Easytork

Easytork Vane Actuator

An End-User's 3 Year Journey To LOVING Easytork

Springless-Return Actuator

Compact, Efficient, Fast, and

Tough against BAD environment and air

FROST & SULLIVAN

2017 New Product Innovation Award

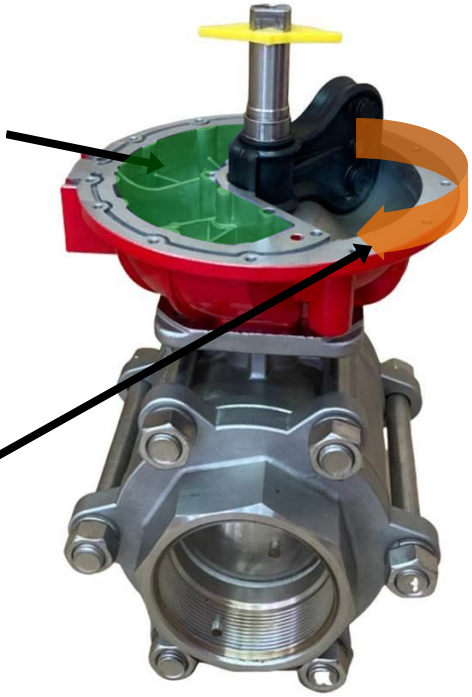
Easytork Vane Actuator (“EVA”) Built to Last

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.



Product reliability

One moving piece – pure rotary-to-rotary movement

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.

Design features that make your operations easier

Easy air reservoir integration

Traditional actuators with air reservoirs require costly external piping and pilot valves that make it more costly than spring-return actuators. Utilization of Easytork’s air reservoir system is easier and in most instances more economical than spring-return actuators.

Easy travel limit change

The standard travel stop adjustment is +/- 5° at CCW and CW +/- 5° for a total of 80° to 100°. Extended travel stop are also available for adjustments between 60° to 100°.

Heavy duty DU bushings

Result in a supported vane shaft and life long lubrication.

Patents: Pneumatic Actuator Structure
USA = 8,671,672
Other countries pending

Patents: Integral Unit & Zero Eccentricity
China = 2785284, Taiwan = M445076, other countries pending

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, and low friction

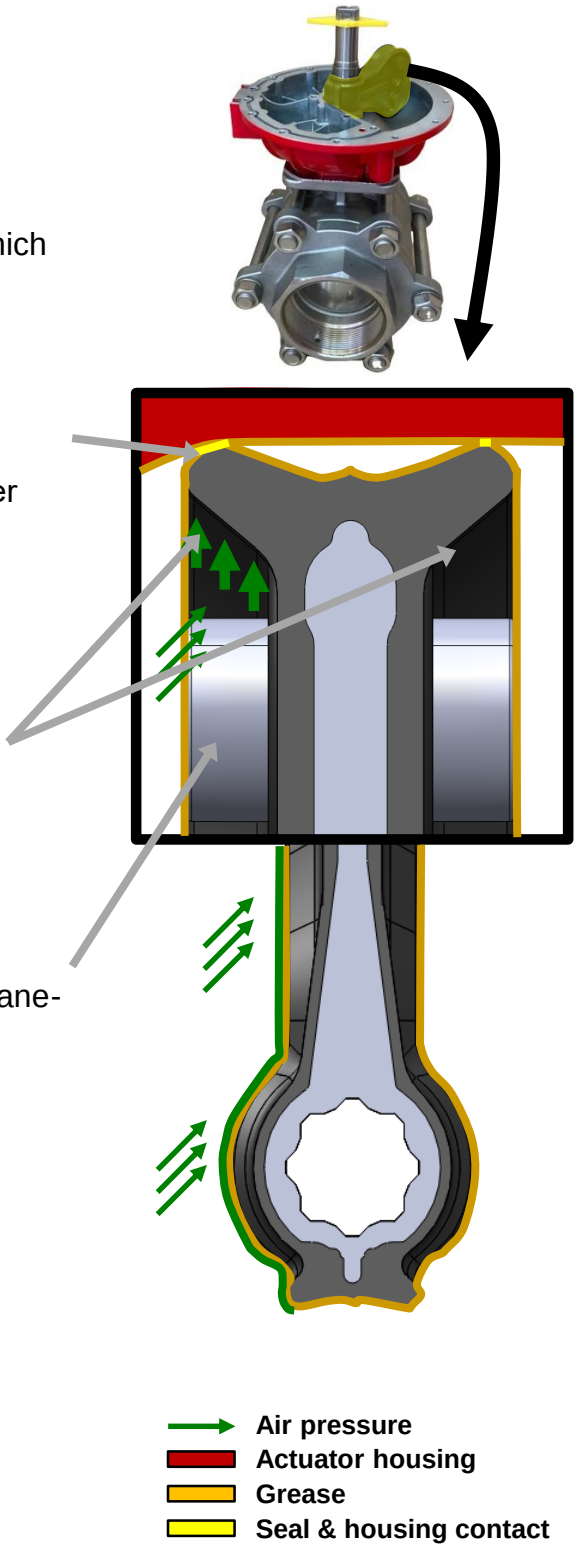
Vane has limited contact to housing body which results in low friction, smooth operation, and no “stick-slip” even after extended cycles. Ideal for both on-off and precision modulating controls.

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.

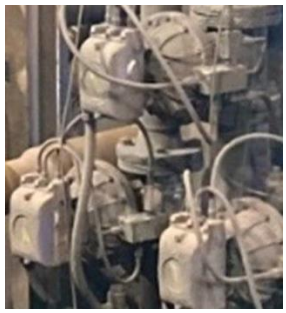
EVA Actuator's Unique Solutions and Benefits

Easytork benefits that improve your SYSTEMS

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.

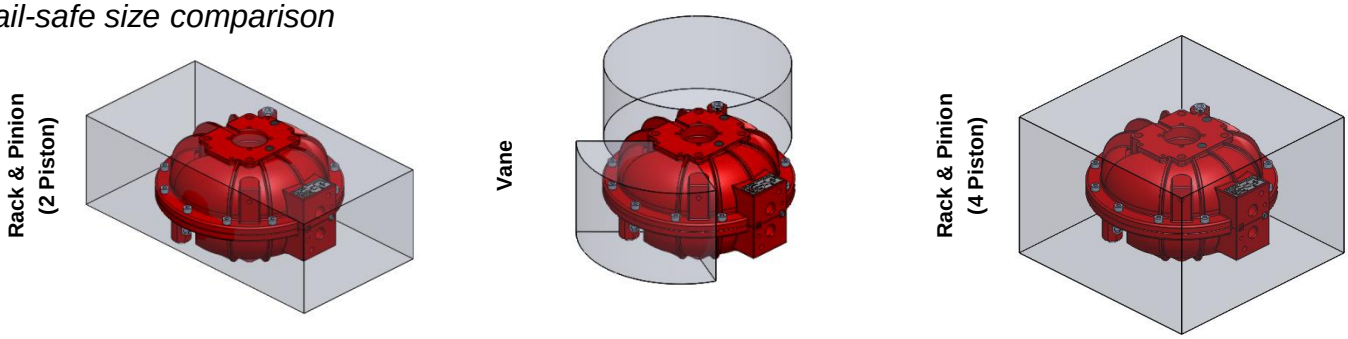
"Mining and milling present some of the harshest environments for automated valves. Instrument air is not guaranteed to be clean, dry and particle free. Environmental air can be of poor quality and laden with contaminants. Easytork actuators thrive in these conditions and have been used extensively in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



