



ACTUATORS & CONTROLS

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TB 1555-23

Vane Design Pneumatic Actuator

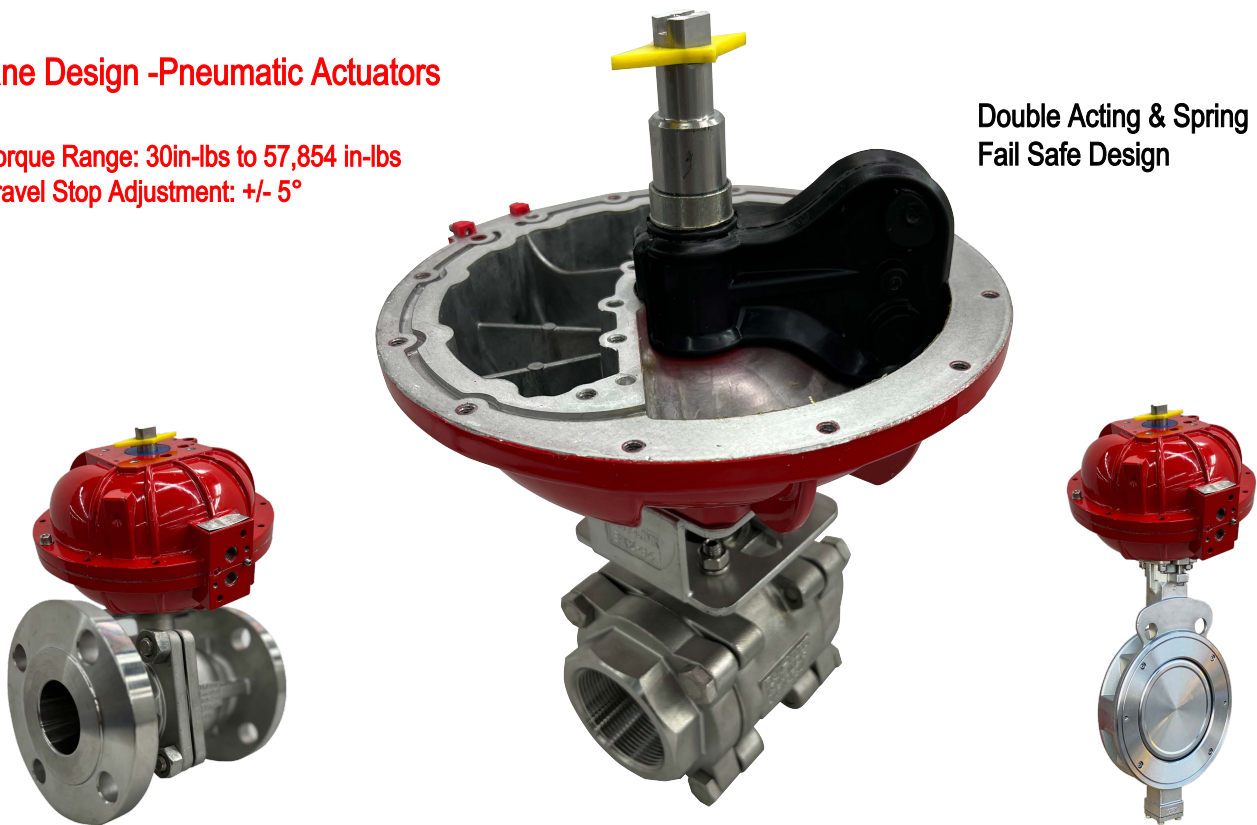


Vane Design -Pneumatic Actuators

Torque Range: 30in-lbs to 57,854 in-lbs

Travel Stop Adjustment: +/- 5°

Double Acting & Spring less
Fail Safe Design



Springless-Return Actuator

**The Toughest, Lightest, Most Compact, &
Cost Efficient Actuator**



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EZ Vane Actuator is Built to Last

