

# LEDEX

## HTA Rotary Actuator for High Speed Processing



innovating motion

# Ledex HTA Design Goals

## Technology Leadership

- New Ledex option for torque/speed optimization
- Highest speed rotary actuator
- 25% reduction in weight

## The Safe Choice

- 10M life cycles
- Highly flexible design for ease of customization
- Ease of installation



**"Technology Leadership"**

- Highest speed rotary actuator
- New Ledex option for torque/speed optimization
- 25% reduction in weight
- Ideal for lower load applications

**"The Safe Choice"**

- High speed sorting expertise
- Rotary actuation market leader
- 10M life cycles
- Johnson Electric Production System



**HTA Actuators for High Speed Processing**



Actuator Type	Torque Output	Cycles/Second
HTA	~0.8	~150
BTA	~0.8	~50
Rotary Solenoid	~1.5	~20

For more information, contact us at [sales@johnsonelectric.com](mailto:sales@johnsonelectric.com)  
[www.johnsonelectric.com](http://www.johnsonelectric.com)

# Ledex HTA Product Strategy

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- ▶ Strengthen the Ledex brand position as market and technology leader in rotary actuation.
- ▶ Create a product line of rotary solenoids with an optimized combination of energize speed, life, and cost per actuation cycle that fills a product gap within the Ledex product offering.
- ▶ Align the product range performance with the QFD of Medical Diagnostics and Material Handling (sorting) designers for Speed, Durability, Price/Performance.

# Ledex HTA: QFD & Human Value Material Handling

<b>Human values</b>	<ul style="list-style-type: none"> <li>• Reach Customers with Promotional Material, Catalogs and General Mailings</li> </ul>	<ul style="list-style-type: none"> <li>• Products to Consumers Faster</li> </ul>	<ul style="list-style-type: none"> <li>• Increased Shipping Sizes for Consumer</li> </ul>
<b>Business value</b>	<ul style="list-style-type: none"> <li>• Utilize presorted discount rates</li> <li>• Locate machine inside mailroom</li> </ul>	<ul style="list-style-type: none"> <li>• Fastest machine</li> <li>• More sorts per hour</li> <li>• Better use of CAPEX</li> </ul>	<ul style="list-style-type: none"> <li>• Sort heavier items</li> </ul>
<b>Material Handling segment</b>	Corporate Postal	Low Load Material Handling	High Load Material Handling
<b>Material (examples)</b>	Corporate Mailings, Bills, Advertizing	Food, Electronic Components, Parts	Packages, Parcels, Boxes
<b>QFDs</b>	Price/Performance Size, Speed	Speed, Life	Speed, Life, Load
<b>Product</b>	HTA, Standard Rotary	HTA	BTA

# Ledex HTA Applications – Material Handling

- ▶ An increase of over 40% in the amount of sorts per hour over similarly sized competitor's solenoids.
- ▶ Ideal for Sorting Equipment that requires fast solenoids for lower load functions including diverting, latching & locking
  - **Corporate Sorting: < 10M Sorts**
    - Pre-sort mail / marketing materials
  - **Material Handling: 10M to 50M Sorts**
    - Food sorting (grain, fruit, cereal, etc.)
    - Livestock feed sorting
    - Trash sorting
    - Recycling
    - Electronic Components
    - Parts Sorting
    - Bottling
  - **Commercial Sorting: > 50M Sorts**
    - Packages / parcels / boxes



# HTA in the Ledex Portfolio

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- ▶ The Ledex portfolio has a range of life and speed performance solenoids
- ▶ Performance gap exists between 1M and 100M cycles

	<b>Torque (in-lbs / mNm)</b>	<b>Speed (ms)</b>	<b>Life (M Cycles)</b>
Ledex HTA	0.5 / 56	5.4	10
Ledex Standard Rotary	1.6 / 181	11.3	1
Ledex BTA	1.0 / 113	10.4	100

## QFD Design Priorities

If Speed, Then Solenoid (Not Motor)

