

# Easytork®

## High-Performance Quarter-Turn Control Valve Solutions



**Solving  
Problems  
No One Else Can**

We believe in selling “easy”. Easytork brings differentiating features and benefits to the process control industry through our focus on innovation and quality.

Easytork has been awarded numerous awards including:

2013 – Arch Grants Recipient

2015 – Accelerate St. Louis

2017 – Frost & Sullivan New Product Innovation Award

Table of Contents	Page
Easytork Control Actuator	3
ECA F Series	14
ECA IC Series	20
Namur Trip Valve	28

## Select Industries and Select Applications

**Aerospace & defense:** Fuel feed for rockets, deluge valve actuators, portable launch fuel and water control valves, fast acting control for aerospace engine systems.

**Chemical:** Filling and feed valves, transfer valves, mixed liquor valves, waste valves on batch mixing tanks.

**Dampers:** Flue gas dampers, furnace fuel feed, radial vane air control dampers

**Power generation:** Steam turbine control, boiler and water feed

**Energy:** Natural gas control valves, natural gas controlled dump valves, isolation ball valves for skid mounted compressor stations

**Food processing:** Enzymatic interesterification (EIE), sorting, diverting, conveying, filter systems

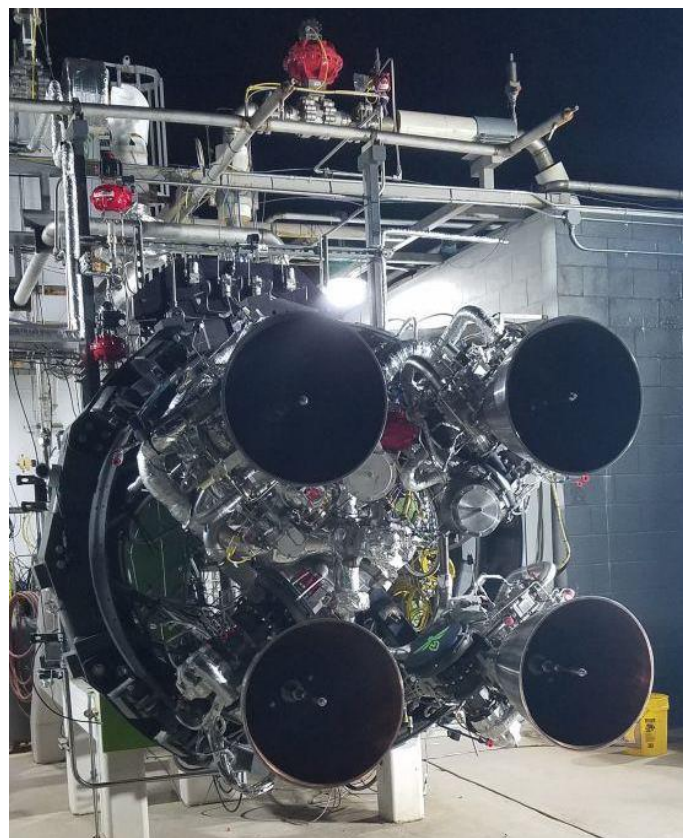
**General industrial:** Skid manufacturing, extreme high cycle

**Mining:** Cyanide dosing circuits, lime dosing circuits, underground dewatering valves, underground pastefill distribution valves, acid valves, high pressure water isolation valves

**Pulp and paper:** Dewatering valves, skids, bleaching

**Water systems / municipal:** Digester gas valves, filter control, aeration control, odor control, high service pump control, flocculate waste drain valves

**Steel:** Cooling spray valve





## Easytork Control Actuator



**Patent Pending**

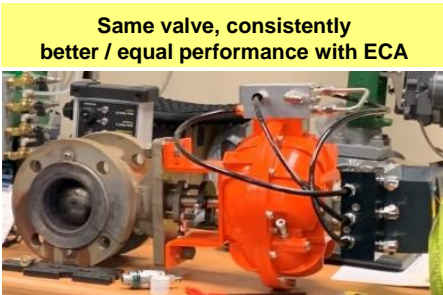


# Easytork Control Actuator (“ECA”) Overview

Consistently better or equal control valve performance

## ECA customer review

Review from customer replacing existing piston and spring & diaphragm actuators with ECA on the same control valve system.



***“The flow control has been spectacular, tuning the loops is quick & easy, as the ECA coupled with a LOGIX520MD \* are extremely responsive. The loops are as tight as you could hope for, during SP changes there is no dead time and no overshoot while process disturbances are put down quickly with minimal to no settling out.”***

***“I personally cannot not quantitatively prove that the performance is better than a Fisher actuator, but from the time it takes me to tune a loop after changing the actuator out, the ECA is hands down far superior to a 1066 and as good as if not better than a 2052... I have had DVC6200s on 1066 actuators and the ECA/Logix \* setup blows that out of the water.”***

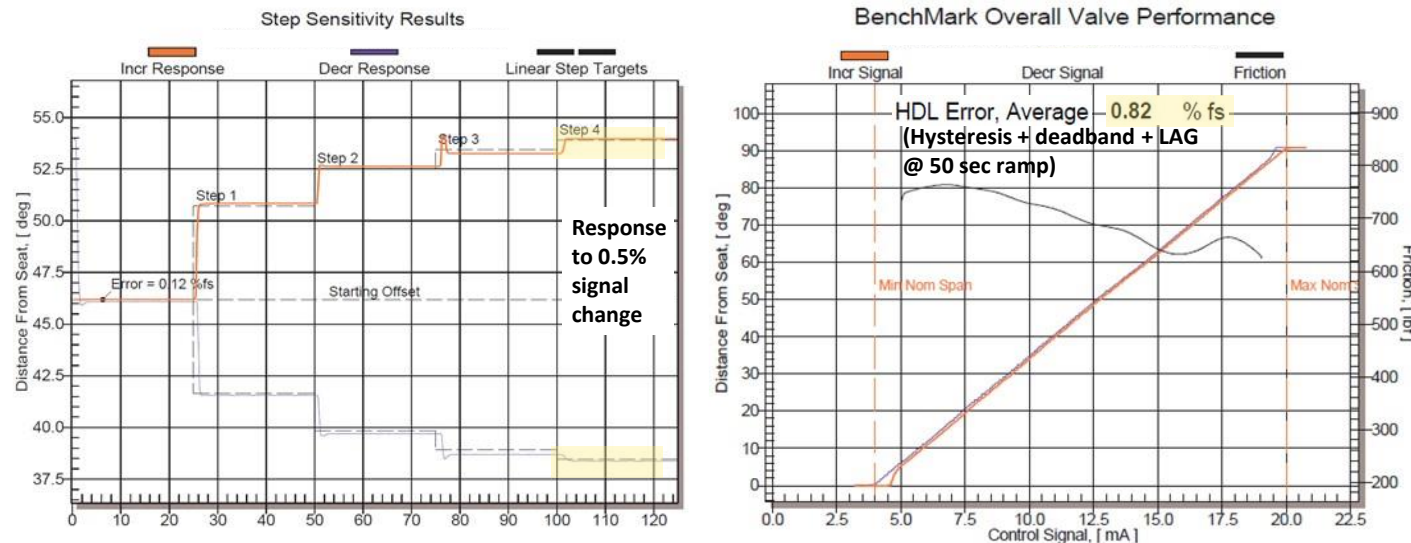
**– Customer testimonial (first install since 2017, replacing existing piston and spring & diaphragm actuators)**

**\*Easytork note: Improvement is due to ECA not diluting positioner’s true capability to the valve. High end actuators (minimal slop & friction) will not muffle positioner’s performance. A sub optimal actuator can make the best positioner seem less capable. An optimal actuator can make a sub optimal positioners seem more capable.**

Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Flowserve, Fisher, or any other Emerson Process Management Company

## Empirical testing – BenchMark Black Diamond

BenchMark Black Diamond testing shows equal or better control valve results with ECA. Black Diamond is a ISA.75.25 compliant control valve diagnostic testing equipment that measures a control valve system’s comprehensive performance from positioner to valve stem.



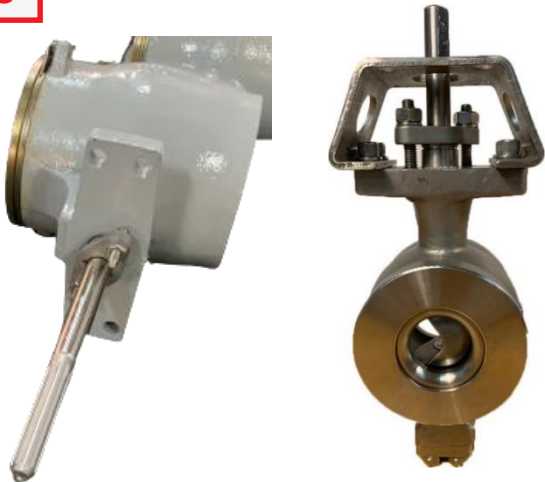
# Easytork Control Actuator (“ECA”) Overview

**Easytork value-adds to your control valve OPERATIONS**

**Specification friendly – Universally compatible with any positioner and most control valve brand**

Any double-acting positioner can be used with the NTV to fail-safe an actuator with air reservoir. ECA can retrofit directly to most control valve brand without compromising performance.

Picture on right shows a splined control valve, and a ISO standard control valve, both can direct mount with the ECA.

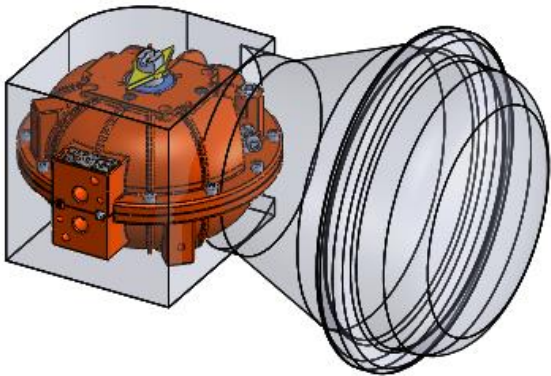


***“Installation is so easy that it will take me longer to disassemble and hammer a valve body out of an old Fisher 1066 actuator than it does to mount the ECA...”***

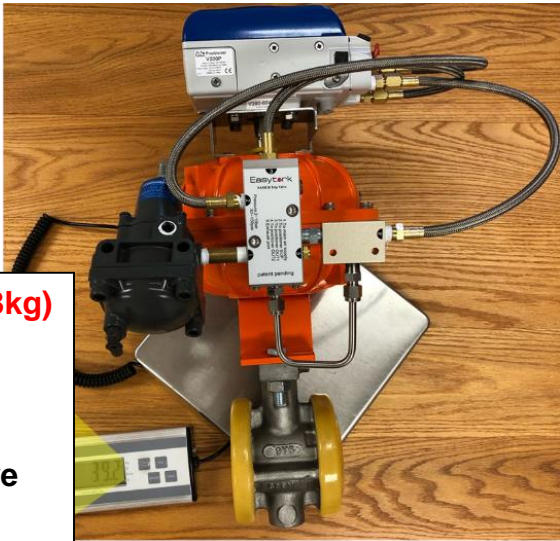
**– Customer testimonial**

Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Fisher, or any other Emerson Process Management Company

**Smaller and 7.5x lighter than diaphragm rotary actuator**



Size comparison to spring & diaphragm actuator



**<40 lbs (<18kg)**

**1-1/2”**

**complete segmented control valve assembly**

***“Weight – As you are well aware, one of the biggest benefits of switching over from a 2052 S&D, 1066SR, 1066DA is the weight drop. What used to require two people and a chain fall can be accomplished by one person (depending on valve size of course)”***

**– Customer testimonial**

Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Fisher, or any other Emerson Process Management Company

