

# Comparison of Various Actuators

	Easytork	Other Vane	Rack & Pinion
<b>Durability</b>			
<b>Max pressure</b>	150 psi	100 psi <i>*Based on prevalent brand</i>	120 psi
<b>Cycle life</b>	<b>Most advantageous:</b> 1 moving part. Vane is the only moving part to create pure rotary-to-rotary movement		<b>Less advantageous:</b> Minimum of 3 moving parts to convert linear to rotary motion
<b>Vane to stop-bolt impact</b>	<b>Vane:</b> Less risk, bolt impacts metal extrusion on vane <b>Housing:</b> Less risk of cracking due to structural back support of air reservoir structure	<b>Vane:</b> Risk of damage due to impact of bolt to nylon side plate <b>Housing:</b> Risk of cracking due to housing thickness & stiffness <i>* Based on prevalent brand</i>	NA
<b>Eccentricity, hysteresis &amp; valve lifespan</b>	Zero eccentricity and hysteresis to improve valve's lifespan as result of positive index, guiding and support	Eccentricity and hysteresis unavoidable with external coupler without guiding and support	Hysteresis inherent in rack & pinion. Added hysteresis and eccentricity with external coupler without guiding and support
<b>Weight balance</b>	<b>Weight balanced:</b> Drive shaft in center and round shape	<b>Non-weight balanced:</b> Clam shape with offset drive shaft	<b>Weight balanced:</b> Rectangular shape with drive shaft in center
<b>Single-Acting</b>			
<b>Single-acting</b>	<b>Integral air reservoir chamber:</b> <ul style="list-style-type: none"> <li>- Avoids all issues associated with springs</li> <li>- High fail-safe torque efficiency</li> </ul>	<b>External clock spring:</b> <ul style="list-style-type: none"> <li>- Significant added weight</li> <li>- Bigger body to compensate for loss of torque to springs</li> <li>- Dangerous to maintain</li> </ul>	<b>Nest spring:</b> <ul style="list-style-type: none"> <li>- Bigger body to compensate for loss of torque to springs</li> <li>- Potential for spring decay</li> <li>- Potential for broken spring</li> </ul>
<b>Moving parts</b>	1	2	5+
<b>Size, weight, air consumption</b>	<b>Size:</b> Smallest <b>Weight:</b> Lightest <b>Air Usage:</b> Least	<b>Size:</b> Biggest <b>Weight:</b> Heaviest <b>Air Usage:</b> Least	<b>Size:</b> Average <b>Weight:</b> Average <b>Air Usage:</b> Highest
<b>Environment air</b>	No environment air ever enters actuator	Spring-return creates vacuum resulting in environment air and foreign particle inside actuator	
<b>Fail-close / fail-open position change</b>	<b>Easy:</b> Turn solenoid valve 180°	<b>Difficult:</b> Direction of spring action either preset in CW or CCW	<b>Difficult:</b> Pistons need to be reversed
<b>Price-to-quality</b>	Average price tag for improved cycle life	High price tag for improved cycle life	Average price tag for varied cycle life
<b>Overhead</b>			
<b>Inventory / other adaptations</b>	<b>Least inventory:</b> Same product for most functions	<b>Complex inventory:</b> Different functions require different inventory purchase	
<b>Valve Interface</b>			
<b>Valve interface</b>	<b>Widest combination for mounting:</b> <ul style="list-style-type: none"> <li>- 3 ISO pattern on both sides of actuator</li> <li>- Selectable drive insert</li> <li>- Selectable shaft</li> </ul>	<b>Bracket and coupler a must:</b> <ul style="list-style-type: none"> <li>- Actuator only has male drives</li> <li>- Almost every brand is non ISO5211 compliant</li> </ul>	<b>Bracket and coupler frequently used:</b> <ul style="list-style-type: none"> <li>- 1 or 2 ISO pattern, only on 1 side</li> <li>- Some have selectable drive insert</li> <li>- No integral selectable shaft</li> </ul>