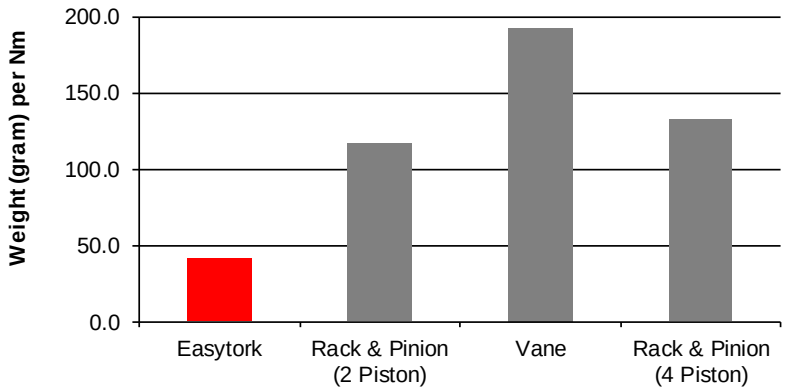
Smallest, lightest and one of the fastest actuator

Spring-return actuators are sized up to compensate for the resistance of the spring, while air reservoir fail-safe actuators do not have to account for spring resistance, as such EVA is the smallest, lightest, and one of the fastest actuator for any fail-safe application. It is also more compact than most actuator used in double-acting applications.

Fail-safe size comparison



Fail-safe weight comparison @ 5.5 BAR (80 PSI)



Automating 12" butterfly valve for fail-safe

49 lb (~22kg) EVA

or

120 lb (~54kg) spring-return rack & pinion

EVA Actuator's Unique Solutions and Benefits

Easytork benefits that improve your OPERATIONS; MRO's best ally

"We have one size mounted to a minimum of seven different valves quite easily, with minimum equipment required. So if you upgrade a plant and you wish to reduce your inventory and variability for your maintenance, you can do this with Easytork."
– Customer testimonial

Upgrade your valves and systems hassle-free (regardless of valve brand)

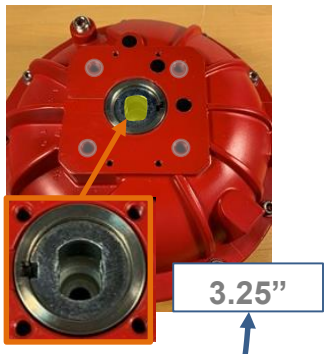
Easytork direct mounts to almost all valve brands, actuator accessories, or existing mounting hardware. With the most flange pattern (accessed by flipping actuator) coupled with adaptable drive insert, Easytork has more mounting combination than any actuator in the market. https://vimeo.com/416933488

Example shown EVA-0717, all combinations are from the same actuator

All combination on right can direct mount with actuator accessories

Sq. (parallel)

Sq. (diamond)



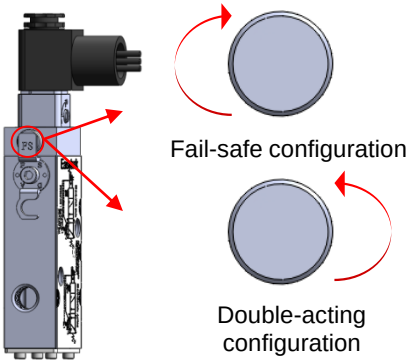
DD

Additional flange pattern by flipping actuator (top is now bottom, bottom is now top)

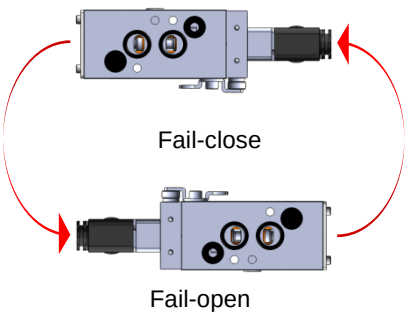
8 total Easytork SKUs for all your valve torque needs (up to a 24" butterfly valve)

1 Easytork SKU replaces at least 67x SKU. Easytork allows for easy conversion between double-acting or fail-safe (open or close).

Convert Actuator to FS or DA



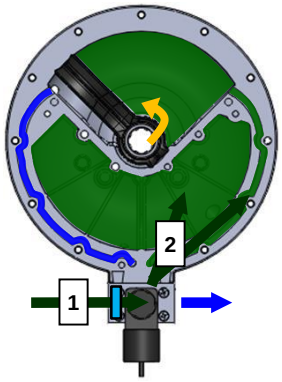
Convert Actuator to FC or FO



Direct Mounted Solenoid – Air Flow Path Principle

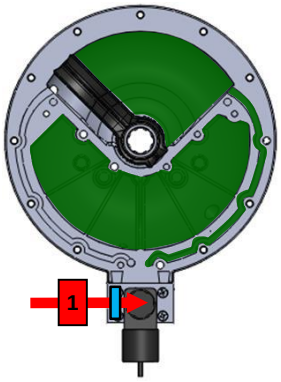
Double-acting with Easytork Solenoid Valve