# Easytork Control Actuator (“ECA”) Overview

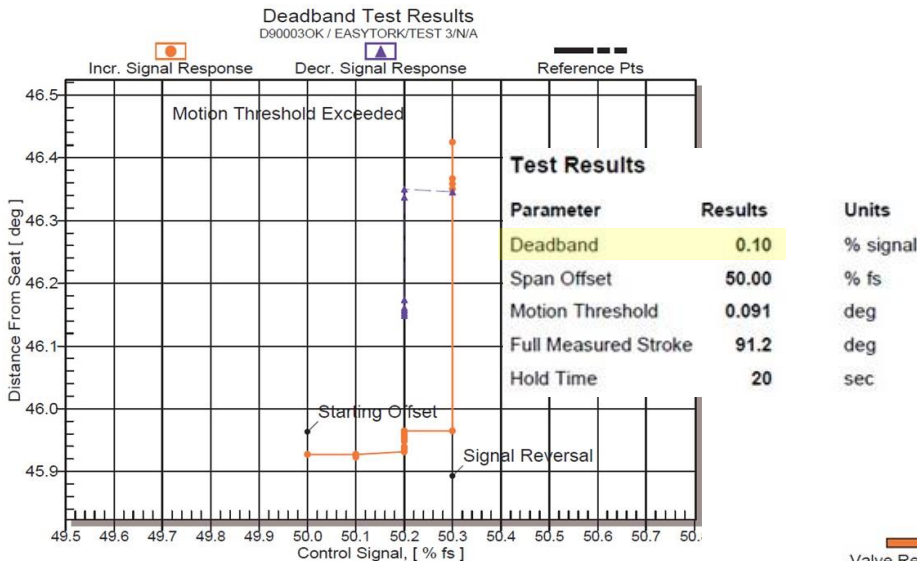
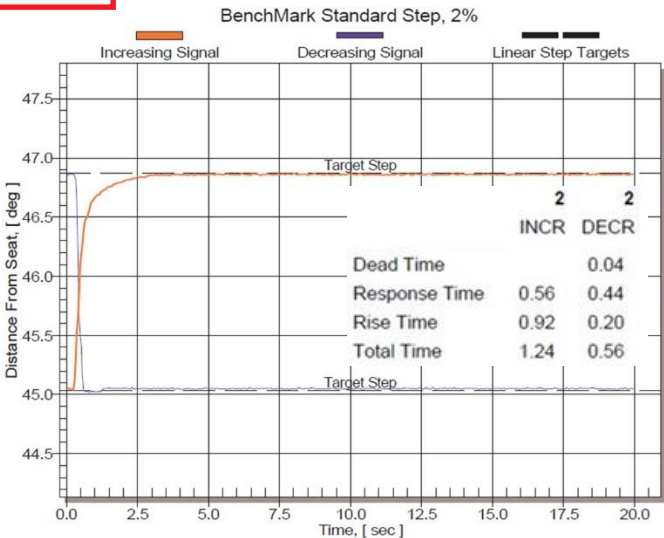
Easytork value-adds to your control valve SYSTEMS

## Fast valve position response

Valve position will quickly reflect input signal. The low air consumption and low friction of Easytork produces fast stroking speeds at small or large signal change.

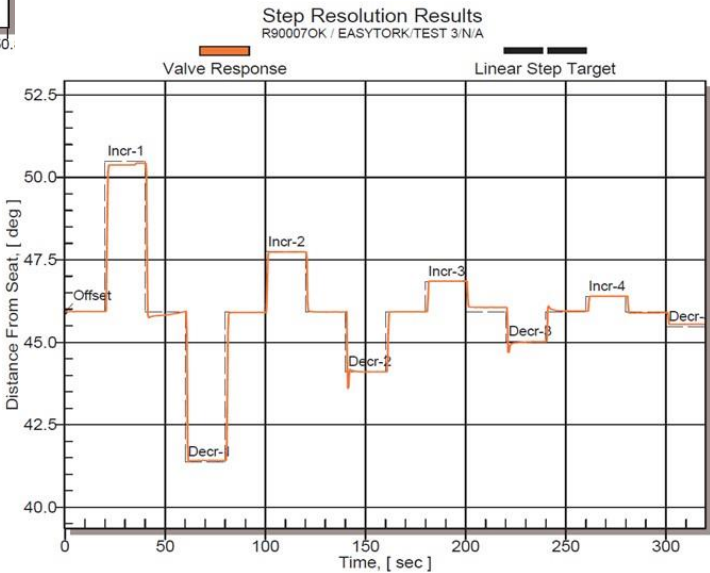
## Stiffness / no slam shut on small openings

Actuator runs on double-acting principle even in fail-safe setup. Not only does this prevent spring drift, but high air pressure (up to 100 psi) on both sides provide for exceptional stiffness to withstand sudden change in dynamic fluid force



## Low friction lip seal design

Lip seal vane has limited contact to housing body which results in low friction, smooth operation, and no “stick-slip” even after extended cycling. Ideal for both on-off and precision modulating controls.



**“Control has been so well, along with the benefits above, that I am actively looking for 1066s to replace.”**

**– Customer testimonial**

Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Fisher, or any other Emerson Process Management Company

*(All test results above are comprehensive control valve performance from positioner to valve stem with ECA).*



# Easytork Control Vane Actuator ("ECA") Built to Last

Take the guesswork out of predictive maintenance and reliability

## Predictive maintenance

### Using internal air reservoir for fail-safe

Air reservoirs in fail-safe systems are commonly used to replace springs for large mission critical emergency shut down valves. Spring failure and its performance decay are common occurrences but are hard to detect. Unlike spring actuation, monitoring devices can be installed onto air reservoir fail-safe actuation systems to positively detect performance decay or failure.

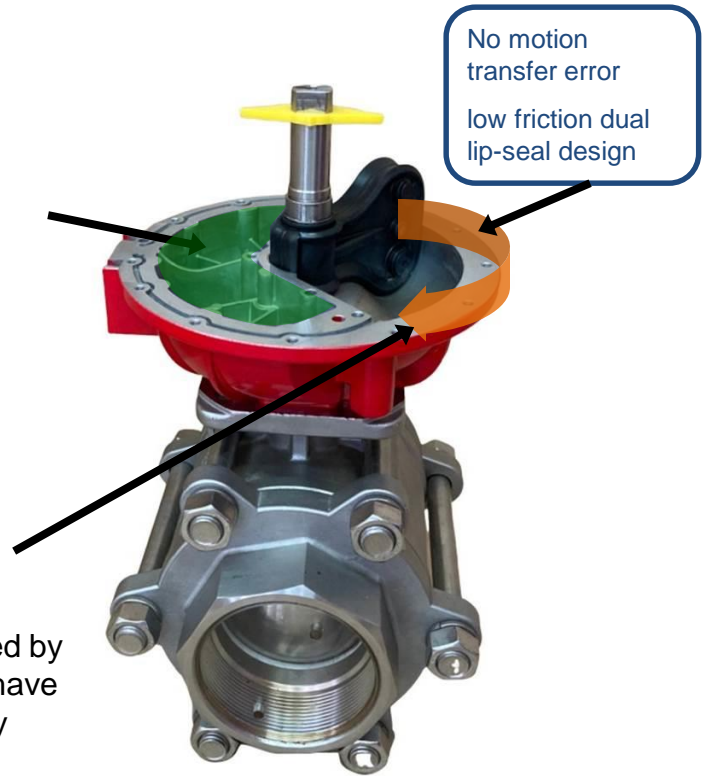
## Product reliability

### Consistently good control valve performance

ECA control valve performance is not underpinned by variable workmanship but by design. EVAs only have one moving part that creates pure rotary-to-rotary movement. Not only does the simplistic design contribute to better lifespan, the singular moving component simplifies predictive maintenance monitoring. Common off the shelf technology provides for validated automatic detection.

### Ideal for dirty environment & poor instrument air

Environment air never enters actuator. Unlike springs, air reservoir fail-safe systems never pulls in environment air into actuator. While clean instrument air is important, Easytork's rugged vane handles poor air supply significantly better than traditional actuators.



***"Mining and milling present some of the harshest environments for automated valves. Instrument air is not guaranteed to be clean, dry and particle free. Environmental air can be of poor quality and laden with contaminants. Easytork actuators thrive in these conditions and have been used extensively in mining on a multitude of applications."***  
– Customer testimonial (first install since 2015)

# One Moving Piece Built to Last

**Minimal maintenance occurrence through simplistic and improved design**

## Design features that further reduce maintenance

### Non-O-ring sealing

O-rings are meant for static sealing and not for dynamic sealing. Yet, most brands use O-rings for direct sealing which result in problems such as high friction, high break away torque, and high wear and tear.

### No stick-slip, low friction

Vane has limited contact to housing body which results in low friction, smooth operation, and no “stick-slip” even after extended cycling . Ideal for both on-off and precision modulating controls.

### Double lip-seal

With increased air pressure, pressure pushes against double lip-seal allowing for greater tightness against housing body. Lip-sealing aligns and provides tightness under pressure.

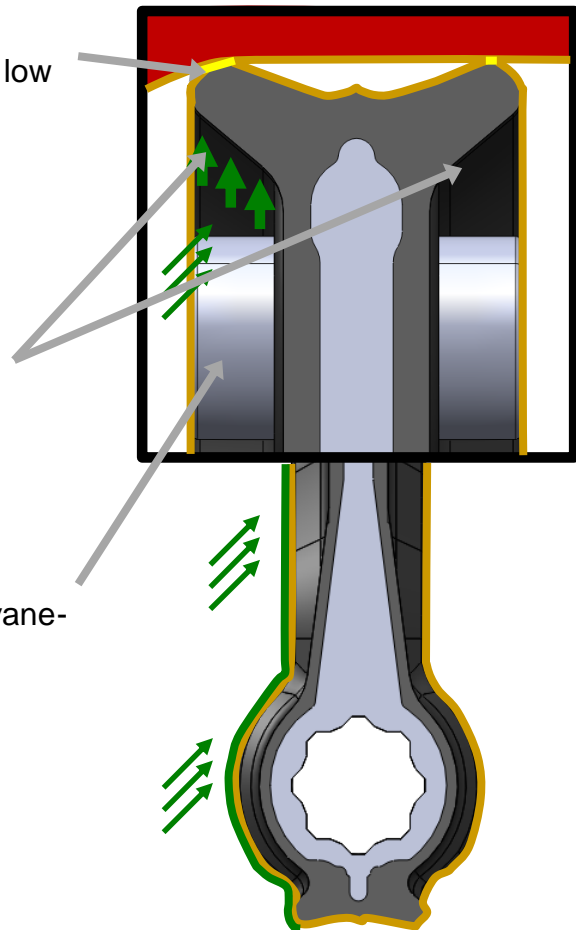
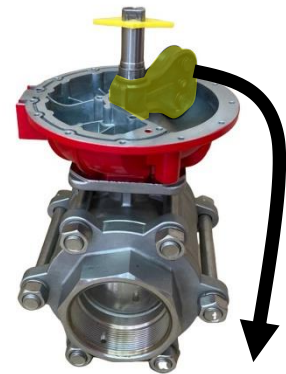
### Stopper bolt to vane contact

Stopper bolt does not impact vane sealing but against stainless steel vane assembly extrusion. The core of the vane-shaft is lightweight. This reduces the vane’s impact to the stopper bolts and prolongs cycle life.

## Design features that make your operations easier

### Wide temperature range

Modified CR (Neoprene) is the standard material, it is fully bonded to the vane/shaft. EVA is suitable from -40°C to 120°C (-40°F to 248°F), covering everything from low to high temperature applications.



