

# Helical, hydraulic rotary actuators



# Helac product lines meet your individual needs

**1 L-Series LoadBear**  
Offers integral bearings to carry heavy axial and side loads. Available with large diameter shaft flange with drilled and tapped bolt circle.

**3 Custom designs**  
Over 50 percent of Helac's rotary actuators for OEMs are customized to meet our customers' application requirements.

**2 T-Series TorqBear**  
Offers a thru-shaft configuration for torque applications. Available with splined output shafts.

**4 Construction equipment attachments**  
Helac PowerTilt® and PowerGrip® products increase the utilization of backhoes and excavators.

## Helac's Quick Reference Guide

Design Features	Helical Rotary Actuators				Construction Equipment Attachments	
	L10 Series	L20 Series	L30 Series	T20 Series	PowerTilt	PowerGrip
Standard Configuration						
Machine Size	—	—	—	—	From 2t to 35t	From 6t to 21t
<b>Torque Range</b>						
in-lb	1,700-25,000	4,500-15,000	17,000-740,000	25,000-60,000	25,000-220,000	65,000-180,000
Nm	190-2,825	508-1,690	1,920-83,600	2,830-6,780	2,830-24,820	7,330-20,300
<b>Pressure Rating</b>						
psi	3,000	3,000	3,000	3,000	3,000	3,000
bar	210	210	210	210	210	210
<b>Bearing Capacity</b>	High	High	High	High	High	High
<b>Internal Leakage</b>	None	None	None	None	None	None
<b>Standard Rotations</b>	180, 360	180	180, 360	200, 220 Select Models	134, 180 Select Models	120
<b>Shock Resistance</b>	High	High	High	High	High	High
<b>Backlash</b>	Low	Low	Low	Low	Low	Low

# We created the first load-carrying, helical rotary actuator. Today, we're still leading the way.

Helac Corporation's success began in the early 1980s when we focused our business solely on manufacturing helical, hydraulic rotary actuators. Our reputation and business grew rapidly because of the unique combination of features offered — high load-bearing capacity and torque output, shock resistance with zero leakage, and compact configurations. Today, over 1,000 OEM customers around the world rely on Helac to move, support and position rotary loads.

## **FOUR** big reasons to partner with Helac Corporation



### **Innovation**

- First helical, load-bearing product line available to OEMs
- First helical rotary actuator used for tilting buckets in after-market construction attachments



### **High Quality Solutions**

- Continuous quality and process improvements in all areas of our business
- Sophisticated, computerized technology used throughout our production process



### **On-time Customer Delivery**

- Kanban product replenishment system
- Just-in-time (JIT) delivery
- Vendor managed inventory (VMI)



### **Responsive Service**

- 24 hour turnaround on parts for common items
- Actuator Refurbishment service

**1968**



Founded as custom fabrication and machine shop

**1974**



Manufactured first production rotary actuator

**1982**



Turned focus exclusively to helical rotary actuators and changed company name to Helac