Counter-Clockwise



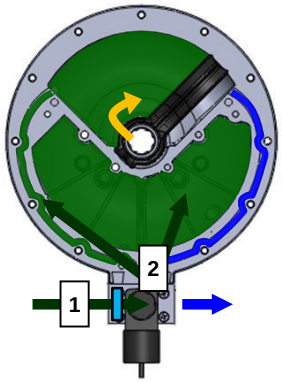
- With air supply
- With electricity

No Position Change



- Without air supply
- With electricity

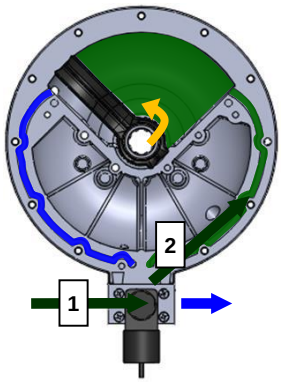
Clockwise



- With air supply
- Without electricity

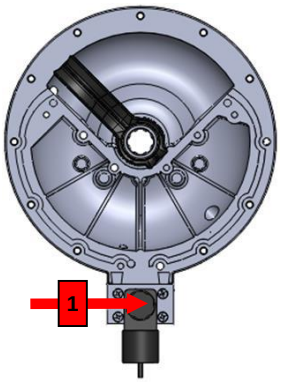
Double-acting with 5/2 solenoid valve

Counter-Clockwise



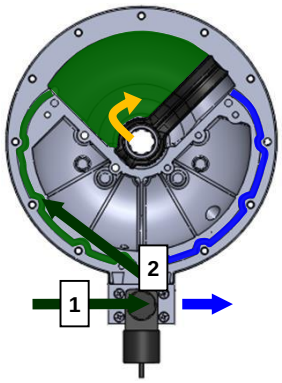
- With air supply
- With electricity

No Position Change



- Without air supply
- With electricity

Clockwise



- With air supply
- Without electricity

Patents: Air Flow Principle

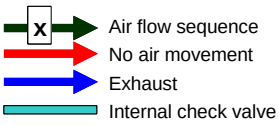
USA = 8,573,558

China = 2701057, 2323461, 2173061

Taiwan = M412285, M414523, M425196

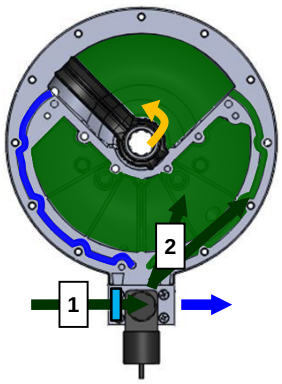
PCT Filing = PCT/CN2011/071074, PCT/CN2011/077685

Other countries pending



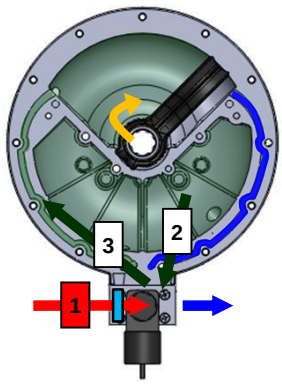
Fail-safe with Easytork Solenoid Valve

Counter-Clockwise

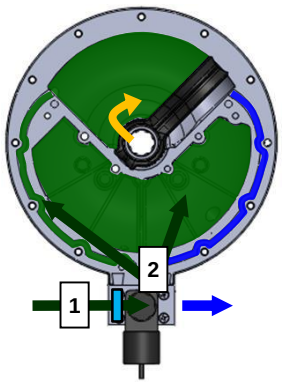


- With air supply
- With electricity

Clockwise



- Without air supply
- With electricity

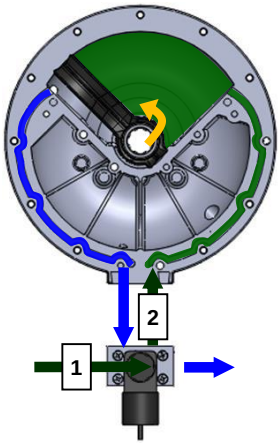


- With air supply
- Without electricity

Remote Mounted Solenoid – Air Flow Path Principle

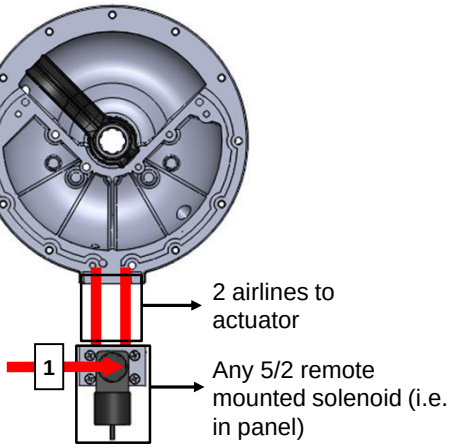
Remote mounted solenoid valve (5/2)

Counter-Clockwise



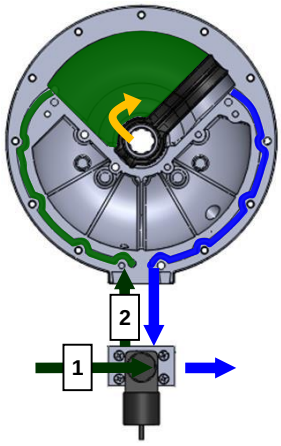
- With air supply
- With electricity

No Position Change



- Without air supply
- With electricity

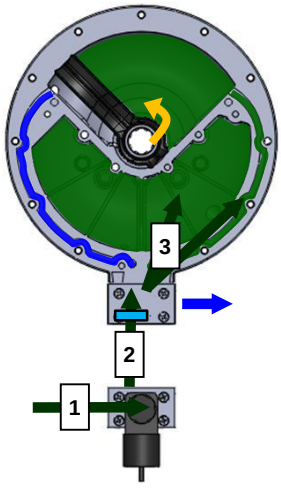
Clockwise



- With air supply
- Without electricity

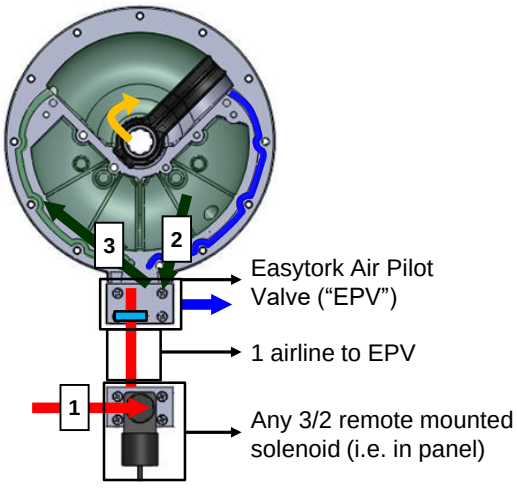
Remote mounted solenoid valve (3/2)

Counter-Clockwise



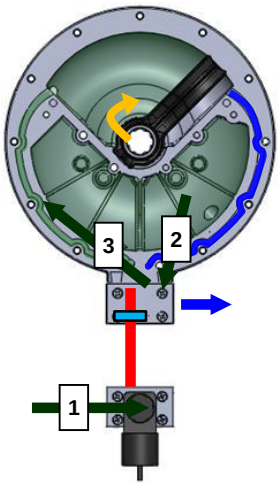
- With air supply
- With electricity

Clockwise



- Without air supply
- With electricity

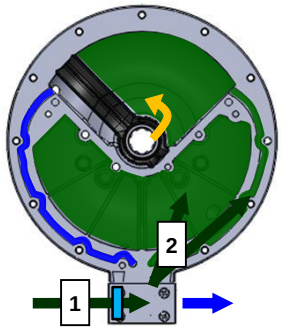
Clockwise



- With air supply
- Without electricity

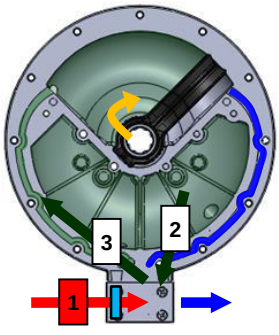
Easytork Air Pilot Valve

Counter-Clockwise



- With air supply

Clockwise



- Without air supply

Remote mounted setup (spec friendly)

Remote mounted setup allows users to use other brands of solenoid valves, and not just the ESV.