- Air pressure
- Actuator housing
- Grease
- Seal & housing contact

***“I have had zero issues on the ECA’s I have installed and after the initial tuning / commissioning have not touched them.”***

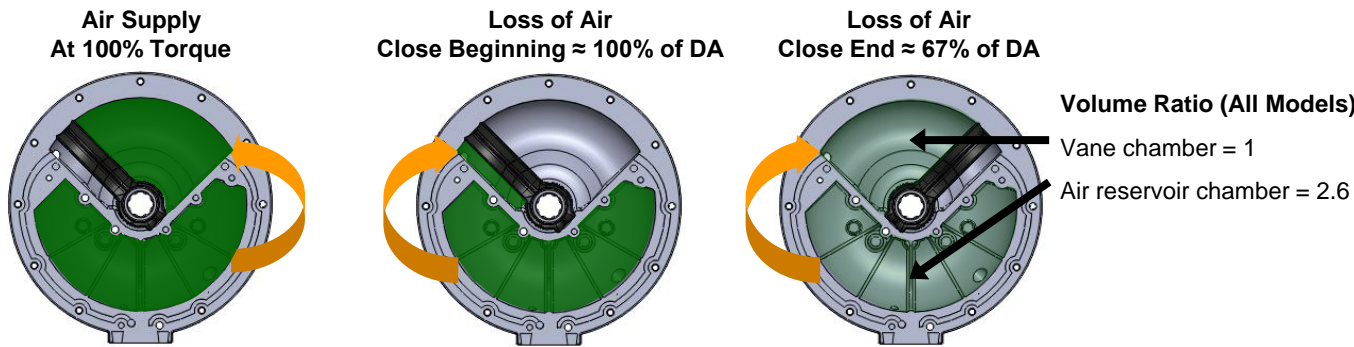
***– Customer testimonial***



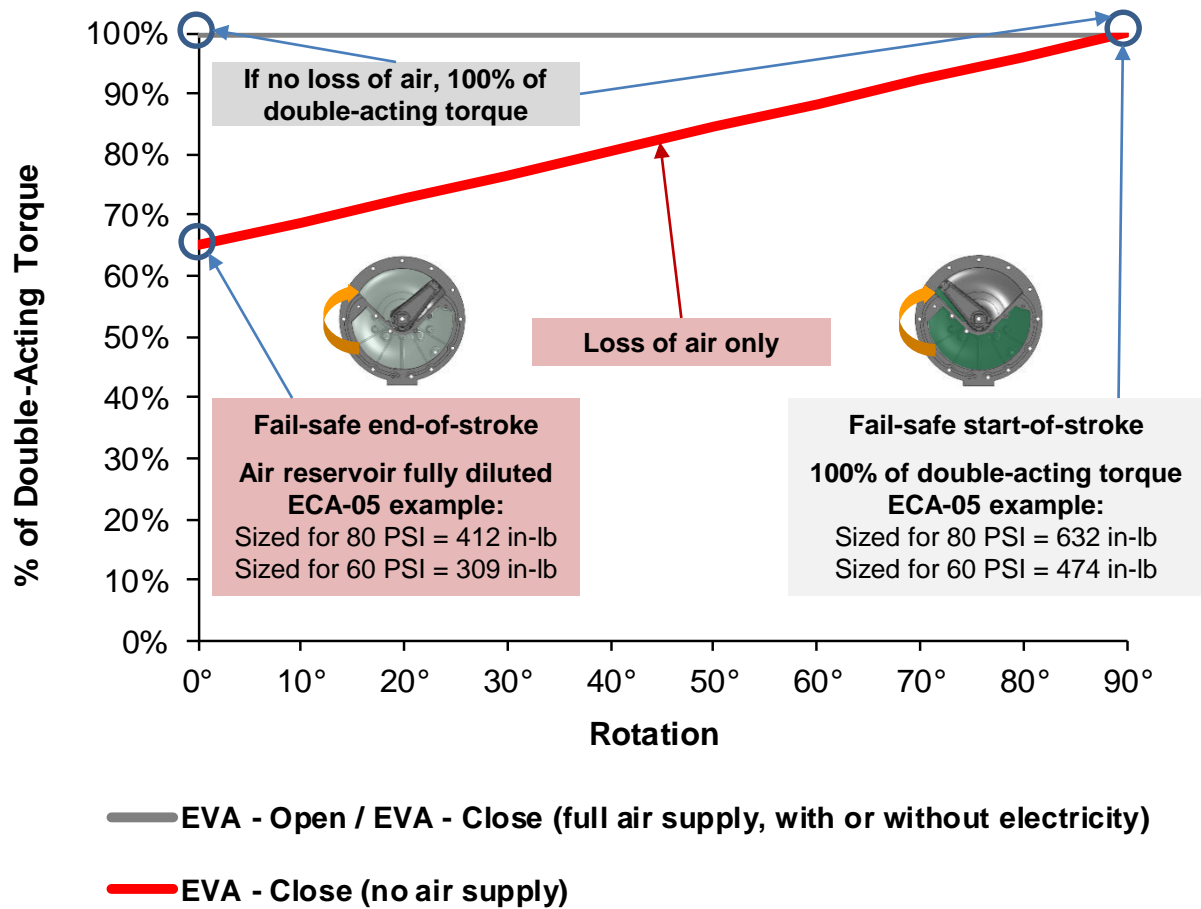
# ECA Fail-Safe Principle and Sizing

## Fail-safe principle

ECA utilizes an internal air reservoir to assure valve closure. When there is air failure, the pressurized air stored in the air reservoir is released and diluted with the vane chamber. Boyle's Law ( $P_2V_2=P_1V_1$ ) can be used to calculate the end-of-stroke fail-safe torque, where  $P_1$  is the pressure of the air reservoir,  $V_1$  is the volume in the air reservoir,  $P_2$  is the pressure in the vane and reservoir, and  $V_2$  is the volume in the vane and reservoir.



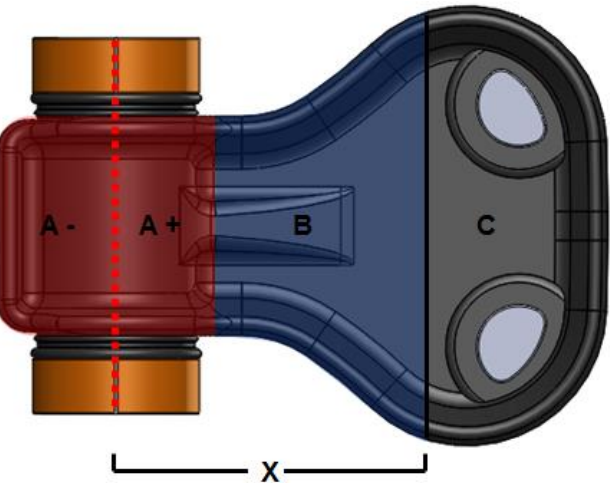
Fail-Safe Torque Output



# ECA Double-Acting Principle and Sizing

## Double-acting principle

Torque is determined by multiplying the applied force by the distance from the pivot point to the point where the force is applied.

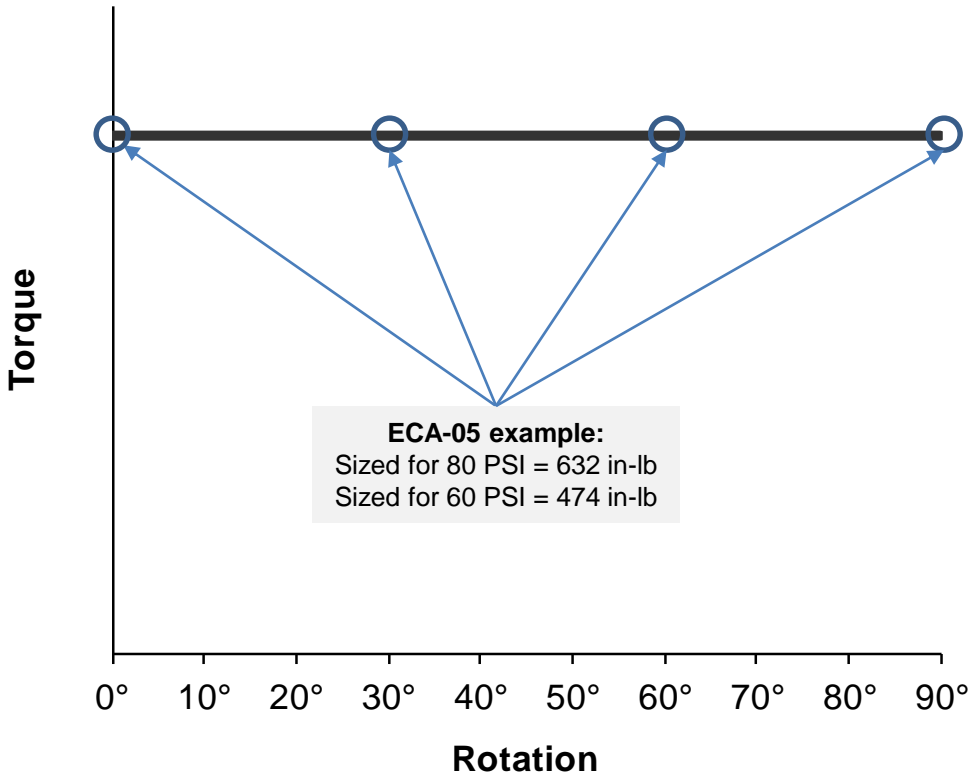


## Torque calculation

As Easytork's vane is a pear shape, torque is calculated as such:

- Area A does not generate any force, the positive area is negated by the negative area.
- Area B and C have the same surface area.
- X is the distance from the pivot point to where area B and C are divided.
- $\text{Torque} = (\text{Force on B} + \text{C}) * X - \text{force lost for friction}$ .
- X is constant so torque is linear.

## Double-Acting Torque Output



# ECA Torque Output (F and IC Series)

## Metric

Double-Acting (NM)								
Model / BAR	1.0	2.0	3.0	4.0	5.0	5.5	6.0	7.0
ECA-05	12.9	25.9	38.8	51.8	64.7	71.2	77.6	90.6
ECA-07	27.6	55.2	82.7	110.3	137.9	151.7	165.5	193.1
ECA-10	55.7	111.5	167.2	222.9	278.7	306.6	334.4	390.2
ECA-12	123.6	247.3	370.9	494.5	618.1	679.9	741.8	865.4
ECA-14	215.7	431.4	647.1	862.8	1,078.5	1,186.4	1,294.2	1,509.9
ECA-16	474.0	948.0	1,422.0	1,896.0	2,370.0	2,607.0	2,844.0	3,318.0

Fail-Safe (Minimum Torque At End-Of-Stroke) (NM)								
Model / BAR	1.0	2.0	3.0	4.0	5.0	5.5	6.0	7.0
ECA-05	8.4	16.9	25.3	33.7	42.2	46.4	50.6	59.0
ECA-07	18.3	36.7	55.0	73.4	91.7	100.9	110.0	128.4
ECA-10	36.9	73.8	110.7	147.5	184.4	202.9	221.3	258.2
ECA-12	83.5	167.0	250.5	334.0	417.4	459.2	500.9	584.4
ECA-14	145.6	291.2	436.8	582.4	728.0	800.8	873.6	1,019.2
ECA-16	317.6	635.1	952.7	1,270.2	1,587.8	1,746.5	1,905.3	2,222.9

## Imperial

Double-Acting (In-Lb)									
Model / PSI	20	30	40	50	60	70	80	90	100
ECA-05	158	237	316	395	474	553	632	711	790
ECA-07	337	505	673	842	1,010	1,178	1,347	1,515	1,683
ECA-10	680	1,020	1,361	1,701	2,041	2,381	2,721	3,061	3,401
ECA-12	1,509	2,263	3,018	3,772	4,527	5,281	6,036	6,790	7,545
ECA-14	2,633	3,949	5,265	6,582	7,898	9,215	10,531	11,847	13,164
ECA-16	5,785	8,678	11,571	14,463	17,356	20,249	23,141	26,034	28,927

Fail-Safe (Minimum Torque At End-Of-Stroke) (In-Lb)									
Model / PSI	20	30	40	50	60	70	80	90	100
ECA-05	103	154	206	257	309	360	412	463	514
ECA-07	224	336	448	560	672	783	895	1,007	1,119
ECA-10	450	675	900	1,126	1,351	1,576	1,801	2,026	2,251
ECA-12	1,019	1,529	2,038	2,548	3,057	3,567	4,076	4,586	5,095
ECA-14	1,777	2,666	3,554	4,443	5,331	6,220	7,108	7,997	8,886
ECA-16	3,876	5,814	7,752	9,690	11,627	13,565	15,503	17,441	19,379

