

# Scotch Yoke Actuators

Air or fluid powered rotary actuators for heavy duty, high torque applications.

# Product & Services Sales Guide

Max-Air Technology Inc. | Rotary Actuators & Valve Automation Solutions

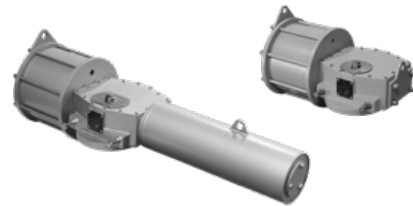


## The Solution for High Torque Applications.

Max-Air Technology HD Series scotch yoke actuators are designed to be a comprehensive solution for a range of industrial, high torque applications. Our completely modular design includes a rugged high-strength center body, slide block yoke mechanism, and tensile spring compression for safe and reliable fail-safe action. Actuators can be sized and outfitted with air cylinders or high-pressure hydraulic cylinders to closely match your valve torque requirements. Manual overrides are readily available and specialty coatings upon request.

### Standard Features:

- Symmetric and Canted Yoke options
- Slide Block Technology extends service life
- Hard chrome plated wear surfaces
- Three layer epoxy coating for general corrosion resistance
- Modular design w/ self-contained spring modules
- Optional Heavy Duty Polyamide Epoxy coating



### HD Series Pneumatic

Max-Air's rugged, modular design features high-integrity components with symmetric and canted yoke options to allow for torque profiles that more closely match valve requirements.

<b>Torque Range</b>	Up to 2,000,000 in-lbs (DA) & 1,000,000 in-lbs (SR)
<b>Materials</b>	Coated Carbon Steel
<b>Coating Option</b>	Epoxy
<b>Ambient Temp. Ranges</b>	-4°F to 176°F Standard, (-40°F Low/ 300°F High)



### HHD Series Hydraulic

Hydraulic power cylinders multiply actuator torque output in a more compact design and can reduce stroke times. Actuators can be converted from air to fluid power with stock or custom hydraulic cylinders.

<b>Rotation</b>	90 Degrees ±6° Adjustment Spring Return or Double Acting
<b>Operation Media</b>	Gas or High Pressure Hydraulic Fluid
<b>Mounting</b>	ISO 5211, NAMUR VDI/VDE 3845
<b>Available Options</b>	Manual Hand Pump Override, Custom Cylinders, Symmetric or Canted Yoke

## Scotch Yoke Series Selection

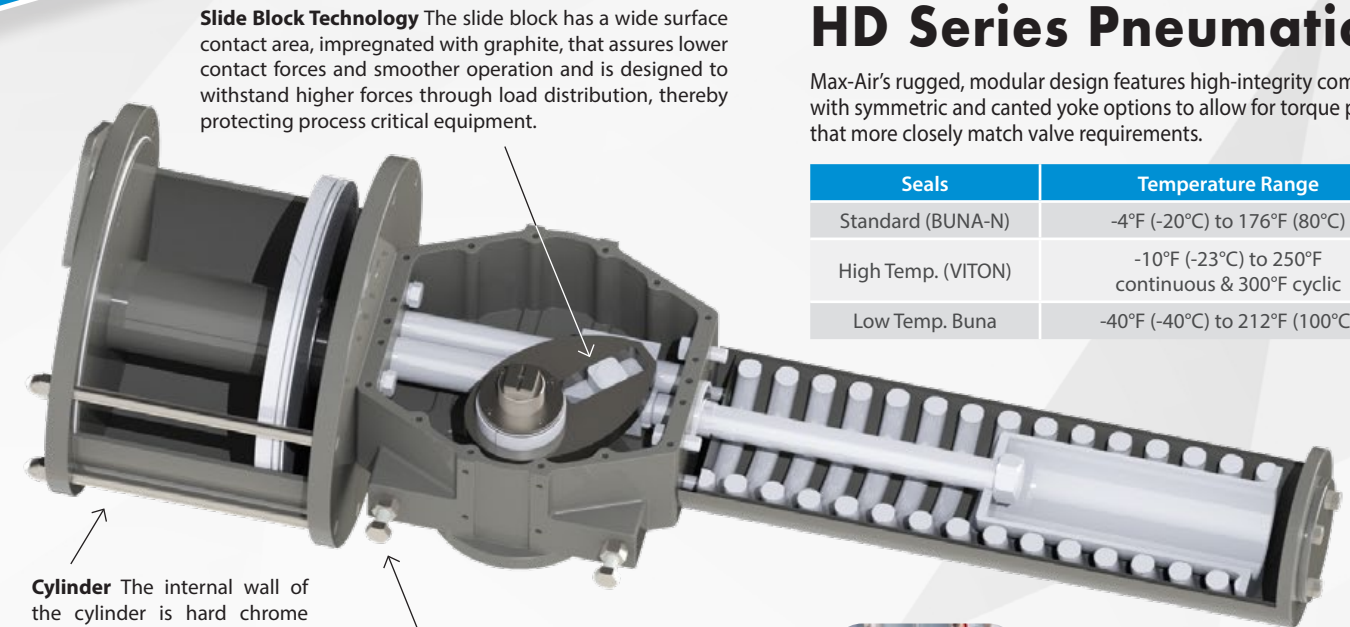
Start from the top of the chart and work down to select the correct Scotch Yoke Series.