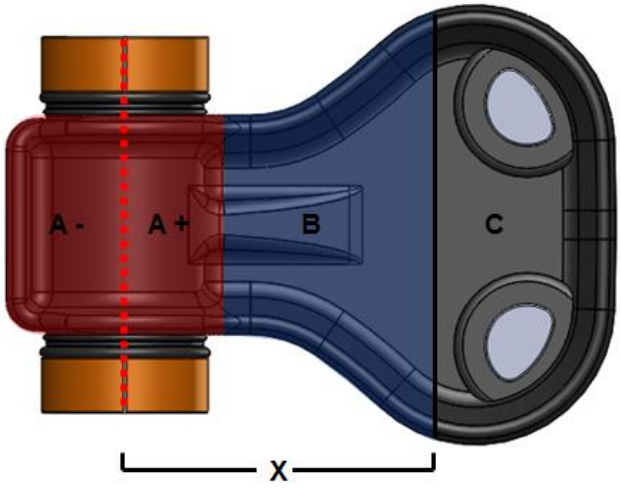
Easytork Air Pilot Valve

- Instead of a solenoid valve, the EVA can be fitted with a 5/2 air pilot valve.
- This setup will allow the EVA to operate only with or without air supply.
- Requires only one main air supply for this setup.

EVA Double-Acting Principle and Sizing

Double-acting principle

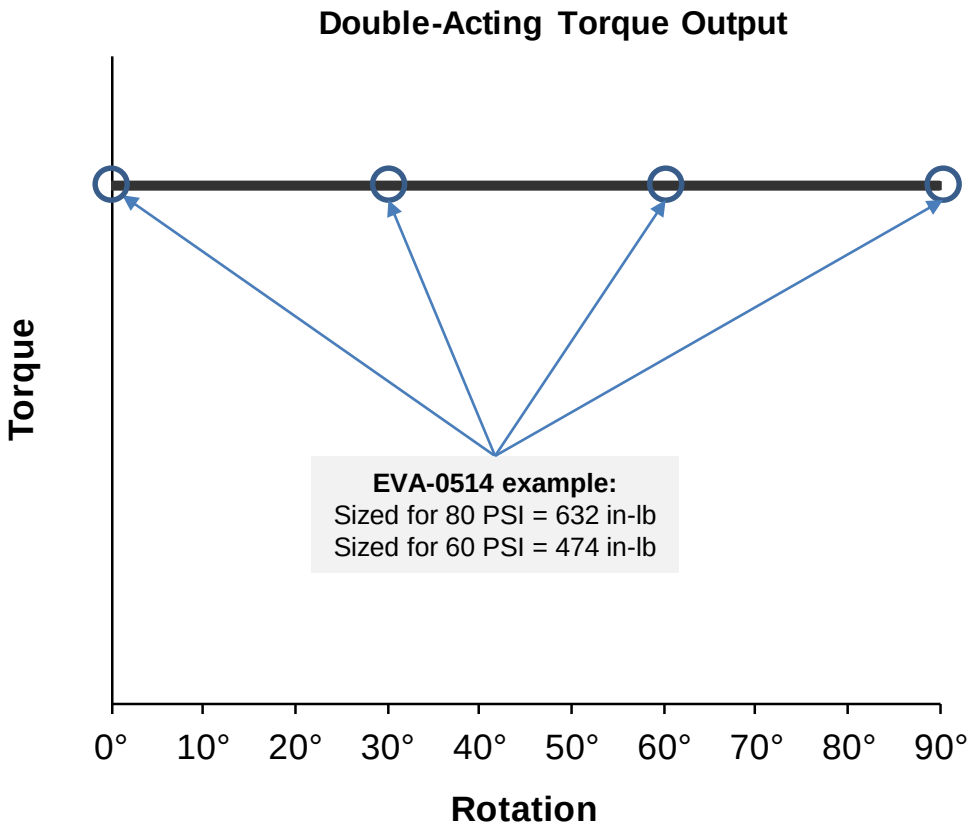
Torque is determined by multiplying the applied force by the distance from the pivot point to the point where the force is applied.



Torque calculation

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

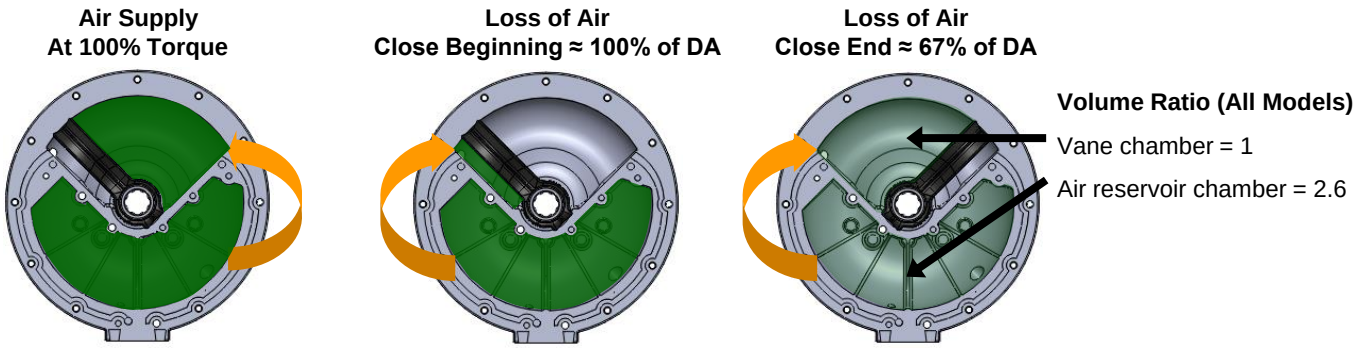
- Area A does not generate any force, the positive area is negated by the negative area.
- Area B and C have the same surface area.
- X is the distance from the pivot point to where area B and C are divided.
- Torque = (Force on B + C) * X - force lost for friction.
- X is constant so torque is linear.