**Note:** Published torque output are actual output torque values and do not contain safety factor.

# ECA Technical Data (F and IC Series)

			Model					
	Note	Unit	ECA-05	ECA-07	ECA-10	ECA-12	ECA-14	ECA-16
Weight		Kg	2.8	5.8	10.5	22.2	39.1	75.6
		Lb	6.1	12.7	23.1	48.9	86.1	166.7
Total air volume	DA or FS	Litre	0.300	0.600	1.200	2.400	4.800	9.600
90° stroke with dead volume	CCW or CW	In <sup>3</sup>	18.3	36.6	73.2	146.5	292.9	585.8
	DA and FS	Litre	0.600	1.200	2.400	4.800	9.600	19.200
	CCW and CW	In <sup>3</sup>	36.6	73.2	146.5	292.9	585.8	1171.7
Stroke time								
At 5.5 bar or 80 psi, no load	DA (open / close)	Sec	0.36/0.36	0.45/0.45	0.59/0.59	0.75/0.75	1.34/1.34	3.30/3.30
	FS (open / close)	Sec	0.36/0.39	0.45/0.47	0.59/0.60	0.75/0.84	1.34/1.47	3.30/3.41

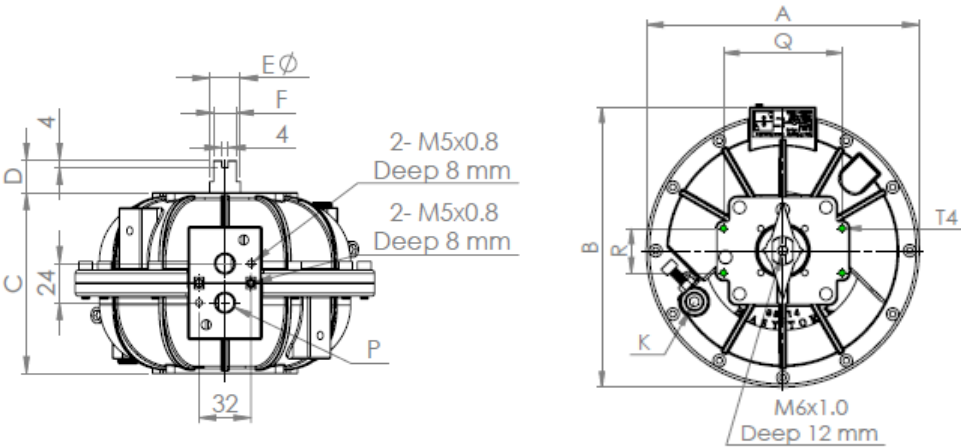
Technical Specifications	
Travel adjustment	Standard stopper: 80° - 100° Extended stopper: 50° - 100°
Temperature range	Modified CR Neoprene(standard temp): -40°C to 120°C (-40°F to 248°F)
Pressure rating	2 -10 bar (30 - 150 psi)
Operating medium (standard)	Must use inert gases

Mounting Specifications	
Actuator to valve	Mounting standard per EN ISO5211 (DIN3337 optional) and traditional mounting
Drive components	Parallel or diagonal square head per EN ISO5211
Accessories	NAMUR VDI/VDE 3845

Standard and Specifications Complied	
ISO 5211:2001 (E)	Industrial valves – part-turn actuator attachments
Namur VDI/VDE 3845	Interface between valves, actuators and auxiliary equipments
CEN/TC 69	Basic requirements for pneumatic part-turn actuators on industrial valves
CE Marking	Machinery Directive 2006/42/EC
MESC SPE 77/211	Valve stem and stem adaptor dimensions and bracket drilling patterns for actuated quarter-turn valves
ANSI/AWWA C541-08	Hydraulic and pneumatic cylinders and vane-type actuators for valves and slide gates



# ECA and Auxiliary Interface Dimensions (F and IC Series)



**Note:** Figures in drawings in mm.

Imperial

Dimensions (inch)	Model					
	ECA-05	ECA-07	ECA-10	ECA-12	ECA-14	ECA-16
<b>Actuator Dimensions</b>						
A	7.24	9.41	11.61	15.20	18.50	23.03
B	7.44	9.61	11.81	15.31	18.70	23.21
C	4.41	5.71	7.17	9.37	11.26	14.08
F	0.55	0.55	0.94	0.94	0.94	0.94
E Ø	0.75	0.75	1.30	1.30	1.30	1.30
P	1/4-18NPT	1/4-18NPT	1/4-18NPT	1/4-18NPT	1/4-18NPT	
K	1/4-18NPT	1/4-18NPT	1/4-18NPT	3/8-18NPT	3/8-18NPT	3/8-18NPT
Standard Stop Bolt & Nut	M6x35mm	M8x45mm	M8x50mm	M12x60mm	M12x70mm	M16x100mm

**Actuator Dimensions of Accessories Flange**

D	0.79	0.79	0.79	1.18	1.18	1.18
R	1.18	1.18	1.18	1.18	1.18	1.18
Q	3.15	3.15	3.15	5.12	5.12	5.12
T4	4x10-24UNC Deep 0.31	4x10-24UNC Deep 0.31	4x10-24UNC Deep 0.31	4x10-24UNC Deep 0.31	4x10-24UNC Deep 0.31	4x10-24UNC Deep 0.31

Metric

Dimensions (mm)	Model					
	ECA-05	ECA-07	ECA-10	ECA-12	ECA-14	ECA-16
<b>Actuator Dimensions</b>						
A	184	239	295	386	470	585
B	189	244	300	389	475	590
C	112	145	182	238	286	358
F	14	14	24	24	24	24
E Ø	19	19	33	33	33	33
P	1/4-19 BSPP	1/4-19 BSPP	1/4-19 BSPP	1/4-19 BSPP	1/4-19 BSPP	
K	1/4-19 BSPP	1/4-19 BSPP	1/4-19 BSPP	3/8-19 BSPP	3/8-19 BSPP	3/8-19 BSPP
Standard Stop Bolt & Nut	M6x35mm	M8x45mm	M8x50mm	M12x60mm	M12x70mm	M16x100mm

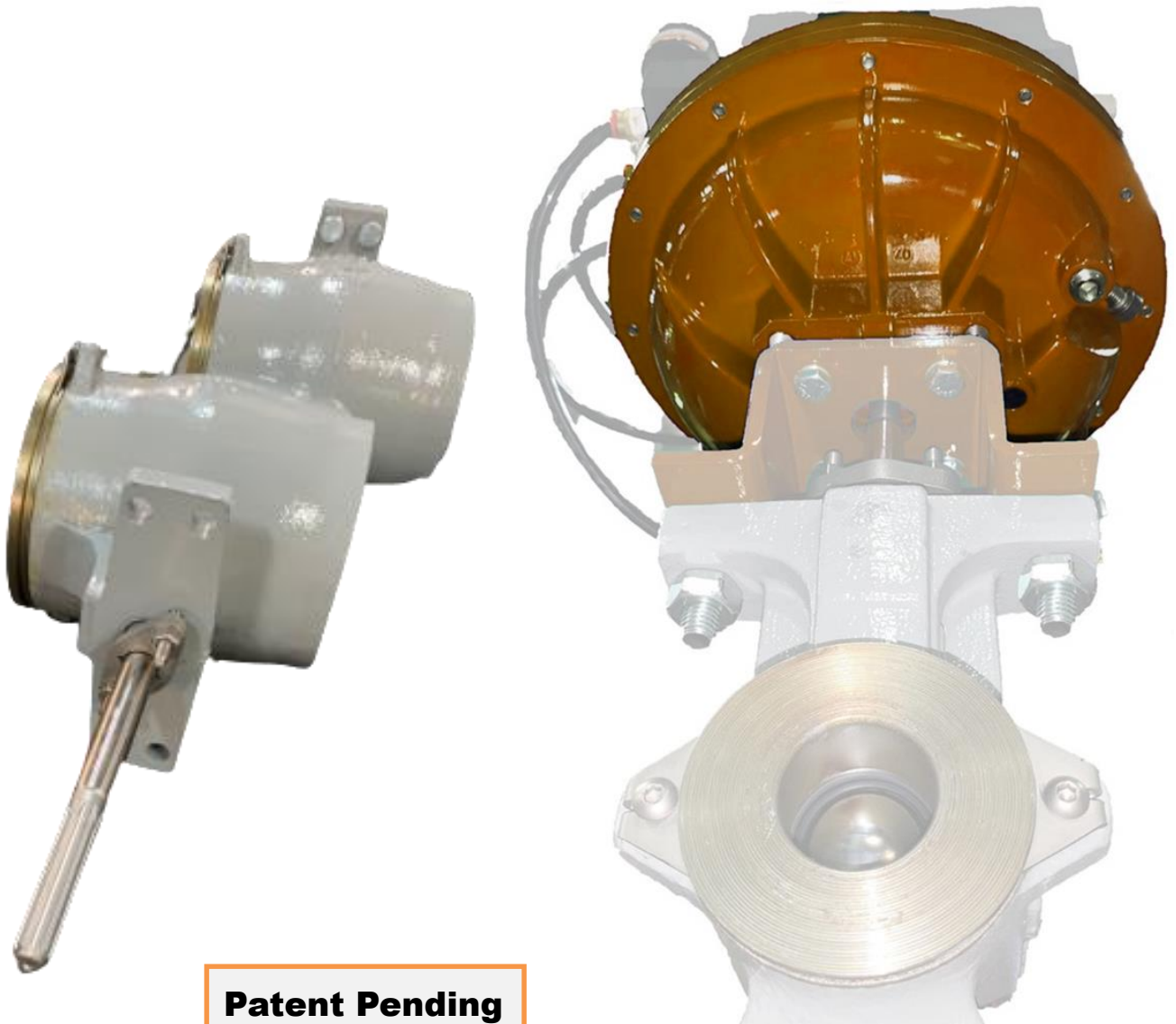
**Actuator Dimensions of Accessories Flange**

D	20	20	20	30	30	30
R	30	30	30	30	30	30
Q	80	80	80	130	130	130
T4	4-M5x0.8 Deep 8	4-M5x0.8 Deep 8	4-M5x0.8 Deep 8	4-M5x0.8 Deep 8	4-M5x0.8 Deep 8	4-M5x0.8 Deep 8



## ECA F Series

(For Valves With Splined Shafts)



**Patent Pending**

Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Fisher, or any other Emerson Process Management Company

# Easytork ECA F Series Overview

## Easytork benefits that improve your OPERATIONS

### Compatible with most major control valve brands

The ECA is the only actuator in the market that couples directly with a spline shaft valve stem without the need for any motion transfer mechanism.

**F series purpose:  
Valves with spline shaft**



Rotary-to-rotary



Reciprocated spline stem as part of vane



### Hassle-free upgrade

Assembling actuator to a control valve with a splined shaft is as easy as align, drop and bolt.