Operation Media	Gas		Hydraulic Fluid	
	1000 psi		Up to +3000 psi	
Pressure	1000 psi		Up to +3000 psi	
Temperature	Standard	Extreme (High/Low)	Standard	Extreme (High/Low)
Recommended Series/Options	HD Series	HD Series w/ Temp Seals	HHD Series	HHD Series w/ Temp Seals
Available Options	Manual Hand Pump Override Custom Cylinders Symmetric or Canted Yoke		Manual Hand Pump Override Custom Cylinders Symmetric or Canted Yoke	

## HD Series Pneumatic

Max-Air's rugged, modular design features high-integrity components with symmetric and canted yoke options to allow for torque profiles that more closely match valve requirements.

Seals	Temperature Range
Standard (BUNA-N)	-4°F (-20°C) to 176°F (80°C)
High Temp. (VITON)	-10°F (-23°C) to 250°F continuous & 300°F cyclic
Low Temp. Buna	-40°F (-40°C) to 212°F (100°C)



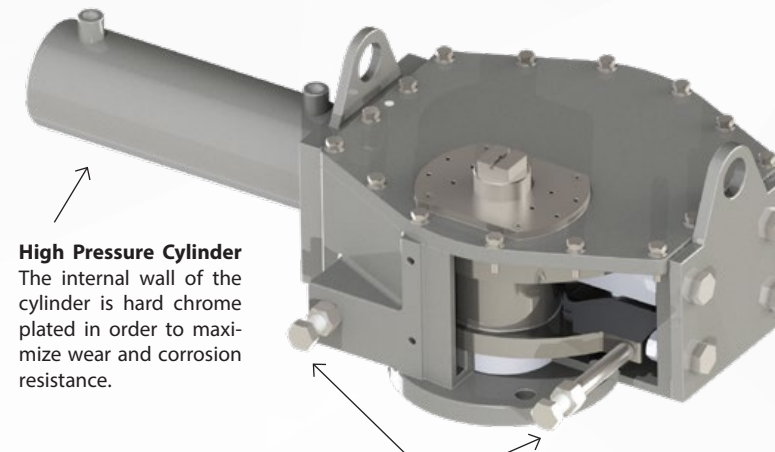
**Slide Block Technology** The slide block has a wide surface contact area, impregnated with graphite, that assures lower contact forces and smoother operation and is designed to withstand higher forces through load distribution, thereby protecting process critical equipment.

**Cylinder** The internal wall of the cylinder is hard chrome plated in order to maximize wear and corrosion resistance.

**Double Travel Stop** The SHD and CHD actuators are all provided with bi-directional travel stops to allow for open and closed position location adjustments of +/- 6 degrees.



**Manual Hydraulic Handpump Override** Both the HD & HHD Series have the option for manual override via a Hydraulic Handpump. The double acting override is shown.



**High Pressure Cylinder** The internal wall of the cylinder is hard chrome plated in order to maximize wear and corrosion resistance.

**Double Travel Stop** The HSHD and HCHD actuators are all provided with bi-directional travel stops to allow for open and closed position location adjustments of +/- 6 degrees.

## HHD Series Hydraulic

Hydraulic power cylinders multiply actuator torque output in a more compact design and can reduce stroke times. Actuators can be converted from air to fluid power with stock or custom hydraulic cylinders.

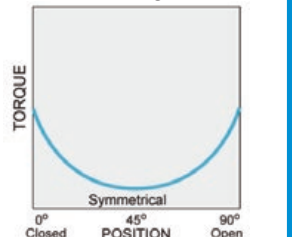
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### Symmetric Torque Curves

Symmetric Type



Double Acting Actuator



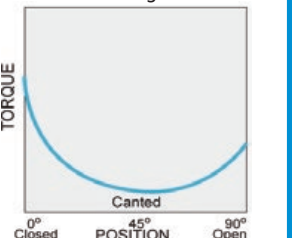
SHD series is equipped with a SYMMETRIC design yoke that produces maximum torques at both ends of the stroke (0° and 90°) and minimal in the middle, therefore this series is the optimal solution for metal seated ball valves, plug valves and for modulating service.

### Canted Torque Curves

Canted Type



Double Acting Actuator



CHD series is equipped with a CANTED design yoke that produces a higher maximum torque at the beginning of stroke (i.e. valve unseating/reseating at 0°) and less torque at the end of stroke (90°), therefore this series is optimal solution for high performance butterfly valves.