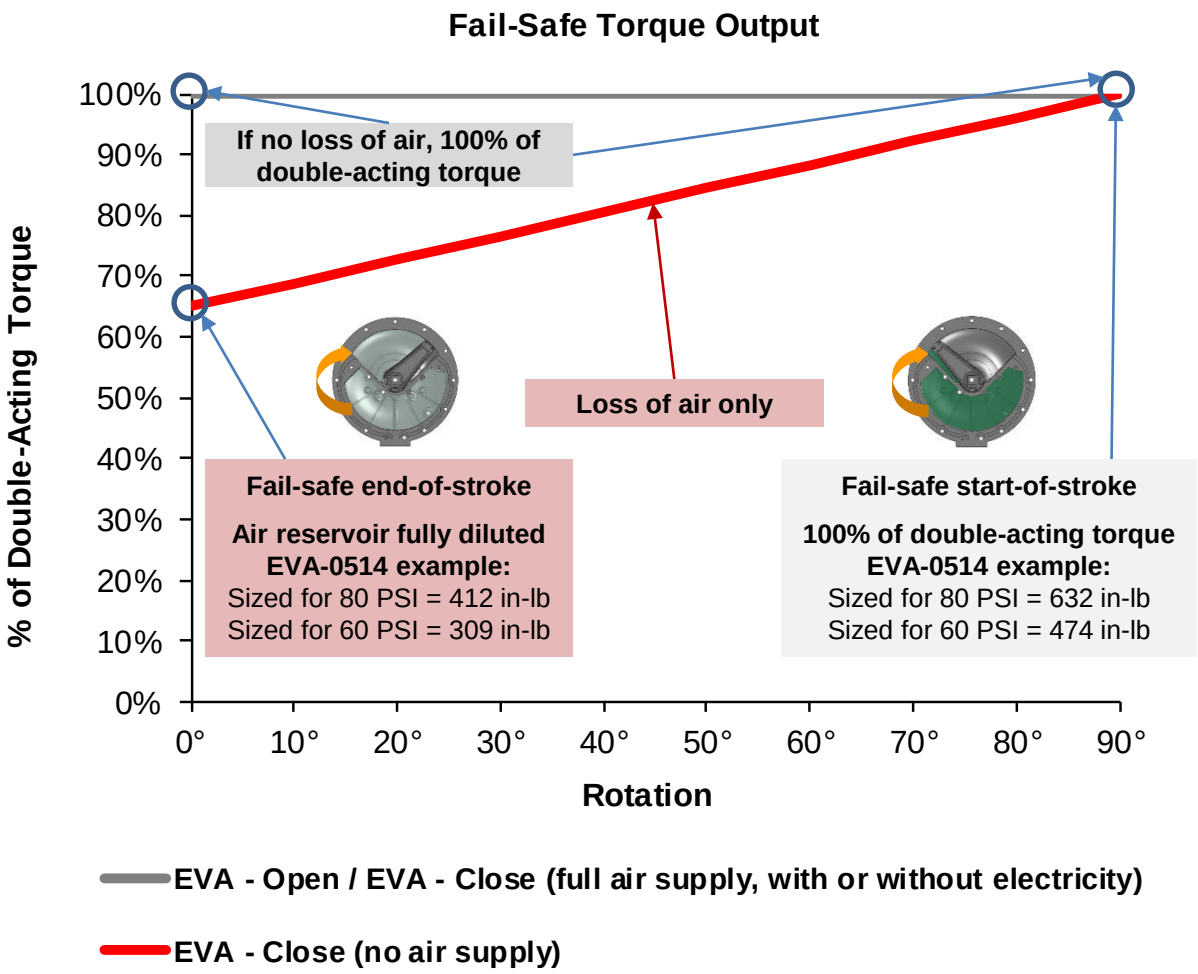


EVA Fail-Safe Principle and Sizing

Fail-safe principle

EVA 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.





EVA Torque Output

Metric

Double-Acting (NM)

Model / BAR	2.0	3.0	4.0	5.0	5.5	6.0	7.0
EVA-0411	14.0	21.1	28.1	35.1	38.6	42.1	49.2
EVA-0514	25.9	38.8	51.8	64.7	71.2	77.6	90.6
EVA-0717	55.2	82.7	110.3	137.9	151.7	165.5	193.1
EVA-1022	111.5	167.2	222.9	278.7	306.6	334.4	390.2
EVA-1227	247.3	370.9	494.5	618.1	679.9	741.8	865.4
EVA-1436	431.4	647.1	862.8	1,078.5	1,186.4	1,294.2	1,509.9
EVA-1646	948.0	1,422.0	1,896.0	2,370.0	2,607.0	2,844.0	3,318.0
EVA-1646 Tandem	1,896.0	2,844.0	3,792.0	4,740.0	5,214.0	5,688.0	6,636.0

Fail-Safe (Minimum Torque At End-Of-Stroke) (NM)

Model / BAR	2.0	3.0	4.0	5.0	5.5	6.0	7.0
EVA-0411	9.0	13.5	18.0	22.5	24.7	27.0	31.5
EVA-0514	16.9	25.3	33.7	42.2	46.4	50.6	59.0
EVA-0717	36.7	55.0	73.4	91.7	100.9	110.0	128.4
EVA-1022	73.8	110.7	147.5	184.4	202.9	221.3	258.2
EVA-1227	167.0	250.5	334.0	417.4	459.2	500.9	584.4
EVA-1436	291.2	436.8	582.4	728.0	800.8	873.6	1,019.2
EVA-1646	635.1	952.7	1,270.2	1,587.8	1,746.5	1,905.3	2,222.9
EVA-1646 Tandem	1,270.2	1,905.3	2,540.4	3,175.5	3,493.1	3,810.6	4,445.7

Imperial

Double-Acting (In-Lb)

Model / PSI	30	40	50	60	70	80	90	100
EVA-0411	129	171	214	257	300	343	386	429
EVA-0514	237	316	395	474	553	632	711	790
EVA-0717	505	673	842	1,010	1,178	1,347	1,515	1,683
EVA-1022	1,020	1,361	1,701	2,041	2,381	2,721	3,061	3,401
EVA-1227	2,263	3,018	3,772	4,527	5,281	6,036	6,790	7,545
EVA-1436	3,949	5,265	6,582	7,898	9,215	10,531	11,847	13,164
EVA-1646	8,678	11,571	14,463	17,356	20,249	23,141	26,034	28,927
EVA-1646 Tandem	17,356	23,141	28,927	34,712	40,498	46,283	52,068	57,854

Fail-Safe (Minimum Torque At End-Of-Stroke) (In-Lb)

Model / PSI	30	40	50	60	70	80	90	100
EVA-0411	82	110	137	165	192	219	247	274
EVA-0514	154	206	257	309	360	412	463	514
EVA-0717	336	448	560	672	783	895	1,007	1,119
EVA-1022	675	900	1,126	1,351	1,576	1,801	2,026	2,251
EVA-1227	1,529	2,038	2,548	3,057	3,567	4,076	4,586	5,095
EVA-1436	2,666	3,554	4,443	5,331	6,220	7,108	7,997	8,886
EVA-1646	5,814	7,752	9,690	11,627	13,565	15,503	17,441	19,379
EVA-1646 Tandem	11,627	15,503	19,379	23,255	27,131	31,007	34,882	38,758

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

EVA Technical Data

	Note	Unit	EVA-0411	EVA-0514	EVA-0717	EVA-1022	EVA-1227	EVA-1436	EVA-1646
Weight		Kg	1.8	2.8	5.8	10.5	22.2	39.1	75.6
		Lb	4.0	6.1	12.7	23.1	48.9	86.1	166.7
Total air volume	DA or FS	Litre	0.150	0.300	0.600	1.200	2.400	4.800	9.600
90° stroke with dead volume	CCW *or* CW	In^3	9.2	18.3	36.6	73.2	146.5	292.9	585.8
	DA and FS	Litre	0.300	0.600	1.200	2.400	4.800	9.600	19.200
	CCW *and* CW	In^3	18.3	36.6	73.2	146.5	292.9	585.8	1171.7
Stroke time									
With 1.8 Cv	*DA (open / close)*	Sec	0.24/0.24	0.36/0.36	0.45/0.45	0.59/0.59	0.75/0.75	1.34/1.34	3.30/3.30
At 5.5 bar or 80 psi No load	*FS (open / close)*	Sec	0.24/0.27	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	Extended stopper: -5°/+5° on each side, total of 80° - 100°
	Extended stopper: -22.5°/+5° on each side, total of 45° - 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

