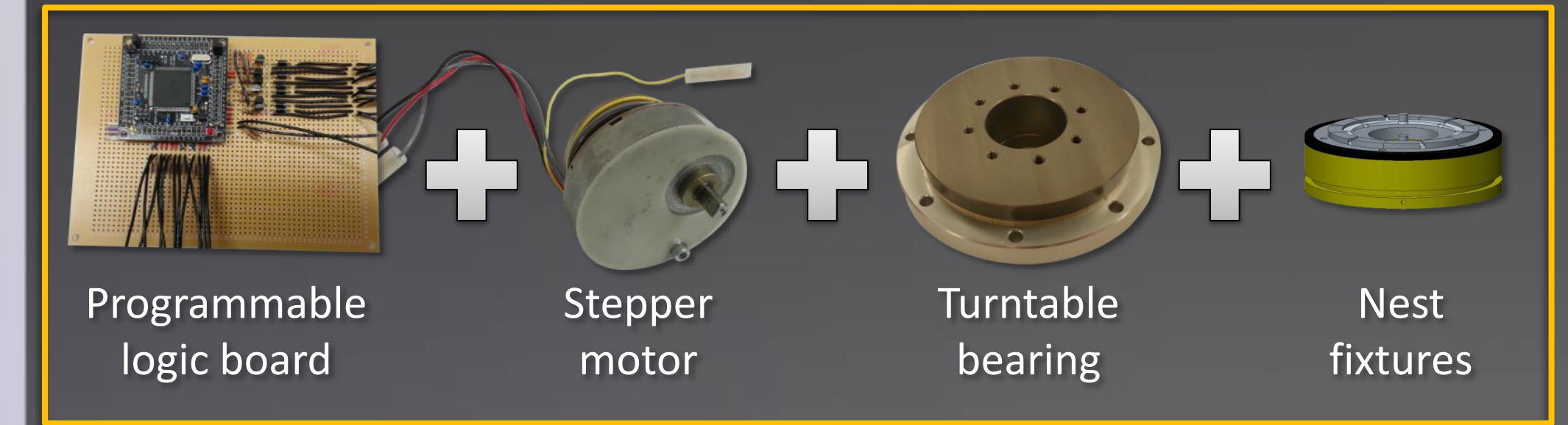
12 to 15 lbf

Short: 24 Magnets

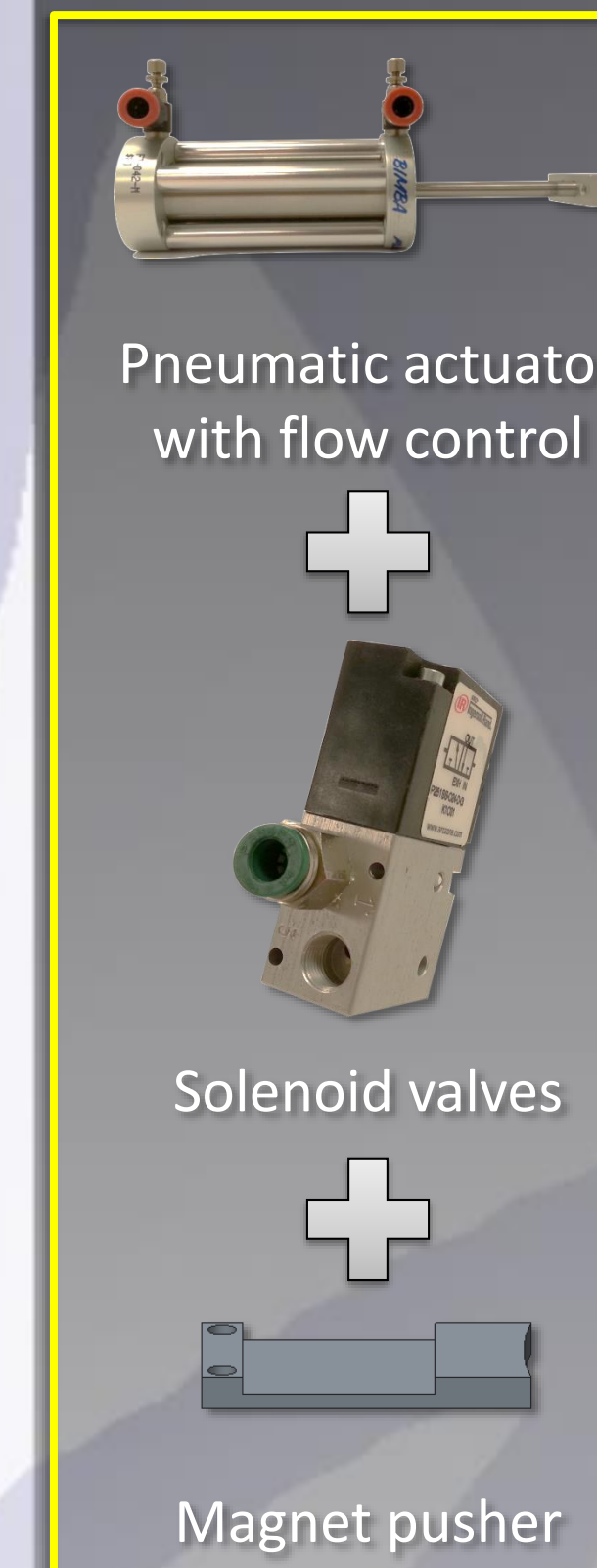
Long: 32 Magnets

Solution

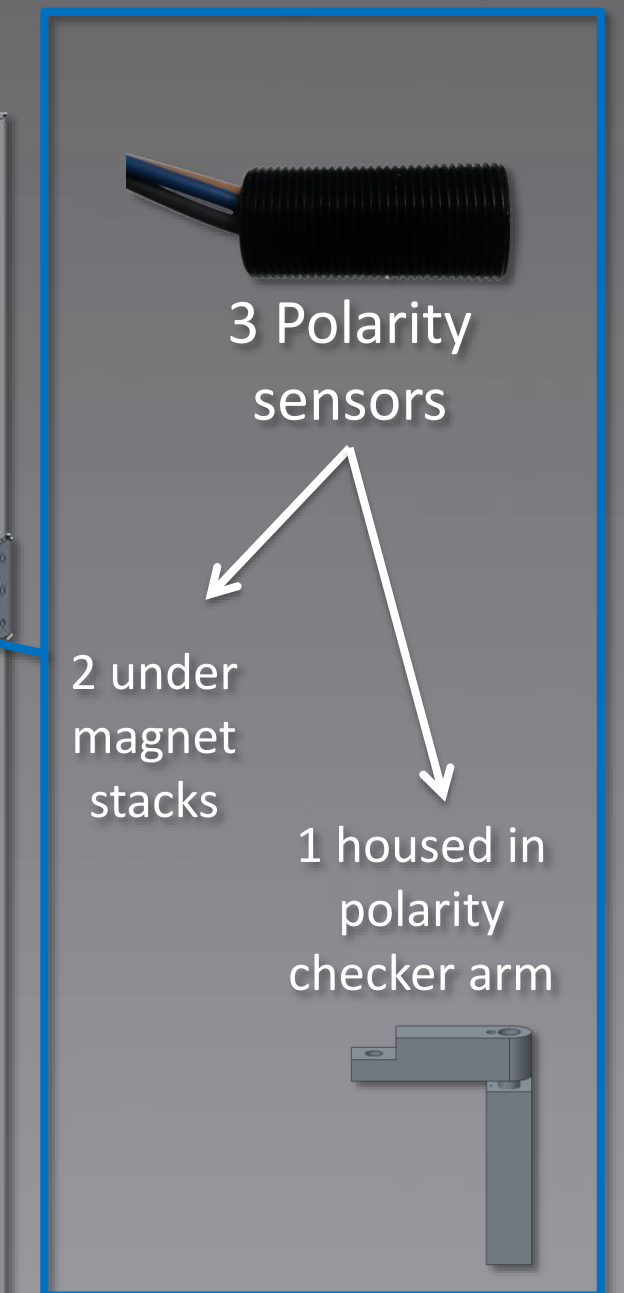
Indexing



Insertion



Polarity



Ergonomics

3 operator steps
No manual magnet insertions required
Comfortable working height of 3 feet

Safety

Frame made of **80/20[®] Inc.** The Industrial Director Set[™]
Machinery does not start unless door is closed