If High Torque, Small Size, Life Not Critical, Then Ledex Standard Rotary

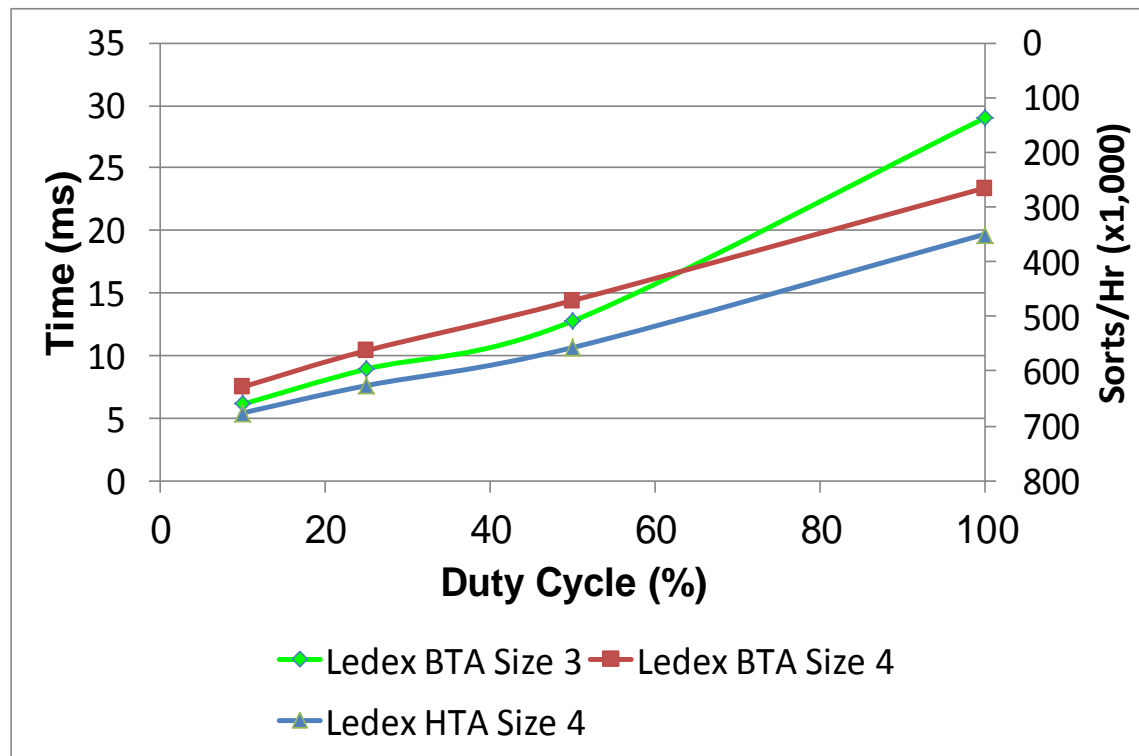
If Longest Life, Then Ledex BTA

If Speed, Low Load, Low Weight, Then Ledex HTA

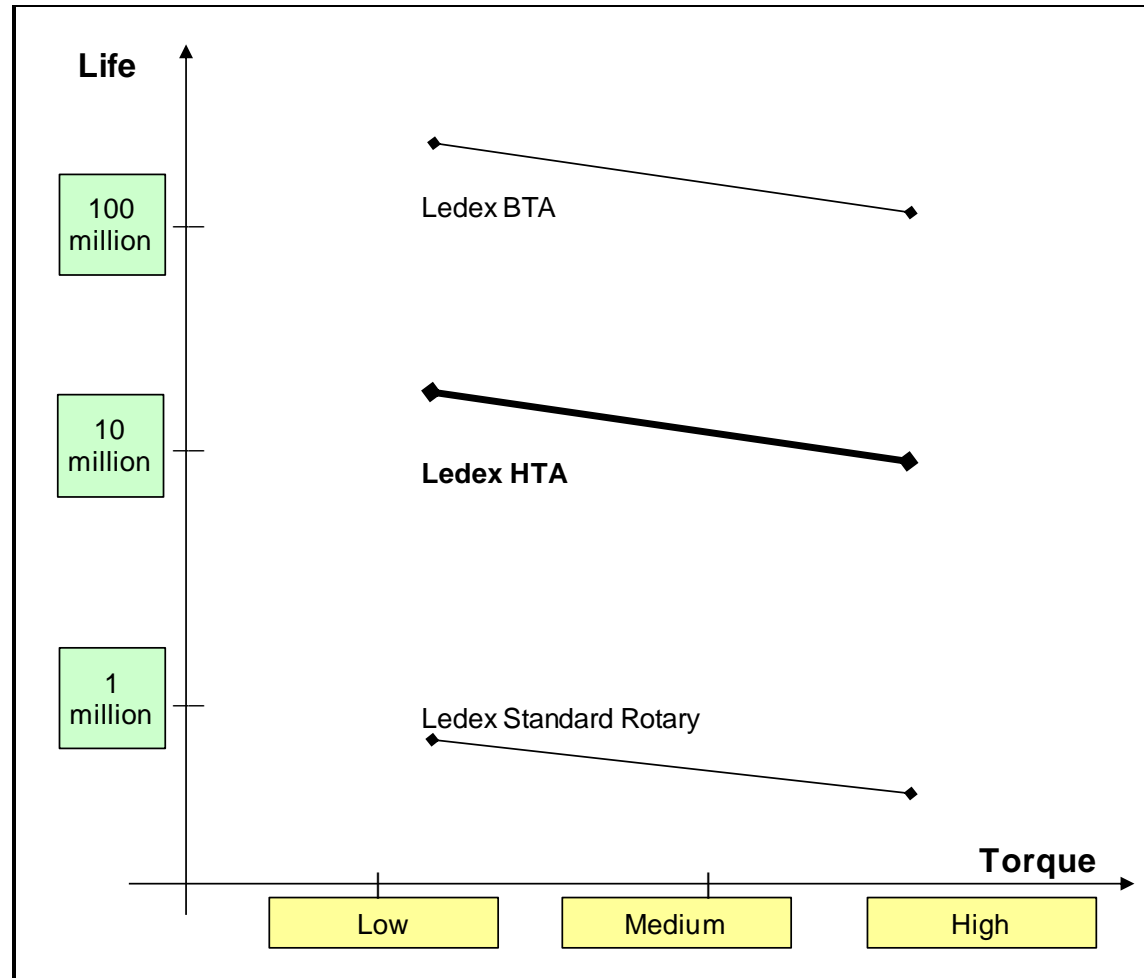
- ▶ Performance Comparison @ 25% Duty Cycle

# Ledex Solenoid Selection Guide

- The HTA is significantly faster than a comparably sized BTA. While the BTA Size 4 can accommodate a heavier load, the HTA is faster than a BTA Size 3 carrying similar loads.