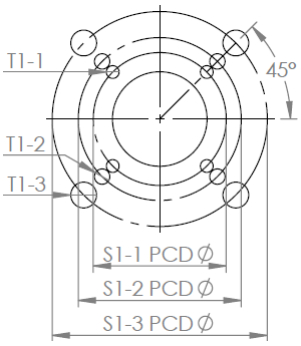
EVA Valve Interface Dimensions

EVA Valve and Auxiliary Interface Summary

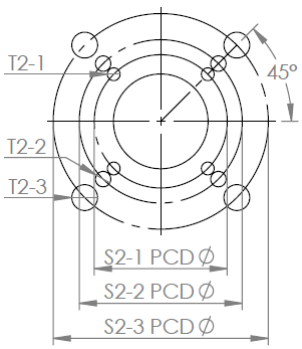
	Valve Mounting															Auxiliary Mounting	
	Flange Type Available												Drive Insert		Shafts		
	ISO									Non ISO			Standard			Semi-	
Actuator Size	F03	F04	F05	F07	F10	F12	F14	F16	F25	3.25"	5.00"	6.50"	Issuance	Other	Direct	Direct	VDI/VDE 3845 / NAMUR
EVA-0411	√	√	√	√									11mm sq	√	√	√	√ / √
EVA-0514		√	√	√						√			14mm sq	√	√	√	√ / √
EVA-0717			√	√	√					√			17mm sq	√	√	√	√ / √
EVA-1022				√	√	√				√	√		22mm sq	√	√	√	√ / √
EVA-1227					√	√		√		√	√	√	27mm sq	√	√	√	√ / √
EVA-1436						√		√			√	√	36mm sq	√	√	√	√ / √
EVA-1646								√	√			√	Blank	√	√	√	√ / √

Flange Type (ISO Compliant and Traditional Mounting Available)

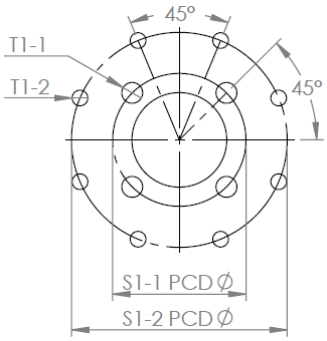
EVA-0309 to 1436 bottom side



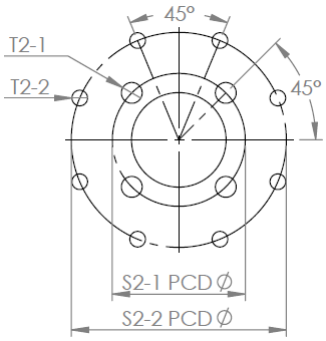
EVA-0309 to 1436 top side



EVA-1646 bottom side

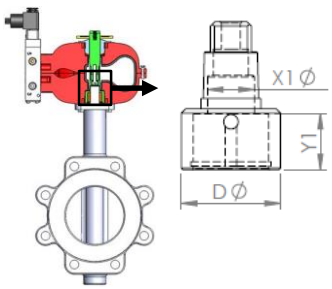


EVA-1646 top side

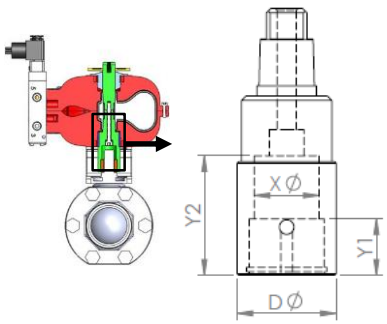


Shafts (Shafts Can Be Indexed Every 45°)

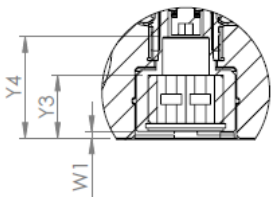
Direct mount shaft

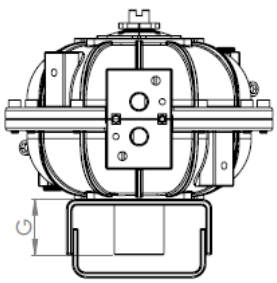


Semi-direct mount shaft



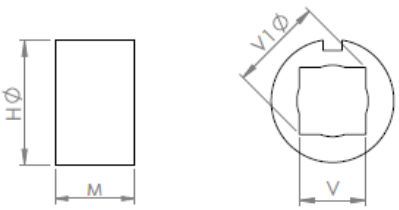
Direct mount shaft in EVA
(Available space for valve stem)





Note: If X1 Ø is wide enough for valve stem's max dia., Y4 is max valve stem depth. If not, use Y3.

Standard Issuance Drive Insert Square Head (ISO5211 Compliant)



Custom Insert (Max Size Allowed)

EVA Valve Interface Dimensions

(Imperial)

Note: Individual model specs downloadable online

Dimensions (inch)	Model						
	EVA-0411	EVA-0514	EVA-0717	EVA-1022	EVA-1227	EVA-1436	EVA-1646
Flange Type Available (ISO5211 Compliant)							
S1-1 PCD Ø	1.42 / F03	1.97 / F05	1.97 / F05	2.76 / F07	4.02 / F10	4.92 / F12	6.50 / F16
S1-2 PCD Ø	1.97 / F05	2.76 / F07	2.76 / F07	4.02 / F10	4.92 / F12	6.50 / F16	10.0 / F25
S1-3 PCD Ø	2.76 / F07	-	4.02 / F10	4.92 / F12	6.50 / F16	-	-
S2-1 PCD Ø	1.65 / F04	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	4x10-24UNC Deep 0.31	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	4x1/4-20UNC Deep 0.35	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	4x5/16-18UNC Deep 0.47	-	4x3/8-16UNC Deep 0.59	4x1/2-13UNC Deep 0.71	4x3/4-10UNC Deep1.18	-	-
T2-1	4x10-24UNC Deep 0.31	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	-	-
Standard Issued Drive Insert (V measurements reflect valve stem. Inserts subsequently made with appropriate tolerance for valve stem interface)							
V	0.43	0.55	0.67	0.87	1.06	1.42	Blank
V1 Ø	0.56	0.77	0.94	1.21	1.46	1.93	Blank
H Ø	0.87	1.02	1.28	1.73	2.36	3.07	3.74
M	0.55	0.65	0.83	1.02	1.34	1.71	2.19
Shaft							
Y1	0.63	0.75	0.94	1.16	1.50	1.89	2.46
D Ø	1.06	1.34	1.59	2.14	2.81	3.62	4.72
Direct Mount Shaft							
X1 Ø	0.51	0.63	0.83	1.13	1.40	1.69	2.26
Y3	0.71	0.84	1.05	1.26	1.61	2.05	2.64
Y4	1.04	1.35	1.68	2.07	3.06	3.50	4.29
W1	0.08	0.09	0.10	0.10	0.11	0.16	0.18
Semi-Direct Mount Shaft							
G	1.00	1.50	1.50	1.75	1.75	2.00	3.00
X Ø	0.71	0.87	1.11	1.42	2.05	2.68	C/F
Y2	1.31	1.59	2.22	2.36	2.56	2.76	C/F
Custom Drive Insert (Maximum dimension on insert allowed)							
MAX.X Ø	0.71	0.87	1.11	1.42	2.05	2.68	3.07