Align

Drop

Bolt



***“Installation is so easy that it will take me longer to disassemble and hammer a valve body out of an old Fisher 1066 actuator than it does to mount the ECA, fail block, and Logix520MD positioner.”***

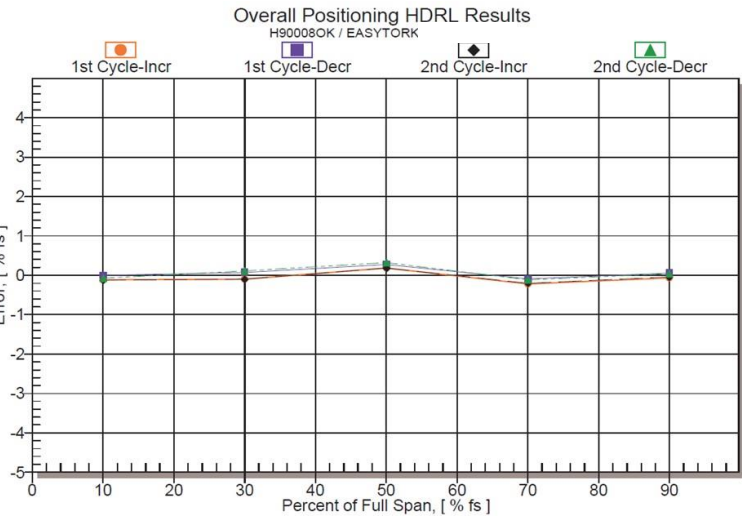
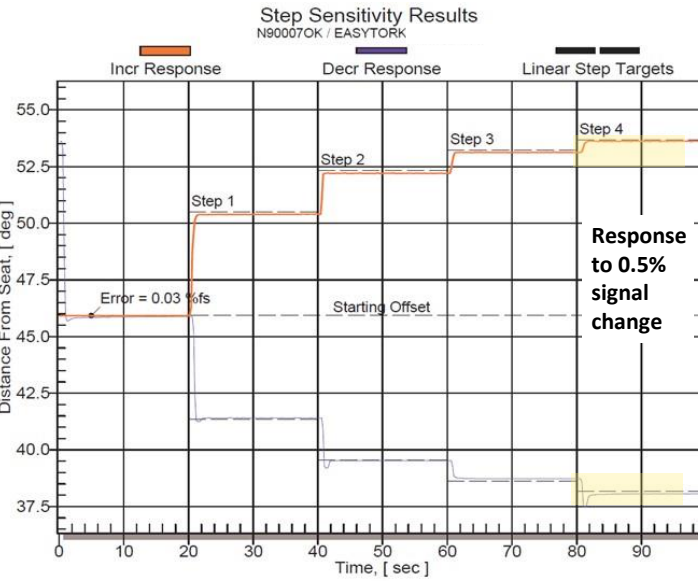
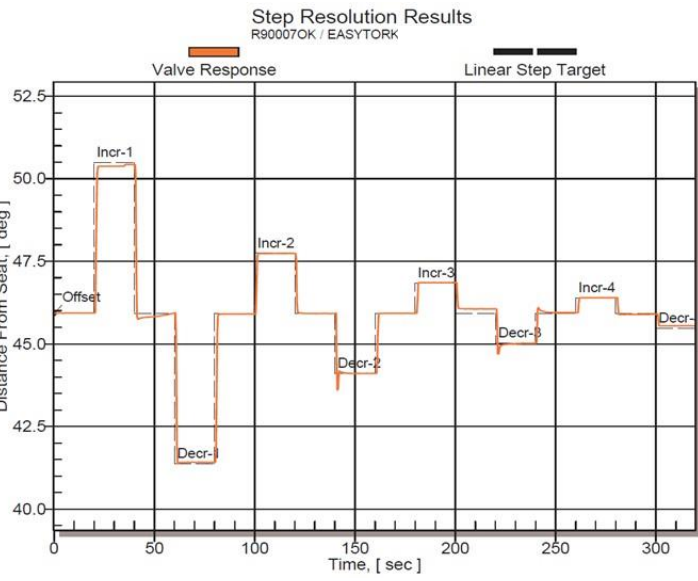
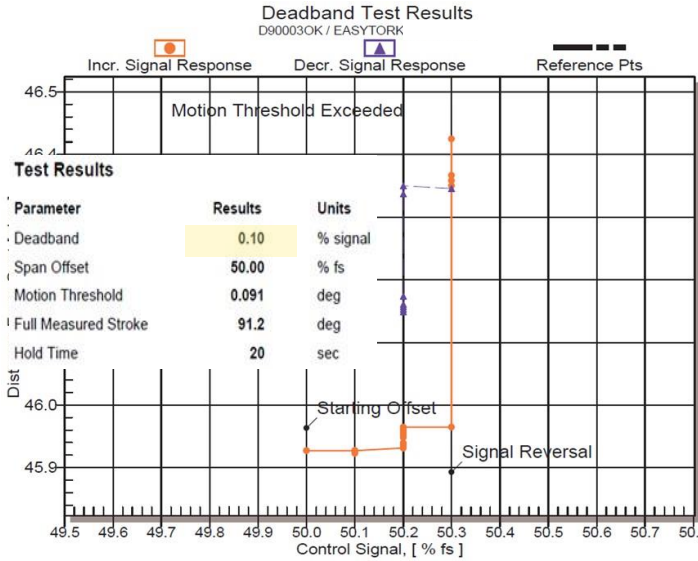
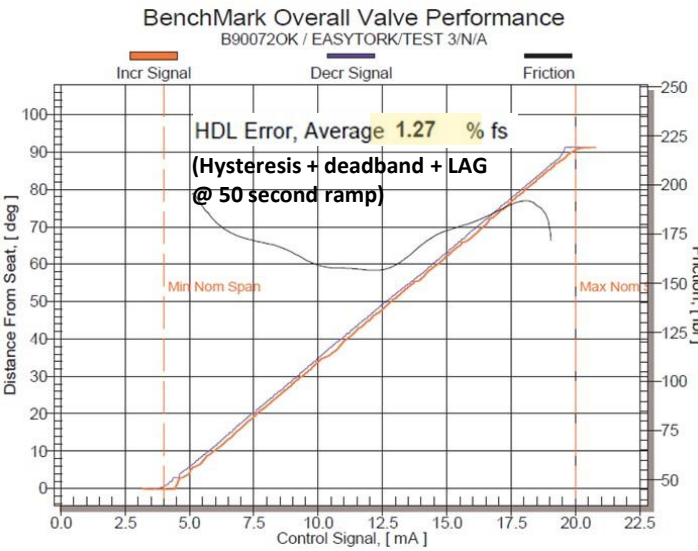
**– Customer testimonial**

Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Flowserve, Fisher, or any other Emerson Process Management Company



# ECA F Series Test Results With BenchMark Black Diamond Equipment

ECA has Equal or Better Performance Than Spring and Diaphragm For Control Valves



## Positioning System HDRL Results

Parameter	Results	Units
Hysteresis + Db, Avg	0.12	% fs
Hysteresis + Db, Max	0.21	% fs
Repeatability, Avg	0.03	% fs
Repeatability, Max	0.07	% fs
Linearity	0.24	% fs



Actuator to Valve Sizing and Order Code

Imperial

Examples: Compatible 3rd party						Max Allowed PSI to ECA					
Valve Model & Size (Note 2)						(In Either Double-Acting Or Fail-Safe Setup)					
Valve	V150 /	8580	8560	8560	Control Disk						
Valve	V200 /	CL150	CL	CL	CL150						
Shaft Size	V300	CL300	150	300	CL300	ECA-05	ECA-07	ECA-10	ECA-12	ECA-14	ECA-16
1/2"	1"	2"	3"		2"	60 psi	27 psi	Available actuators highlighted in grey based on valve shaft size			
5/8" x 1/2" (Note 1)	1 1/2" 2"					60 psi	27 psi				
5/8"	1 1/2" 2"	3"	4"	3"	3"		65 psi				
3/4"	3" 4"	4"	6"	4"	4"		115 psi	55 psi			
1"	6"	6"	8"	6"	6"		150 psi	110 psi	50 psi		
1-1/4"	8" 10"	8" 10"	10" 10"	8" 10"	8" 10"			150 psi	120 psi	68 psi	
1-1/2"	12" 12" 14"	12" 12" 14"	10" 10" 12"	10" 10" 12"	12" 12" 12"				150 psi	85 psi	37 psi
1-3/4"	14" 16" 18"	16" 16" 18"	12" 12" 12"	12" 12" 12"	12" 12" 12"					150 psi	75 psi
2"	16" 16" 20"	20" 20" 20"								150 psi	75 psi
2-1/8"	16" 16" 20"	20" 20" 20"								150 psi	150 psi
2-1/2"	20" 20" 24"	24" 24" 24"									150 psi

Max Allowable Air Pressure

For the following valve series, regardless of double-acting or fail-safe set up, set pressure regulator to below or equal to published pressure in accordance to graph on the left to avoid exceeding valve MAST.

Note (1): 5/8" shaft with 1/2" shaft spline.

Note (2): Based on publicly available data. All dimensions to be verified by customer prior to purchase confirmation. Contact Easytork for other valve series and max air supply.

Simplified order code

Order code would provide unit to drop in place regardless of valve model or valve size; only information needed is shaft size and ECA size. Package includes actuator and bracket / yoke.

ECA F Series Ordering Codes

Product Type	Model Number	Valve Stem / Shaft Diameter		Actuator Attributes		
		Valve Stem	Valve Shaft Diameter	Thread	ECA Material (Corrosion Rating)	Seal (Temp. Rating)
ECA	X	X	X	X	X	X
ECA: Easytork Control Actuator	05: 05 series 07: 07 series 10: 10 series 12: 12 series 14: 14 series 16: 16 series	F: Spline Shaft	1/2: 1/2" shaft diameter 5/8 x 1/2: 5/8" shaft diameter with 1/2" spline diameter 5/8: 5/8" shaft diameter 3/4: 3/4" shaft diameter 1: 1" shaft diameter 1 1/4: 1-1/4" shaft diameter 1 1/2: 1-1/2" shaft diameter 1 3/4: 1-3/4" shaft diameter 2: 2" shaft diameter	1: Imperial 2: Metric	1: Standard version	1: CR for all temp rating (-40°C to 120°C or -40°F to 248°F)
Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Fisher, or any other Emerson Process Management Company						

Actuator to Valve Sizing and Order Code

Metric

Examples: Compatible 3rd party						Max Allowed PSI to ECA					
Valve Model & Size (Note 2)						(In Either Double-Acting Or Fail-Safe Setup)					
Valve	V150 /	8580	8560	8560	Control Disk						
Valve	V200 /	CL150	CL	CL	CL150						
Shaft Size	V300	CL300	150	300	CL300	ECA-05	ECA-07	ECA-10	ECA-12	ECA-14	ECA-16
1/2"	1"	2"	3"		2"	4.1 bar	1.9 bar	Available actuators highlighted in grey based on valve shaft size			
5/8" x 1/2" (Note 1)	1 1/2" 2"					4.1 bar	1.9 bar				
5/8"	1 1/2" 2"	3"	4"	3"	3"		4.5 bar				
3/4"	3" 4"	4"	6"	4"	4"		7.9 bar	3.8 bar			
1"	6"	6"	8"	6"	6"		10.3 bar	7.6 bar	3.4 bar		
1-1/4"	8" 10"	8" 10"	10"	8"	8" 10"			10.3 bar	8.3 bar	4.7 bar	
1-1/2"	12"	12" 14"	12"	10"	12"				10.3 bar	5.9 bar	2.6 bar
1-3/4"	14"	16" 18"		12"						10.3 bar	5.2 bar
2"	16"	20"								10.3 bar	5.2 bar
2-1/8"	16"									10.3 bar	10.3 bar
2-1/2"	20"	24"									10.3 bar

Max Allowable Air Pressure

For the following valve series, regardless of double-acting or fail-safe set up, set pressure regulator to below or equal to published pressure in accordance to graph on the left to avoid exceeding valve MAST.

Note (1): 5/8" shaft with 1/2" shaft spline.

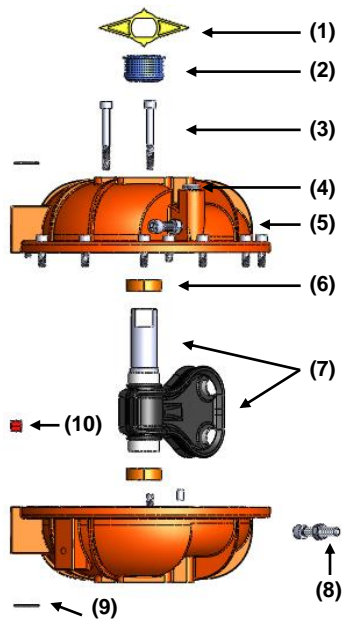
Note (2): Based on publicly available data. All dimensions to be verified by customer prior to purchase confirmation. Contact Easytork for other valve series and max air supply.

Simplified order code

Order code would provide unit to drop in place regardless of valve model or valve size; only information needed is shaft size and ECA size. Package includes actuator and bracket / yoke.