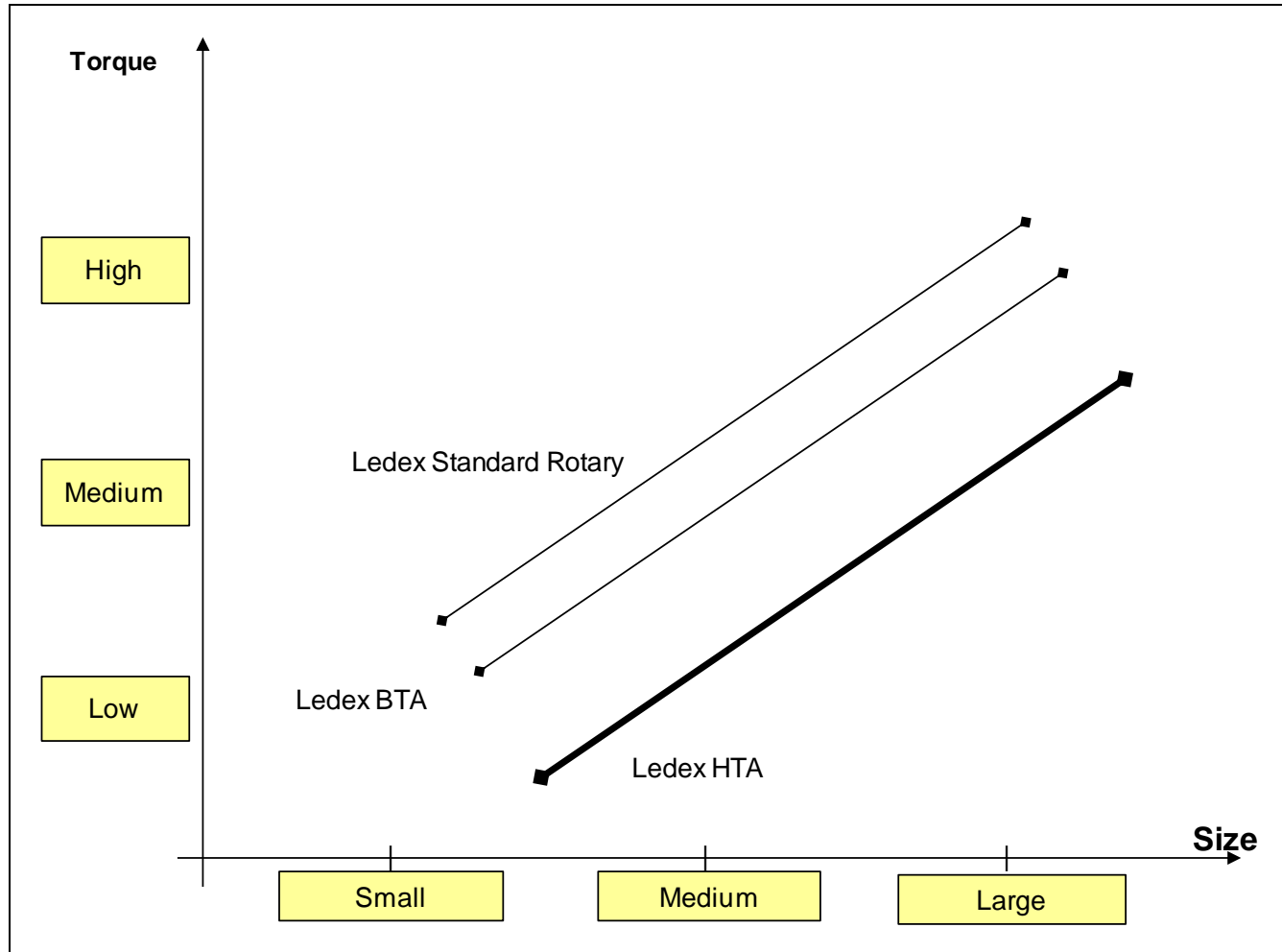


# Ledex Solenoid Selection Guide (Life vs. Torque)



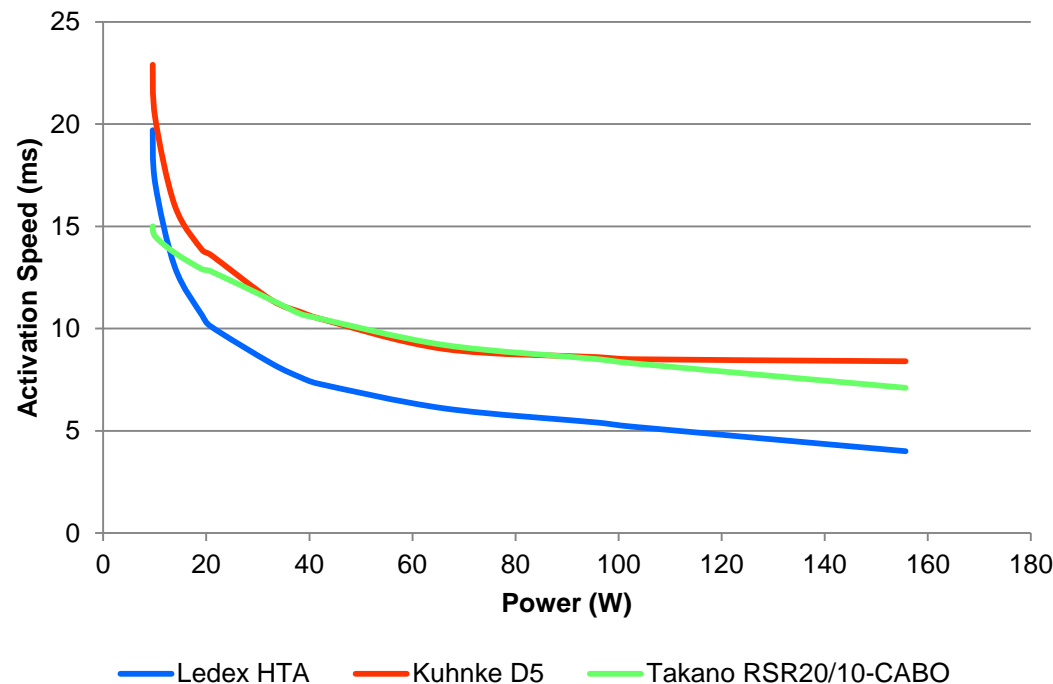


# Ledex Solenoid Selection Guide (Torque vs. Size)



# Ledex HTA Competitive Comparison

- The HTA defines the new option for torque/speed optimization. At 13.0 oz-in (0.09 Nm) the HTA is 48% faster than the competitive solenoids.
- The HTA is significantly faster than the competitive solenoids when compared at the same power.