EVA Valve Interface Dimensions

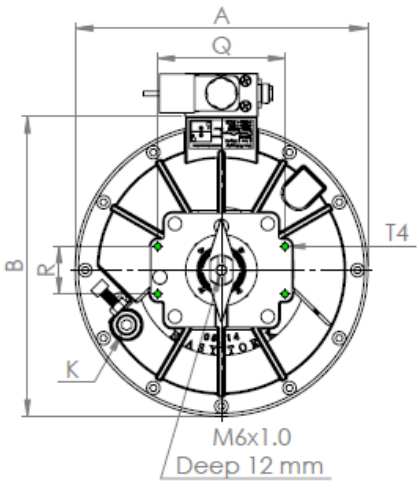
(Metric)

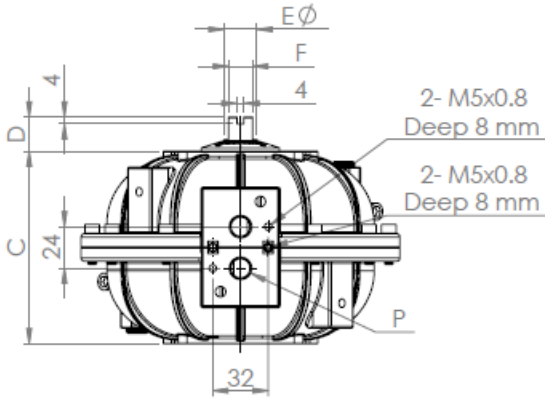
Note: Individual model specs downloadable online

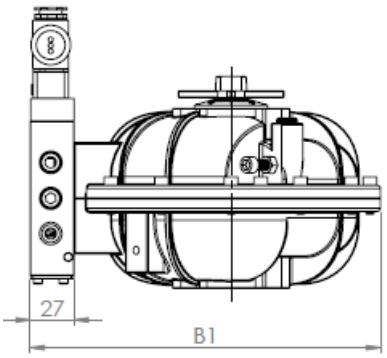
Dimensions (mm)	Model						
	EVA-0411	EVA-0514	EVA-0717	EVA-1022	EVA-1227	EVA-1436	EVA-1646
Flange Type Available (ISO5211 Compliant)							
S1-1 PCD Ø	36.0 / F03	50.0 / F05	50.0 / F05	70.0 / F07	102.0 / F10	125.0 / F12	165.0 / F16
S1-2 PCD Ø	50.0 / F05	70.0 / F07	70.0 / F07	102.0 / F10	125.0 / F12	165.0 / F16	254.0 / F25
S1-3 PCD Ø	70.0 / F07	-	102.0 / F10	125.0 / F12	165.0 / F16	-	-
S2-1 PCD Ø	42.0 / F04	42.0 / F04	82.6	82.6	82.6	127.0	165.0 / F16
S2-2 PCD Ø	-	82.6	-	127.0	127.0	165.0 / F16	254.0 / F25
S2-3 PCD Ø					165.0 / F16		
T1-1	4-M5x0.8 Deep 8.0	4-M6x1.0 Deep 9.0	4-M6x1.0 Deep 9.0	4-M8x1.25 Deep 12.0	4-M10x1.5 Deep 15.0	4-M12x1.75 Deep18.0	4-M20x2.5 Deep 30.0
T1-2	4-M6x1.0 Deep 9.0	4-M8x1.25 Deep 12.0	4-M8x1.25 Deep 12.0	4-M10x1.5 Deep 15.0	4-M12x1.75 Deep18.0	4-M20x2.5 Deep30.0	8-M16x2 Deep 24.0
T1-3	4-M8x1.25 Deep 12.0	-	4-M10x1.5 Deep 15.0	4-M12x1.75 Deep 18.0	4-M20x2.5 Deep30.0	-	-
T2-1	4-M5x0.8 Deep 8.0	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-M12x1.75 Deep 18.0	4-M20x2.5 Deep30.0	8-M16x2 Deep 24.0
T2-3	-	-	-	-	4-M20x2.5 Deep30.0	-	-
Standard Issued Drive Insert (V measurements reflect valve stem. Inserts subsequently made with appropriate tolerance for valve stem interface)							
V	11.0	14.0	17.0	22.0	27.0	36.0	Blank
V1 Ø	14.3	19.7	23.9	30.8	37.1	49.1	Blank
H Ø	22.0	25.8	32.5	44.0	60.0	78.0	95.0
M	14.0	16.5	21.0	26.0	34.0	43.5	55.5
Shaft							
Y1	16.0	19.0	24.0	29.5	38.0	48.0	62.5
D Ø	27.0	34.0	40.5	54.3	71.5	92.0	119.9
Direct Mount Shaft							
X1 Ø	13.0	16.0	21.0	28.7	35.5	43.0	57.5
Y3	18.0	21.3	26.6	32.0	40.8	52.0	67.0
Y4	26.5	34.3	42.6	52.5	77.8	89.0	109.0
W1	2.0	2.3	2.6	2.5	2.8	4.0	4.5
Semi-Direct Mount Shaft							
G	25.4	38.1	38.1	44.5	44.5	50.8	76.2
X Ø	18.1	22.1	28.1	36.1	52.0	68.0	C/F
Y2	33.4	40.4	56.5	60.0	65.0	70.0	C/F
Custom Drive Insert (Maximum dimension on insert allowed)							
MAX.X Ø	18.1	22.1	28.1	36.1	52.0	68.0	78.0

EVA and Auxiliary Interface Dimensions

Note: Individual model specs downloadable online







Note: Figures in drawings in mm.