ECA F Series Ordering Codes

Product Type	Model Number	Valve Stem / Shaft Diameter		Actuator Attributes		
		Valve Stem	Valve Shaft Diameter	Thread	ECA Material (Corrosion Rating)	Seal (Temp. Rating)
ECA	X	X	X	X	X	X
ECA: Easytork Control Actuator	05: 05 series 07: 07 series 10: 10 series 12: 12 series 14: 14 series 16: 16 series	F: Spline Shaft	1/2: 1/2" shaft diameter 5/8 x 1/2: 5/8" shaft diameter with 1/2" spline diameter 5/8: 5/8" shaft diameter 3/4: 3/4" shaft diameter 1: 1" shaft diameter 1 1/4: 1-1/4" shaft diameter 1 1/2: 1-1/2" shaft diameter 1 3/4: 1-3/4" shaft diameter 2: 2" shaft diameter	1: Imperial 2: Metric	1: Standard version	1: CR for all temp rating (-40°C to 120°C or -40°F to 248°F)
Easytork is the sole warrantor of this product and is NOT affiliated or endorsed by Fisher, or any other Emerson Process Management Company						



Ref No	Description	Standard Version	Quantity
1	Yellow position & degree indicator	NBR	1
2	Blue graduated ring	NBR	1
3	Connecting bolt & nut	Stainless steel	1 lot
4	Plug	Nickel-plated steel	1
5	Housing	Aluminum A383 / epoxy finish	2
6	Vane / shaft bearing	PTFE lined steel baked bronze bushing	2
7	Vane / shaft assembly*	Stainless Steel or NPS bonded with modified CR	1
8	Stopper bolt and nut set	Stainless steel	2
9	Tag plate*	Stainless steel	1
10	Locator insert*	Plastic	2

\* Items marked with an asterisk are included in repair kit.

About

We believe in selling “easy”. Easytork brings differentiating features and benefits to the process control industry through our focus on innovation and quality. Easytork has been awarded numerous awards including:

2013 – Arch Grants Recipient

2015 – Accelerate St. Louis

2017 – Frost & Sullivan Product Innovation Award

Global Headquarters

2505 Metro Blvd, Suite A / B  
Maryland Heights, MO 63043  
USA

Main Tel: +1-314-266-0670  
Main Fax: +1-314-222-7057  
info@easytork.com  
www.easytork.com



## ECA IC Series

(For Square , DD or Bore & Key Valve Stem)



**Patent Pending**



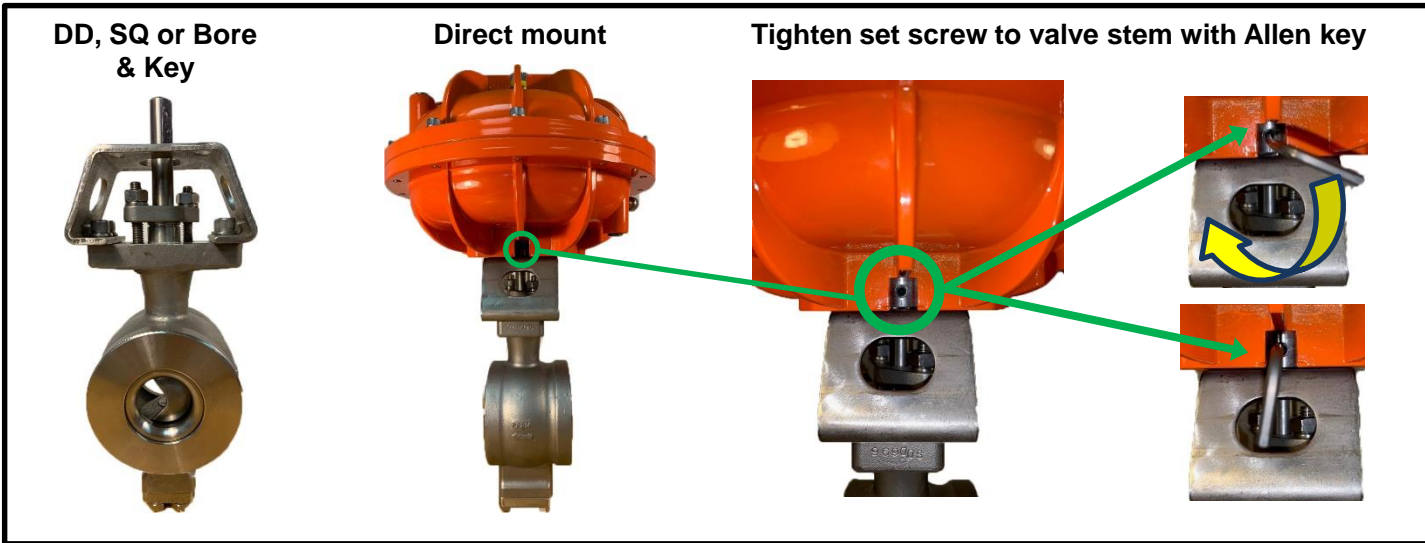
# Easytork ECA IC Series Overview

## Easytork benefits that improve your OPERATIONS

### Tight connection to valve with DD, square or bore & key shaft

Assembling actuator to a control valve with a valve is as easy as drop and tighten set screw.

*Assembling an ECA to a 2" segmented valve with double D shaft*



Patent Pending: Internal Clamp

## Easytork benefits that improve your SYSTEMS

### Control valve performance as good or better than valves with splined connection

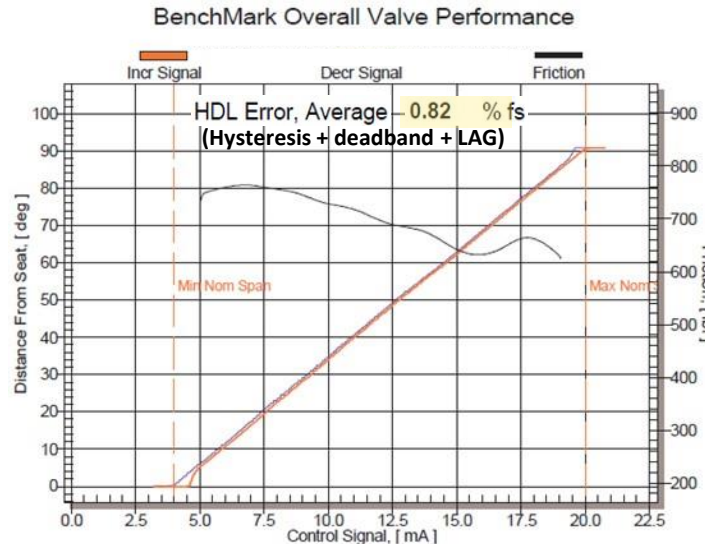
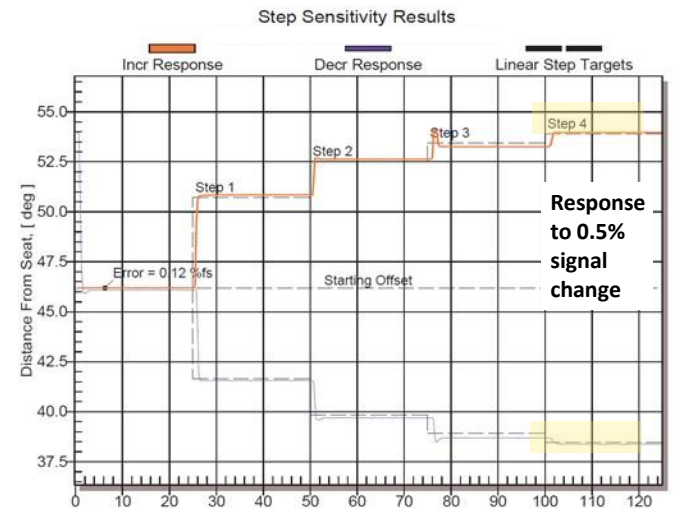
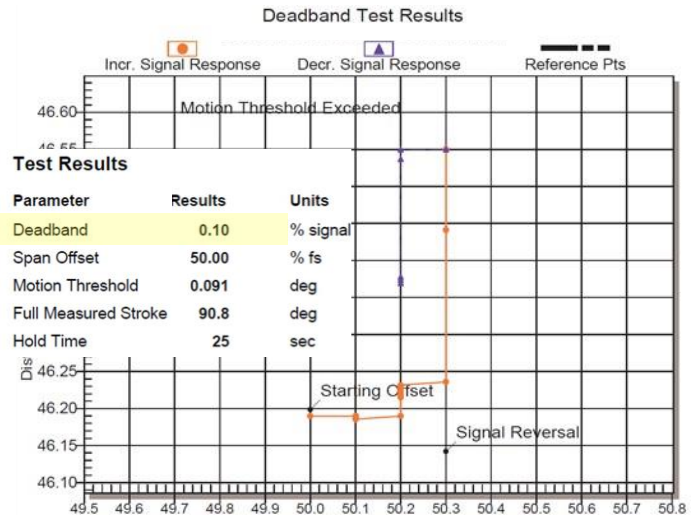
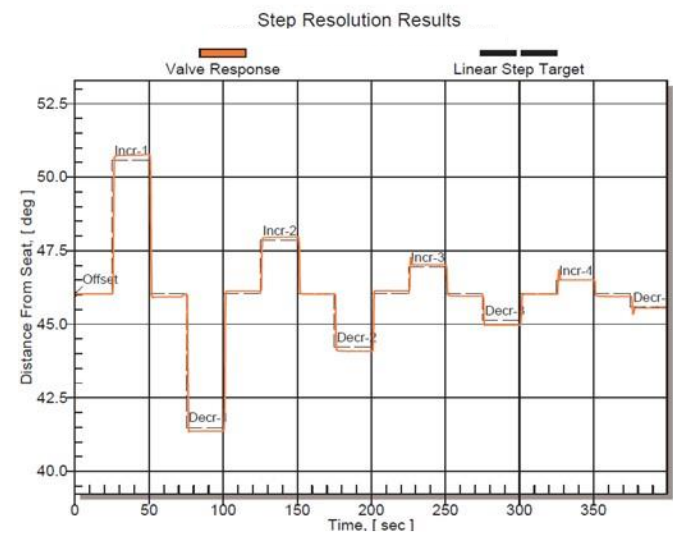
Gone are the days where spline-to-spline connection is the prerequisite for high end control valve results. Using the BenchMark control valve diagnostic system (comprehensive control valve test from positioner to valve stem), non-splined valves coupled with ECA IC exceeds or is equal to the performance of a spring-and-diaphragm with splined connection to valve.

### BenchMark Diagnostic Comparison Summary

	Rotary Control Valve Package		
	Easytork Any valve Sq., DD, or Bore & Key	Major Control Valve Brand (A) Bore & Key	Major Control Valve Brand (B) Spline Shaft
Actuator			
Valve			
Valve Shaft Design			
HDL Error, Average	0.82%	2.02%	1.38%
HDL Error, Max	1.51%	3.03%	1.83%
0.5% Signal Change Valve Response	Yes	No	Yes

# ECA IC Series Test Results With BenchMark Black Diamond Equipment

ECA has Equal or Better Performance Than Spring and Diaphragm For Control Valves



Testing with 4" segmented valve, all tests data are from positioner to valve stem.