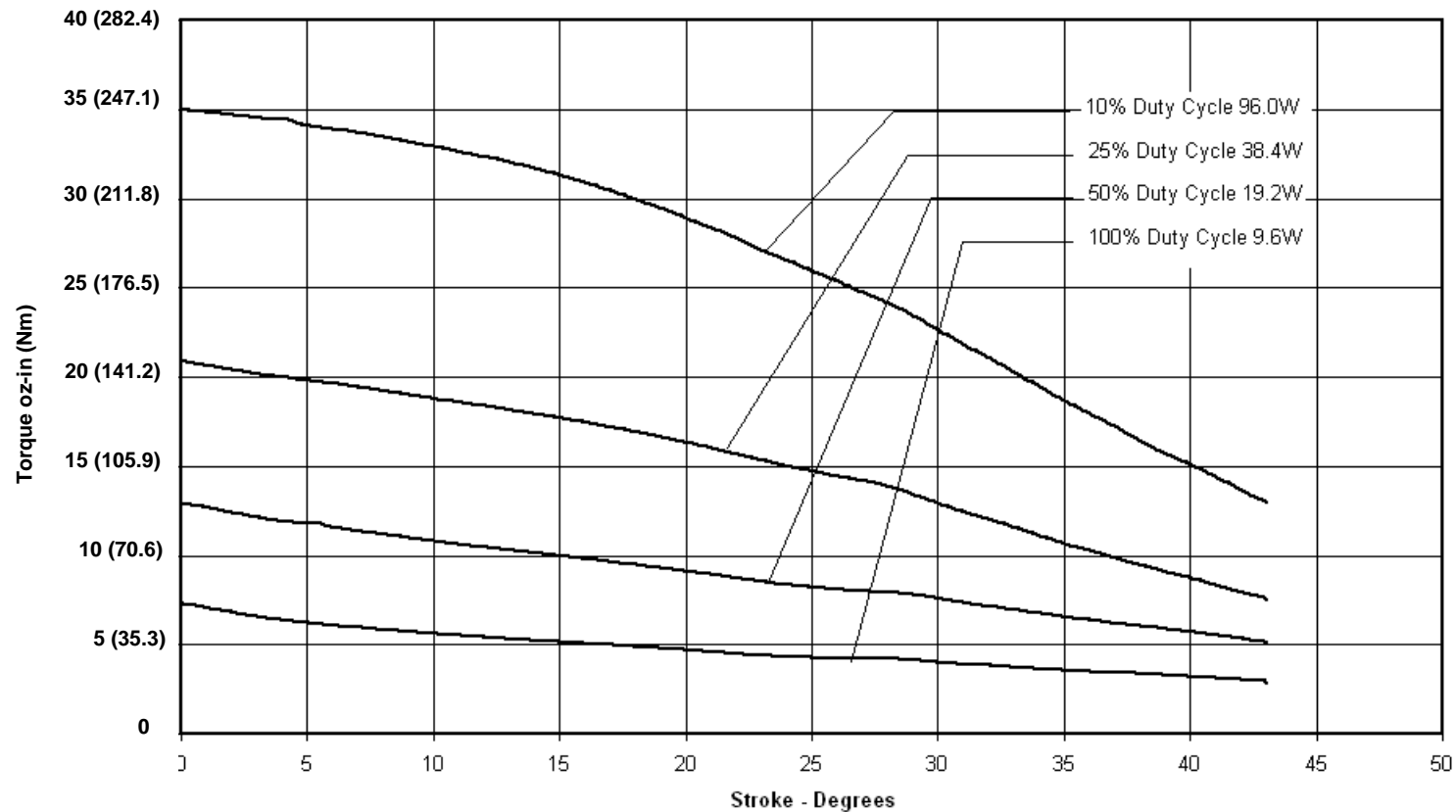


# Ledex HTA Technical Attributes

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- Life 10 M cycles
- Response Time 13.5 ms @ 50% Duty
- Rotation CW or CCW
- Rotation Angle 45 Degrees
- Termination Flying Leads / Customizable
- Weight 6 oz / 170 g
- 100% Duty Cycle Wattage 9.6W
- Voltage DC

# Ledex HTA Torque / Stroke Curves



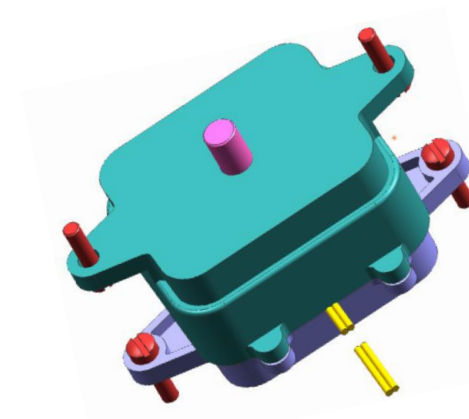
# Ledex HTA Technology Highlights (Mounting and Rotation)

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- Stroke direction is defined as the direction of rotation viewed from the side opposite the mounting surface.
