

# Easytork Teaser

Easytork's patented actuator design improves on the reliability of pneumatic actuators and simplifies the vane concept so that it's more compact, efficient, and economical than a rack & pinion.

## Simplistic Design

### Eliminate Springs – Using Air Reservoir as Spring Replacement

Air reservoirs are commonly used to emergency shut down large mission critical valves that would otherwise be too big with springs. Springs are wearable parts; on the other hand, air reservoir avoids spring issues developed over time including: spring fatigue, spring drift, and/or one or more unnoticed broken springs in a spring nest.

### The Economics of Spring“less”

Since EVAs do not push against springs, users can use a smaller actuator body to achieve the same fail-safe end of stroke torque requirement.

### Environmental Air Never Enters

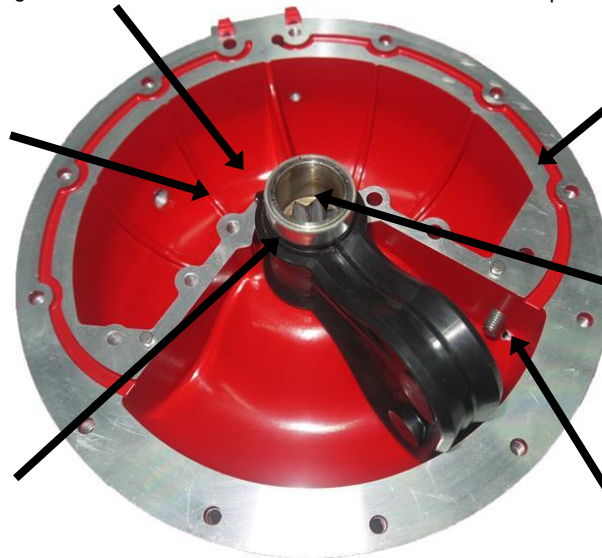
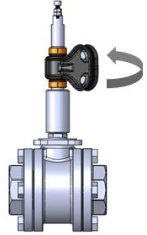
In fail-safe setup, solenoid still operates on double-acting principle. No environment air ever enters actuator through vacuum associated with springs.

### Pressure Free Symmetrical Shaft and Bushings

No downward “pistoning” force and accompanying friction as commonly seen with other designs.

### Only One Moving Piece – Pure Rotary-to-Rotary Movement

EVAs have one moving part that creates pure rotary-to-rotary movement. Rack & pinions convert linear-to-rotary movement. The fewer moving parts there are, the fewer potential sources of failure, and the better the lifespan.



### Internal Air Path

All air path is internal, no external piping necessary in double-acting or fail-safe.

### Prolongs Valve Life

The EVA valve stem engagement is 100% concentric and prevents valve stem leakage to prolong the cycle life of the valve.

### Easy Travel Limit Change

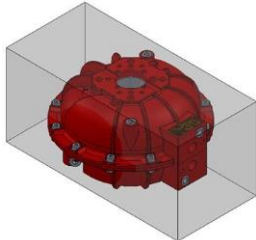
The standard travel stop adjustment is +/- 5° per stopper bolt, for a total of +/- 10°.

## <0.5x The Weight and Smaller Than Any Other Actuator

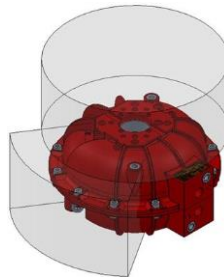
For fail-safe requirements, users often have to size up rack & pinion as the spring return actuator only retains 30%+ of its original double-acting configuration. EVA fail-safe configuration retains 60%+ of its double-acting configuration. This allows users to lower not only the initial cost of ownership but also the total cost of ownership over the lifespan of the actuator, as the physical size and air consumption are significantly less than those of a comparable single acting rack & pinion.