## Positioning System HDRL Results

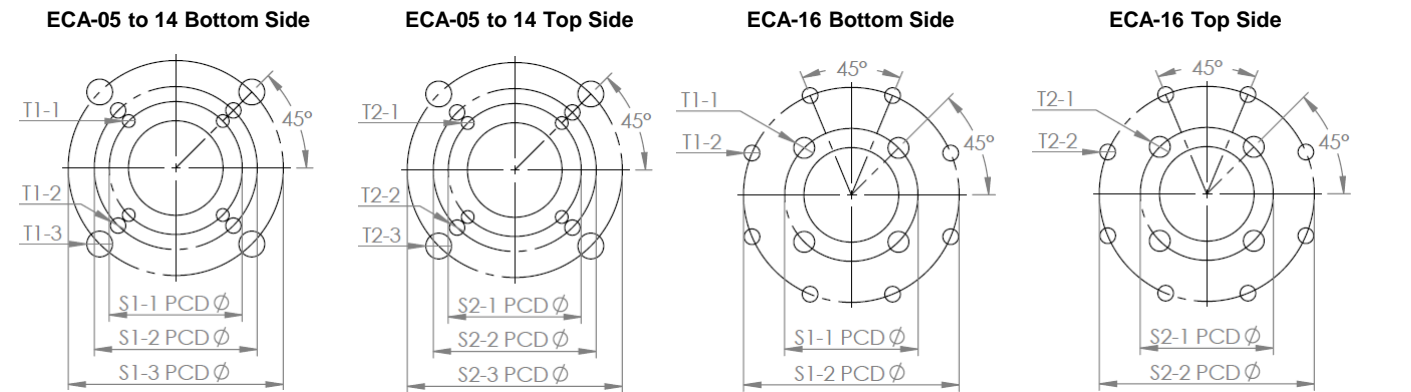
Parameter	Results	Units
Hysteresis + Db, Avg	0.16	% fs
Hysteresis + Db, Max	0.31	% fs
Repeatability, Avg	0.08	% fs
Repeatability, Max	0.18	% fs
Linearity	0.41	% fs

# ECA IC Series Control Valve Interface Dimensions

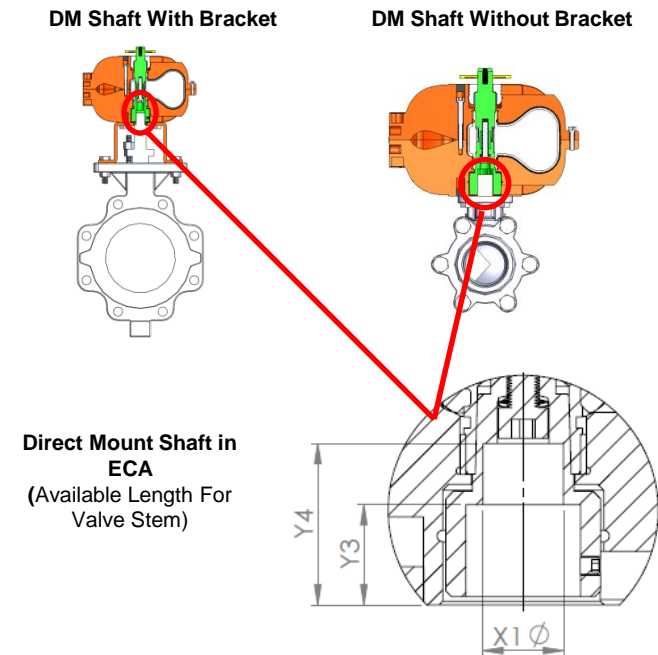
## ECA Control Valve and Auxiliary Interface Summary

Actuator Size	Valve Mounting														Auxiliary Mounting		
	Flange Type Available											Available Shaft For Valve Stem				VDI/VDE 3845	NAMUR
	ISO								Non ISO/Keystone			Bore &					
	F04	F05	F07	F10	F12	F14	F16	F25	3.25"	5.00"	6.50"	SQ	DD	Key	Spline		
ECA-05	✓	✓	✓						✓			✓	✓	✓	✓	✓	✓
ECA-07		✓	✓	✓					✓			✓	✓	✓	✓	✓	✓
ECA-10			✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓
ECA-12 (Imp)				✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
ECA-12 (Metric)				✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
ECA-14 (Imp)					✓		✓			✓	✓	✓	✓	✓	✓	✓	✓
ECA-14 (Metric)					✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
ECA-16							✓	✓				✓	✓	✓	✓	✓	✓

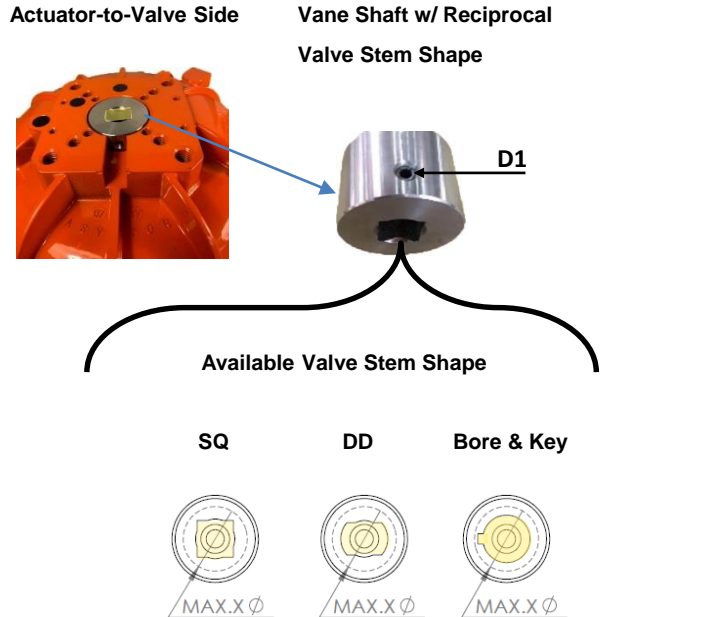
### Flange Type (ISO Compliant and Traditional Mounting Available)



### Shafts (Shafts Can Be Indexed Every 45°)



### Actuator Shaft With Reciprocal Valve Stem Geometry



**Note 1.** Y4 is the max depth for valve shaft with max shaft diameter per X1Ø.

# ECA IC Series Valve Interface Dimensions

(Imperial)

Dimensions (inch)	Model					
	ECA-IC 05	ECA-IC 07	ECA-IC 10	ECA-IC 12	ECA-IC 14	ECA-IC 16

Flange Type Available (ISO5211 Compliant)

S1-1 PCD Ø	1.97 / F05	1.97 / F05	2.76 / F07	4.02 / F10	4.92 / F12	6.50 / F16
S1-2 PCD Ø	2.76 / F07	2.76 / F07	4.02 / F10	4.92 / F12	6.50 / F16	10.0 / F25
S1-3 PCD Ø	-	4.02 / F10	4.92 / F12	6.50 / F16	-	-
S2-1 PCD Ø	1.65 / F04	3.25	3.25	3.25	5.00	6.50 / F16
S2-2 PCD Ø	3.25	-	5.00	5.00	6.50 / F16	10.0 / F25
S2-3 PCD Ø				6.50 / F16	-	
T1-1	4x1/4-20UNC Deep 0.35	4x1/4-20UNC Deep 0.35	4x5/16-18UNC Deep 0.47	4x3/8-16UNC Deep0.59	4x1/2-13UNC Deep0.71	4x3/4-10UNC Deep 1.18
T1-2	4x5/16-18UNC Deep 0.47	4x5/16-18UNC Deep 0.47	4x3/8-16UNC Deep 0.59	4x1/2-13UNC Deep0.71	4x3/4-10UNC Deep1.18	8x5/8-11UNC Deep 0.94
T1-3	-	4x3/8-16UNC Deep 0.59	4x1/2-13UNC Deep 0.71	4x3/4-10UNC Deep1.18	-	-
T2-1	4x10-24UNC Deep 0.31	4x3/8-16UNC Deep 0.59	4x3/8-16UNC Deep 0.59	4x3/8-16UNC Deep0.59	4x1/2-13UNC Deep0.71	4x3/4-10UNC Deep 1.18
T2-2	4x3/8-16UNC Deep 0.59	-	4x1/2-13UNC Deep 0.71	4x1/2-13UNC Deep0.71	4x3/4-10UNC Deep1.18	8x5/8-11UNC Deep 0.94
T2-3	-	-	-	4x3/4-10UNC Deep1.18	-	-

Shaft To Valve Stem

X1 Ø	0.63	0.83	1.13	1.40	1.69	2.26
------	------	------	------	------	------	------

Valve Stem Length Absorbable, If Valve Stem O.D. is >X1 Ø

Y3	0.84	1.05	1.26	1.61	2.05	2.64
----	------	------	------	------	------	------

Valve Stem Length Absorbable, If Valve Stem O.D. is <X1 Ø

Y4	1.35	1.81	2.07	3.06	3.50	4.29
----	------	------	------	------	------	------

D1	M5	M6	M6	M8	M10	M12
MAX.X Ø	0.94	1.18	1.65	2.17	2.87	3.74



# ECA IC Series Valve Interface Dimensions

(Metric)

Dimensions (mm)	Model					
	ECA-IC 05	ECA-IC 07	ECA-IC 10	ECA-IC 12	ECA-IC 14	ECA-IC 16

Flange Type Available (ISO5211 Compliant)

S1-1 PCD Ø	50.0 / F05	50.0 / F05	70.0 / F07	125.0 / F12	140.0 / F14	165.0 / F16
S1-2 PCD Ø	70.0 / F07	70.0 / F07	102.0 / F10	165.0 / F16	-	254.0 / F25
S1-3 PCD Ø	-	102.0 / F10	125.0 / F12	-	-	-
S2-1 PCD Ø	42.0 / F04	82.6	82.6	102.0 / F10	125.0 / F12	165.0 / F16
S2-2 PCD Ø	82.6	-	127.0	140.0 / F14	165.0 / F16	254.0 / F25
S2-3 PCD Ø						
T1-1	4-M6x1.0 Deep 9.0	4-M6x1.0 Deep 9.0	4-M8x1.25 Deep 12.0	4-M12x1.75 Deep18.0	4-M16x2.0 Deep 24.0	4-M20x2.5 Deep 30.0
T1-2	4-M8x1.25 Deep 12.0	4-M8x1.25 Deep 12.0	4-M10x1.5 Deep 15.0	4-M20x2.5 Deep30.0	-	8-M16x2 Deep 24.0
T1-3	-	4-M10x1.5 Deep 15.0	4-M12x1.75 Deep 18.0	-	-	-
T2-1	4-M5x0.8 Deep 8.0	4-M10x1.5 Deep 15.0	4-M10x1.5 Deep 15.0	4-M10x1.5 Deep 15.0	4-M12x1.75 Deep18.0	4-M20x2.5 Deep 30.0
T2-2	4-M10x1.5 Deep 15.0	-	4-M12x1.75 Deep 18.0	4-M16x2.0 Deep 24.0	4-M20x2.5 Deep30.0	8-M16x2 Deep 24.0
T2-3	-	-	-	-	-	-

Shaft To Valve Stem

X1 Ø	16.0	21.0	28.7	35.5	43.0	57.5
------	------	------	------	------	------	------

Valve Stem Length Absorbable, If Valve Stem O.D. is >X1 Ø

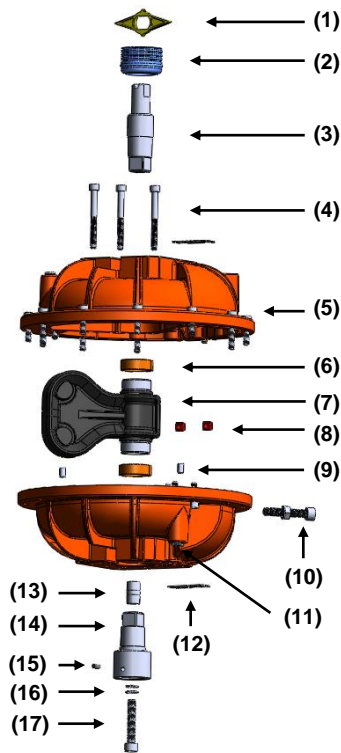
Y3	21.3	26.6	32.0	40.8	52.0	67.0
----	------	------	------	------	------	------

Valve Stem Length Absorbable, If Valve Stem O.D. is <X1 Ø

Y4	34.3	46.0	52.5	77.8	89.0	109.0
----	------	------	------	------	------	-------

D1	M5	M6	M6	M8	M10	M12
MAX.X Ø	24.0	30.0	42.0	55.0	73.0	95.0

# ECA IC Series Bill of Material

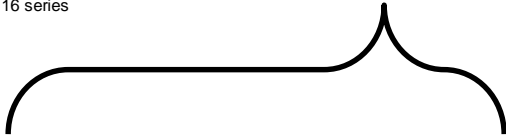


Ref No	Description	Standard Version	Quantity
1	Yellow position indicator	NBR	1
2	Blue cavity filler ring	NBR	1
3	Upper shaft	Nickel-plated steel	1
4	Connecting bolt & nut	Stainless steel	1 lot
5	Housing	Aluminum A383/epoxy finish	2
6	Vane shaft bearing	PTFE lined steel baked bushing	2
7	Vane/shaft assembly	SS or NPS bonded with modified CR	1
8	Locator insert	Plastic	2
9	Location pin	Mild steel	2
10	Stopper bolt & nut set	Stainless steel	2
11	Plug	Nickel plate steel	1 lot
12	Tag plate	Stainless steel	1
13	Shafts compression ferrule	Stainless steel	1
14	Lower shaft	Nickel plated steel	1
15	Set screw	Nickel plated steel	1
16	Belleville washer	High tension steel	2
17	Shaft connect bolt	Stainless steel	1