Imperial

Dimensions (inch)	Model						
	EVA-0411	EVA-0514	EVA-0717	EVA-1022	EVA-1227	EVA-1436	EVA-1646
Actuator Dimensions							
A	6.02	7.24	9.41	11.61	15.20	18.50	23.03
B	6.22	7.44	9.61	11.81	15.31	18.70	23.21
B1	7.28	8.50	10.67	12.87	16.38	19.76	24.27
C	3.62	4.41	5.71	7.17	9.37	11.26	14.08
F	0.55	0.55	0.55	0.94	0.94	0.94	0.94
E Ø	0.75	0.75	0.75	1.30	1.30	1.30	1.30
P	1/8-27NPT	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	M5x30mm	M6x35mm	M8x45mm	M8x50mm	M12x60mm	M12x70mm	M16x100mm
Actuator Dimensions of Accessories Flange							
D	0.79	0.79	0.79	1.18	1.18	1.18	1.18
R	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Q	3.15	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	4x10-24UNC Deep 0.31

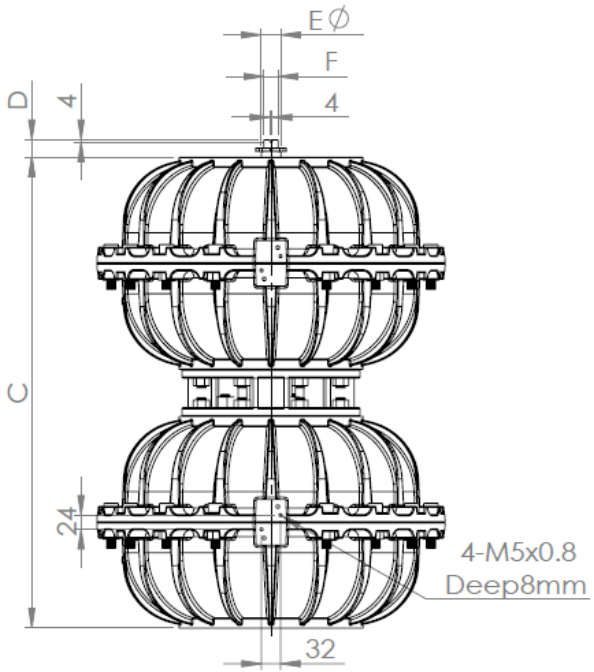
Metric

Dimensions (mm)	Model						
	EVA-0411	EVA-0514	EVA-0717	EVA-1022	EVA-1227	EVA-1436	EVA-1646
Actuator Dimensions							
A	153	184	239	295	386	470	585
B	158	189	244	300	389	475	590
B1	185	216	271	327	416	502	617
C	92	112	145	182	238	286	358
F	14	14	14	24	24	24	24
E Ø	19	19	19	33	33	33	33
P	1/8-28 BSPP	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	M5x30mm	M6x35mm	M8x45mm	M8x50mm	M12x60mm	M12x70mm	M16x100mm
Actuator Dimensions of Accessories Flange							
D	20	20	20	30	30	30	30
R	30	30	30	30	30	30	30
Q	80	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	4-M5x0.8 Deep 8

Note: Individual model specs downloadable online

Dual-stack

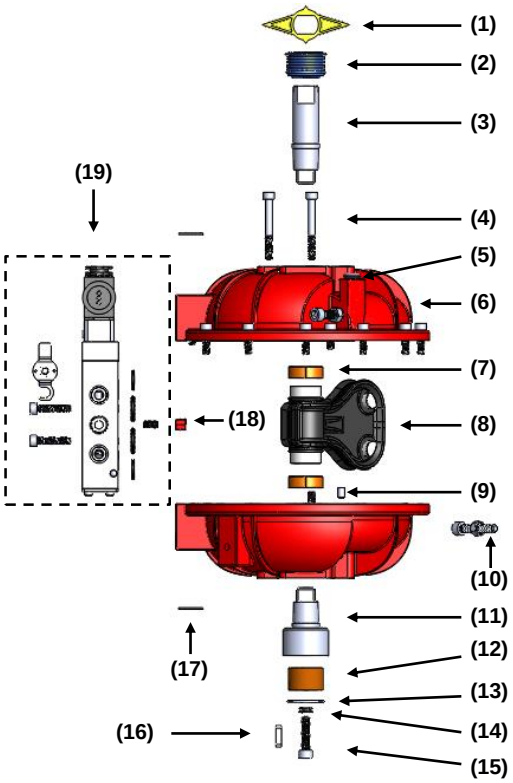
EVAs can be dual-stacked to achieve increased torque output.



Note: Figures in drawings in mm.

Dimensions	Model EVA-1646 Dual-Stack	
Actuator Dimensions	**Metric (mm)**	**Imperial (inch)**
A	587	23.12
B	592	23.31
B1	619	24.37
C	803	31.62
F	24	0.94
E Ø	33	1.30
P	-	
K	3/8-19 BSPP	3/8-18NPT
Standard Stop Bolt & Nut	M16x100mm	M16x100mm
Actuator Dimensions of Accessories Flange		
D	30	1.18
R	30	1.18
Q	130	5.12
T4	4-M5x0.8 Deep 8	4x10-24UNC Deep 0.31

EVA Bill of Material



Ref No	Description	Standard Version	Chemical Resistant Version	Quantity
1	Yellow position & degree indicator	NBR	NBR	1
2	Blue graduated ring	NBR	NBR	1
3	Upper shaft	Nickel-plated steel	Nickel-plated steel + Fluoropolymer Coating	1
4	Connecting bolt & nut	Stainless steel	Stainless steel	1 lot
5	Plug	Nickel-plated steel	Stainless steel	1 lot
6	Housing	Aluminum A383 / epoxy external finish	Aluminum A383 / Fluoropolymer external finish	2
7	Vane / shaft bearing	PTFE lined steel baked bronze bushing	PTFE lined steel baked bronze bushing	2
8	Vane / shaft assembly*	Stainless Steel or NPS bonded with modified CR	Stainless Steel or NPS bonded with modified CR	1
9	Location pin	Mild steel	Mild steel	2
10	Stopper bolt and nut set	Stainless steel	Stainless steel	2
11	Lower shaft	Nickel-plated steel	Nickel-plated steel + Fluoropolymer Coating	1
12	Drive insert lower	Nickel-plated steel	Nickel-plated steel	1
13	Drive insert circlip	Nickel-plated steel	Nickel-plated steel	1
14	Belleville washer	High tensile steel	High tensile steel	2
15	Shaft connect bolt	Stainless steel	Stainless steel	1
16	Drive insert key	Keysteel	Keysteel	1
17	Tag plate*	Stainless steel	Stainless steel	1
18	Locator insert*	Plastic	Plastic	2
19	Main solenoid valve	(See ESV for details)	(See ESV for details)	1

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

Ordering Codes

Easytork Vane Actuator

Prefix		Product Type		Model Number		Actuator Attributes					Valve Interface Installed With Actuator					
						Thread	EVA Material *(Corrosion Rating)*		Seal *(Temp. Rating)*		Lower Shaft Type		Drive Insert Type		Drive Insert Size	
C	-	**A**	-	**X**	-	**X**	**X**	-	**X**	-	**X**		**X**		**X**	
C: Complete product		**A**: Actuator		1: EVA-0309 **2**: EVA-0411 **3**: EVA-0514 **4**: EVA-0717 **5**: EVA-1022 **6**: EVA-1227 **7**: EVA-1436 **8**: EVA-1646 **1T - 8T:** Corresponding actuator's tandem version **1W - 8W:** Corresponding actuator, propelled with water instead of pressurized air		**1**: Imperial 2: Metric	**1**: Standard version 2: Chemical resistant version		**1**: CR for all temp rating (-40°C to 120°C or -40°F to 248°F)		**1**: Direct mount (standard issuance) **2**: Semi-direct mount		**1**: Square drive (standard issuance)		**1**: Standard size (standard issuance)	

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

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