- The HTA should be mounted on the aluminum end.



**Aluminum End Cap – Mounting Surface  
(for Heat Sink)**



**Molded Plastic End Cap**

# Ledex HTA Technology Highlights

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## ▶ Shaft and Rotor

- Low inertia rotor allows for faster speed operation

## ▶ Bearings

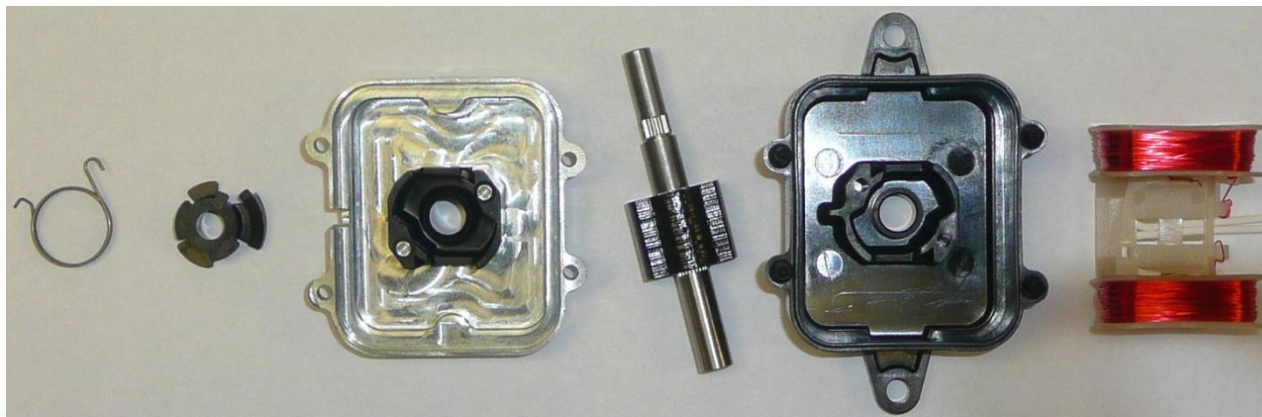
- Plastic housing/bearing has been tested to over 10M cycles
- Can be customized with ball bearings for increased life