### Fail-Safe Size Comparison:

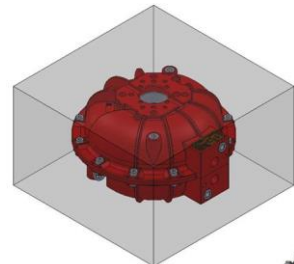
Rack & Pinion  
(2 Piston)



Vane



Rack & Pinion  
(4 Piston)



## Simplify Inventory Variety by +10x

While other actuator packages require different packages for different functions, Easytork's design simplifies inventory consideration by layering multiple easy to change functions into the Easytork actuator unit.

### Multiple Functions in One Unit:

- On/off or modulation
- Double-acting
- Fail-safe
- ESD in close
- ESD in open
- Gearbox fits on top or bottom of actuator

### Multiple Adaptations in One Unit:

- Adaptable shaft
- Adaptable drive inserts
- Lockout & PST kit
- Triple ISO
- 180° Operation



## Market Feedback

### Valve World Magazine

"New generation fail-safe actuator without the use of springs for better durability, safety, efficiency and cost. New generation actuators fit where rack & pinions can not."

- December / January 2017 Valve World Issue.  
Editorial program on valve automation.



### User Feedback

#### Application summary:

Gold Mine in Canada. Actuators installed 3000-4000 feet underground. Application is for paste fill, mine dewatering, and process water feed. Compressor is on surface and air lines run thousands of feet to feed actuator with little filtration.

#### Summary of problem:

"You cannot get supply air worse than this. Lots of moisture, water, rust."

#### Customer feedback:

Multiple Easytork actuators installed in 2015 - No problem with actuators.

Customer purchased multiple more Easytork actuators in 2016 - No problem with actuators.

## Torque Chart

### Double-Acting (In-Lb)

Model / PSI	30	40	50	60	70	80	90	100	110	120	130	140	150
EVA-0309	73	98	122	146	171	195	220	244	269	293	317	342	366
EVA-0411	144	192	240	288	336	384	433	481	529	577	625	673	721
EVA-0514	286	381	477	572	667	763	858	954	1,049	1,144	1,240	1,335	1,430
EVA-0717	572	763	954	1,144	1,335	1,526	1,716	1,907	2,098	2,289	2,479	2,670	2,861
EVA-1022	1,144	1,526	1,907	2,289	2,670	3,051	3,433	3,814	4,196	4,577	4,958	5,340	5,721
EVA-1227	2,289	3,051	3,814	4,577	5,340	6,103	6,866	7,628	8,391	9,154	9,917	10,680	11,443
EVA-1436	4,577	6,103	7,628	9,154	10,680	12,205	13,731	15,257	16,782	18,308	19,834	21,359	22,885
EVA-1646	9,154	12,205	15,257	18,308	21,359	24,411	27,462	30,513	33,565	36,616	39,667	42,719	45,770

### Emergency Shut Down (Minimum Torque At End-Of-Stroke) (In-Lb)

Model / PSI	30	40	50	60	70	80	90	100	110	120	130	140	150
EVA-0309	48	63	79	95	111	127	143	159	175	190	206	222	238
EVA-0411	94	125	156	187	219	250	281	312	344	375	406	437	469
EVA-0514	186	248	310	372	434	496	558	620	682	744	806	868	930
EVA-0717	372	496	620	744	868	992	1,116	1,240	1,364	1,488	1,611	1,735	1,859
EVA-1022	744	992	1,240	1,488	1,735	1,983	2,231	2,479	2,727	2,975	3,223	3,471	3,719
EVA-1227	1,488	1,983	2,479	2,975	3,471	3,967	4,463	4,958	5,454	5,950	6,446	6,942	7,438
EVA-1436	2,975	3,967	4,958	5,950	6,942	7,933	8,925	9,917	10,909	11,900	12,892	13,884	14,875
EVA-1646	5,950	7,933	9,917	11,900	13,884	15,867	17,850	19,834	21,817	23,800	25,784	27,767	29,751

## Patent Information

Easytork has multiple patents (approved and pending) covering the interaction between, and specific items, for the following: the actuator, integral air reservoir, ERPP, and ESV. Patent protection extends to vane, rack & pinion and scotch yoke principles.