# ECA IC Series Ordering Codes

Product Type	Model Number	Valve Stem / Shaft Diameter		Actuator Attributes		
		Valve Stem	Valve Stem Dimension	Thread	ECA Material (Corrosion Rating)	Seal (Temp. Rating)

<b>ECA</b>	-	<b>X</b>	-	<b>X</b>	-	<b>X</b>	-	<b>X</b>	<b>X</b>	-	<b>X</b>
<b>ECA:</b> Easytork Control Actuator	<b>05:</b> 05 series	<b>IC:</b> Internal Clamp	<b>Refer to Measurement Below</b>	<b>1:</b> Imperial	<b>1:</b> Standard version	<b>1:</b> CR for all temp rating (-40°C to 120°C or -40°F to 248°F)					
<b>07:</b> 07 series	<b>2:</b> Metric										
<b>10:</b> 10 series											
<b>12:</b> 12 series											
<b>14:</b> 14 series											
<b>16:</b> 16 series											



## Measurement

Measurement of Valve Stem

X

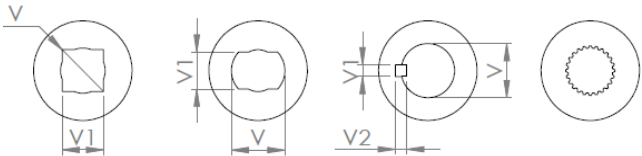
XX

If Sqr: Circle diameter (V) x flat (V1)      in: In inches  
If DD: Circle diameter (V) x flat (V1)      mm: In millimeter  
If Key: Circle diameter (V) x key (V1) x (V2)

Format:

0.00mm

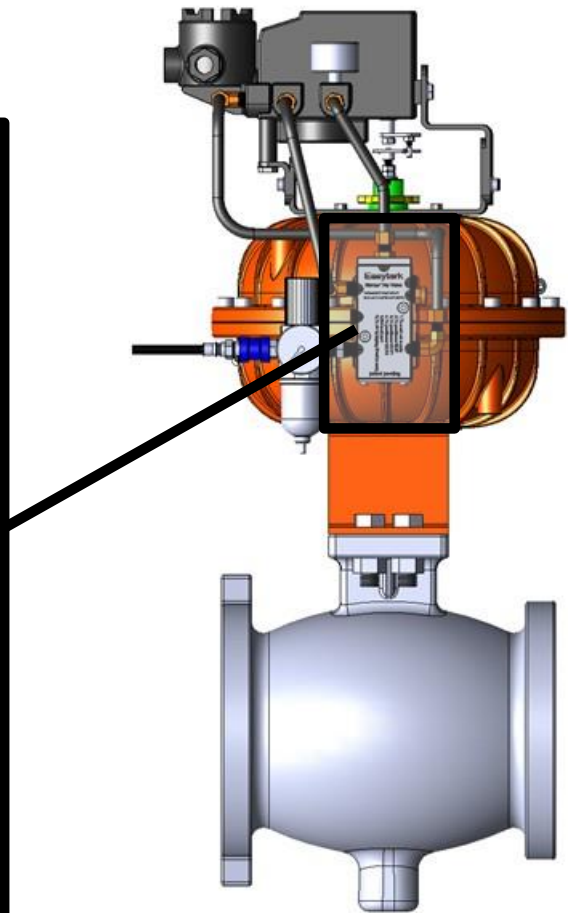
0.000in



Measurements V, V1 and V2 reflect valve stem dimensions. Shapes subsequently made with appropriate tolerance for valve stem interface.



## Control Valve Solutions NAMUR Trip Valve



Engineered for  
actuators with  
onboard reservoirs



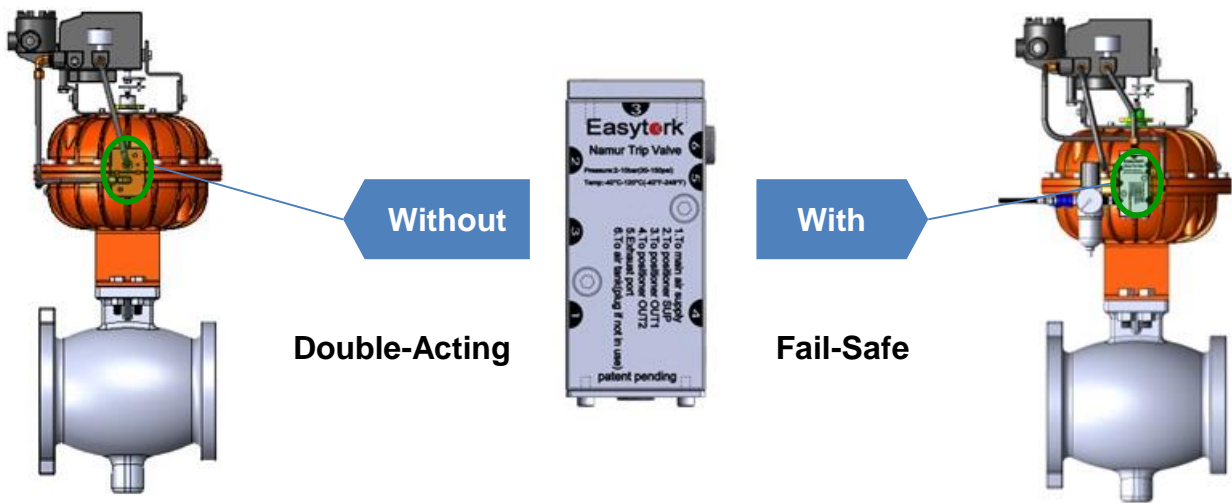
# Namur Trip Valve (“NTV”)

Easytork, or any Namur compatible actuator, can be fitted to the NTV. This setup allows a modulating actuator with a reservoir system and a double-acting positioner to fail-safe.

NTV benefits that improve your OPERATIONS

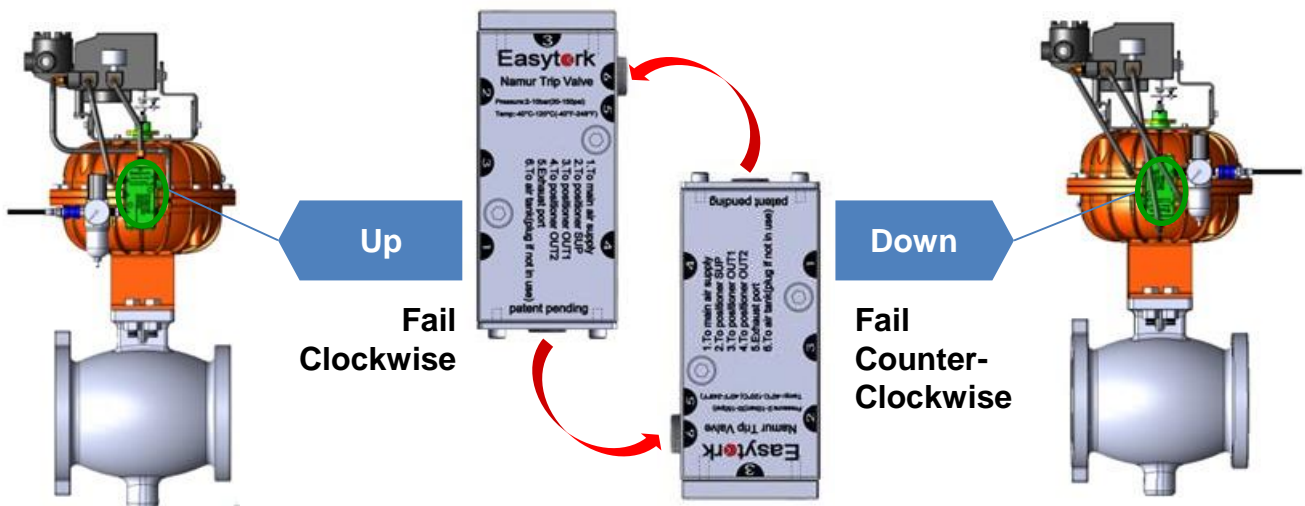
### Double-acting or fail-safe

Installing an NTV on an Easytork actuator allows the actuator to fail-safe.



### Fail clockwise or fail counter-clockwise

With loss of air, if the NTV is installed pointing up would cause the actuator to fail clockwise, or if the NTV is installed pointing down would cause the actuator to fail counter clockwise.



# Namur Trip Valve ("NTV")

## NTV benefits that improve your SYSTEMS

### Specification friendly – Universally compatible with any positioner

Any double-acting positioner can be used with the NTV to fail-safe an actuator with air reservoir.

### Simplified integration with air reservoir

NTV removes integration complexity between actuator, positioner and air reservoir. In most instances, set-up is significantly easier and more economical than spring-return actuators.

With Easytork's built-in air reservoirs, system integrator only needs to connect signal source to positioner and supply air to Easytork's system.



### *Legacy design:*

*Actuators with air reservoirs require an external check valve, trip valve, associated piping and fitting between those components with positioner, actuator, and air reservoir. Picture below shows such integration.*



*External air reservoir connected to actuator in picture below.*



*Complex ad-hoc piping and integration with various components to achieve fail-safe with external air reservoir.*

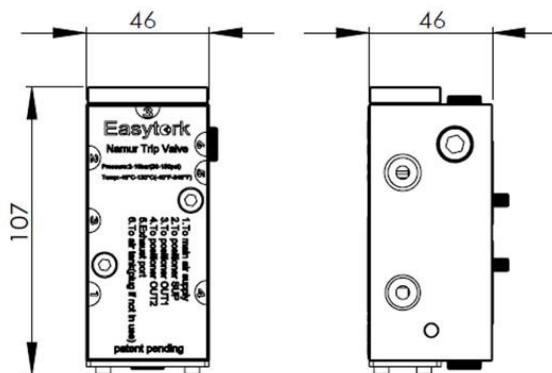
# NTV Specification

## NTV Technical Specification

<b>Operating pressure</b> <sup>(1)</sup>	2 - 10 bar (30 - 150 psi)
<b>Operating medium</b>	Air (dry or lubricated)
<b>Flow l/min (Cv)</b> Port size: 1/4"	1000 l/min (Cv = 1.0)
<b>Temperature range</b>	-20°C to 80°C (-4°F to 176°F)

**Note (1):** If required, consult factory for minimum pressure setting for over 2 bar (30 psi).

**Patents: NTV**  
Patent pending



(Figures in mm)

## Ordering Codes

## Easytork Namur Trip Valve

Prefix	Product Type		Model Number		NTV Attributes				
						Seal (Temp. Rating)		NTV Body Material (Corrosion Rating)	Thread
<b>C</b>	-	<b>PV</b>	-	<b>X</b>	-	<b>X</b>	-	<b>X</b>	<b>X</b>
<b>C:</b> Complete product		<b>PV:</b> Universal positioner valve		<b>1:</b> NTV - Easytork Namur trip valve		<b>1:</b> Standard seal (for all temp -20°C to 80°C or -4°F to 176°F)		<b>1:</b> Standard version <b>2:</b> Chemical resistant version	<b>1:</b> Imperial <b>2:</b> Metric

## About

We believe in selling “easy”. Easytork brings differentiating features and benefits to the process control industry through our focus on innovation and quality. Easytork has been awarded numerous awards including:

2013 – Arch Grants Recipient

2015 – Accelerate St. Louis

2017 – Frost & Sullivan Product Innovation Award

## Global Headquarters

2505 Metro Blvd, Suite A / B  
Maryland Heights, MO 63043  
USA

Main Tel: +1-314-266-0670

Main Fax: +1-314-222-7057

info@easytork.com

www.easytork.com



**Global Headquarters**

2505 Metro Blvd, Suite A / B  
Maryland Heights, MO 63043  
USA

Main Tel: +1-314-266-6880

[info@easytork.com](mailto:info@easytork.com)

[www.easytork.com](http://www.easytork.com)