## ▶ Stops

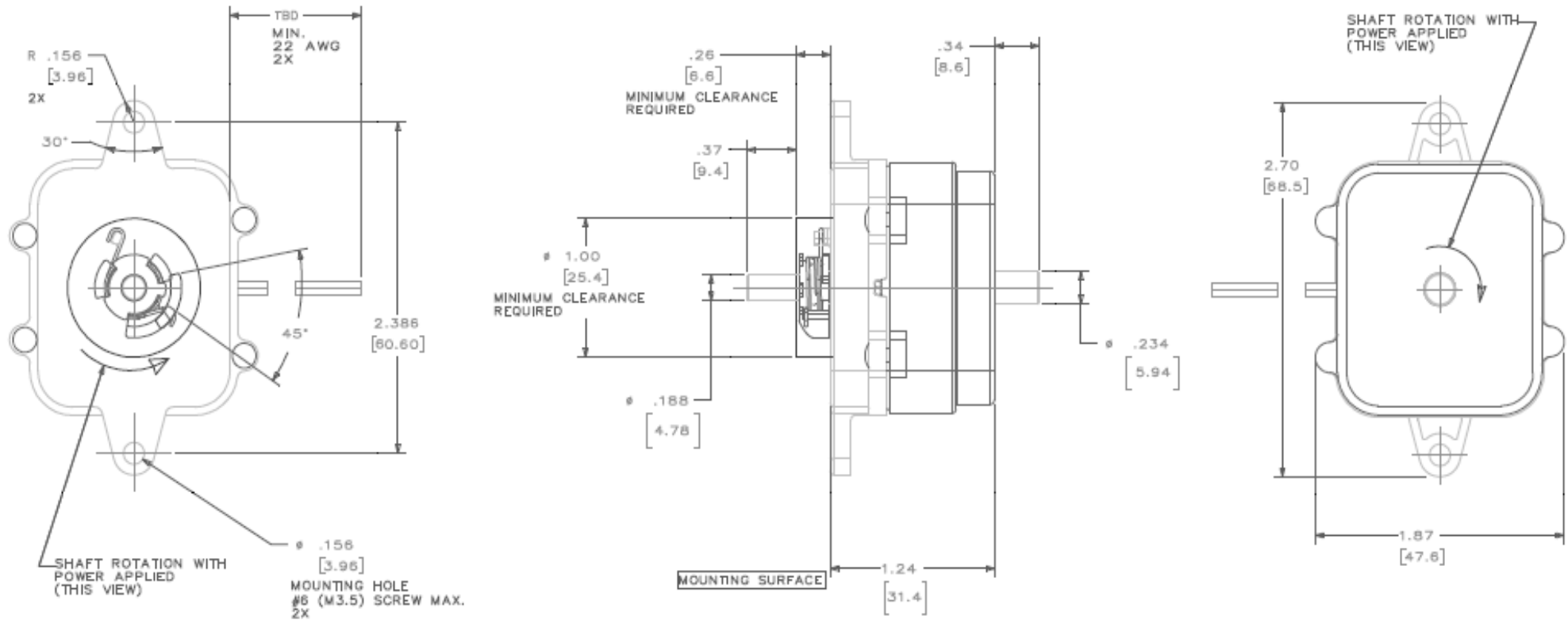
- The stops are incorporated into the bearing surfaces for low stroke angle tolerances