# An inside look at how our helical actuator features set us apart

## Powerful

- High Torque
- High Bearing Capacity

## Drift Free Positioning

- Zero Internal Leakage
- Smooth Operation
- No External Brake Required

## Backdrives in Overload Conditions

- Hydraulic Fuse
- Prevents Mechanical Damage

## Ultra Compact

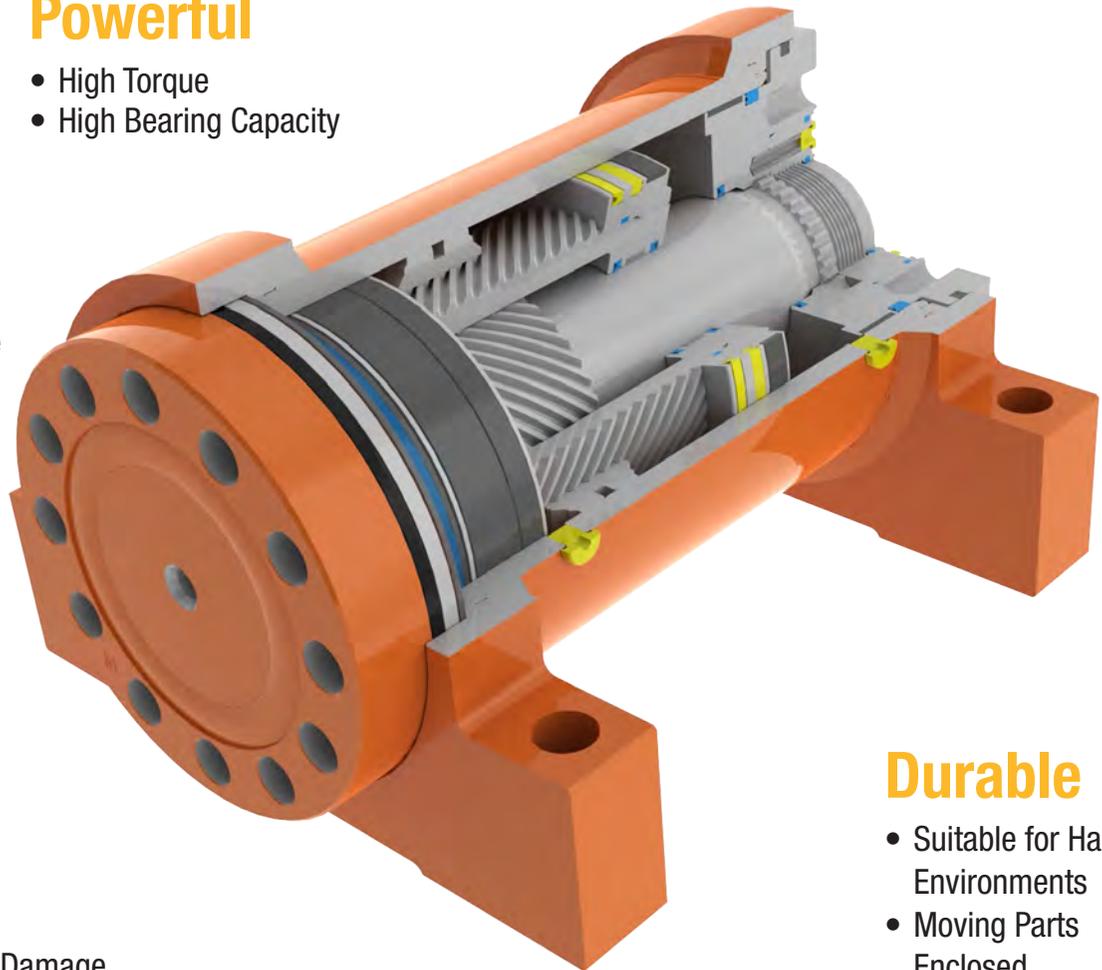
- High Power Density
- Fits in Tight Spaces

## Streamlined Design

- Eliminates Linkages and Bearings
- Reduced Bill of Materials

## Durable

- Suitable for Harsh Environments
- Moving Parts Enclosed



1983



Moved to a larger facility and expands the company

1985



Expanded into the European market

1988



Introduced the PowerTilt® for construction equipment

# Countless ways to improve your machine designs

## TOP INDUSTRIES SERVED

Agriculture

Construction

Energy

Marine

Material handling

Military

Mining

Truck/Trailer



**Aerial Work Platforms**  
Platform, basket and jib rotation



**Mining Equipment**  
Carousel rotation, drill positioning, rod handling, shotcrete, roof bolting



**Refuse / Recycling Vehicles**  
Arm articulation and cart lifting



**Construction Equipment**  
Bucket swing, gripping, specialty attachments



**Agricultural Harvesters**  
Boom positioning, head rotation, wheel steering



**Paving and Curbing Equipment**  
Wheel and track steering



**Sweepers / Scrubbers**  
Brush positioning, steering, tipping and dumping



**Forklifts**  
Fork swing, specialized attachment rotation, steering

1989



Shipped 10,000<sup>th</sup> actuator

2007



Introduced the T20 series actuator

2011



500,000<sup>th</sup> actuator shipped

# Our helical rotary actuator in motion

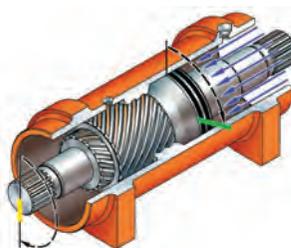
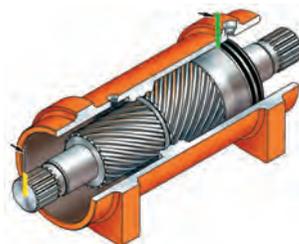
## Operating Technology

Helac actuators are designed to replace multiple components and function as a rotating device, mounting bracket and bearing, all-in-one.

Helac's innovative, sliding-spline operation technology converts linear piston motion into powerful shaft rotation. Each actuator is composed of a housing and two moving parts — the central shaft and piston. Helical spline teeth on the shaft engage matching teeth on the piston's inside diameter. A second set of helical splines on the piston's outside diameter mesh with the gear in the housing.

### STARTING POSITION

The piston is completely bottomed out. Bars indicate starting positions of piston and shaft. Arrows indicate directions they will rotate. The housing with integral gear remains stationary.



### ENDING POSITION

When hydraulic pressure is applied to the piston, it moves axially, while the helical gearing causes the piston and shaft to rotate simultaneously. Applying pressure to the opposite port will return the piston and shaft to their original starting positions.

➤ To learn more about Helac Corporation:

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