## ▶ End Caps

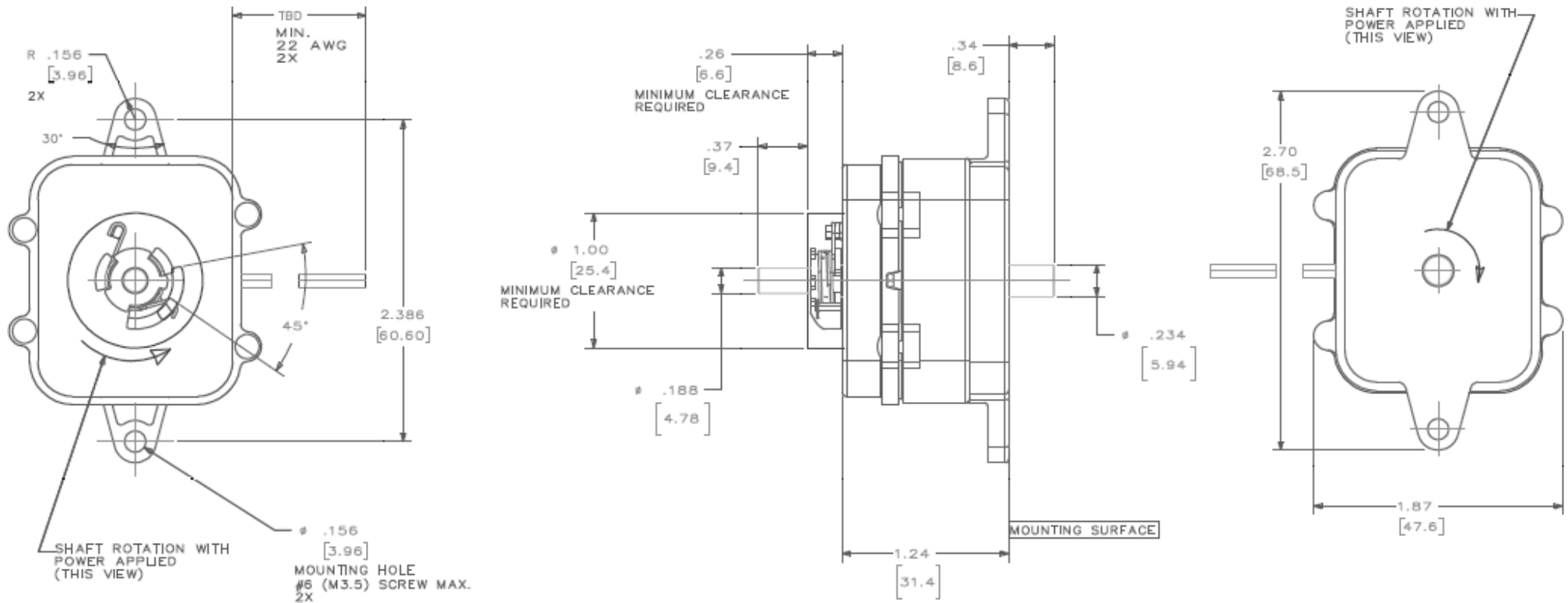
- The end caps are not part of the flux circuit so material and geometry can be customized to optimize fit, form or function for specific applications



# Ledex HTA CW Dimensions



# Ledex HTA CCW Dimensions





# Ledex HTA Value Proposition

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## Technology Leadership

- Unique torque/speed solenoid performance
- Highest speed rotary solenoid
- 25% reduction in weight
- Designed for low load, high speed applications

## The Safe Choice

- 25 years worth of sorting expertise with 3 out of 4 sorters having Ledex products
- Solenoid industry market leader with over 100M solenoids installed
- 10M life cycles
- Johnson Electric Production System for quality and reliability

Thank you!