Take the guesswork out of predictive maintenance and reliability

Predictive Maintenance

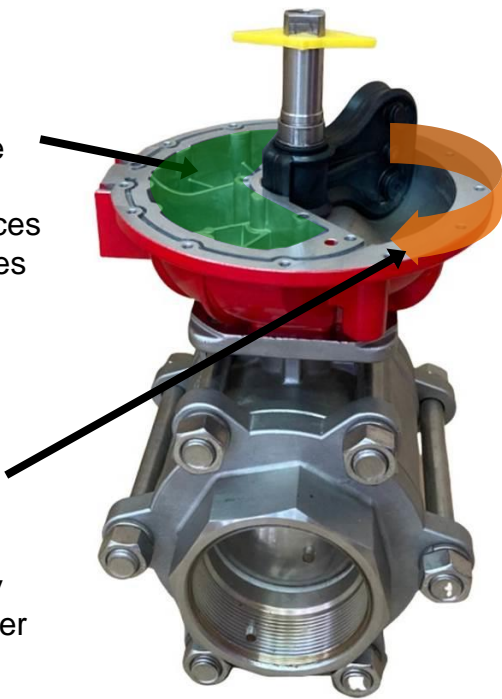
Using internal air reservoir for fail-safe

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

One moving piece – pure rotary-to-rotary movement

EZs 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.



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 EZ Vane'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 stops 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

EZ's Vane has limited contact to the 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 the double lip-seal allowing for greater tightness against the housing body. Lip-sealing aligns and provides tightness under pressure.

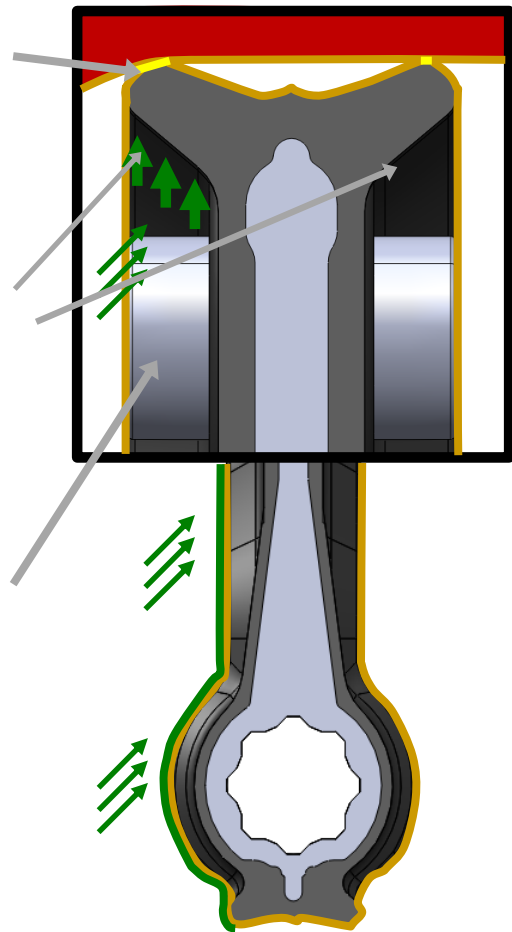
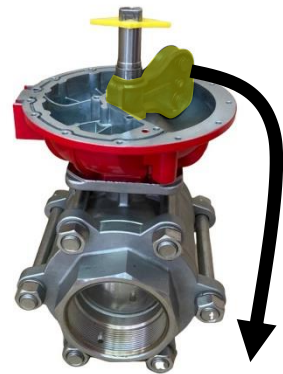
Stopper Bolt to Vane Contact

The stopper bolt does not impact the 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

The SS vein is coated with modified CR (Neoprene) as standard. It is fully bonded to the vane/shaft. EZ is suitable from **-40°F to 248°F (-40°C to 120°C)**, covering everything from low to high temperature applications.



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

EZ Vane Actuator's Unique Solutions and Benefits

EZ Vane Benefits that Improve your SYSTEMS

Ideal for Dirty Environments & Poor Instrument Air

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

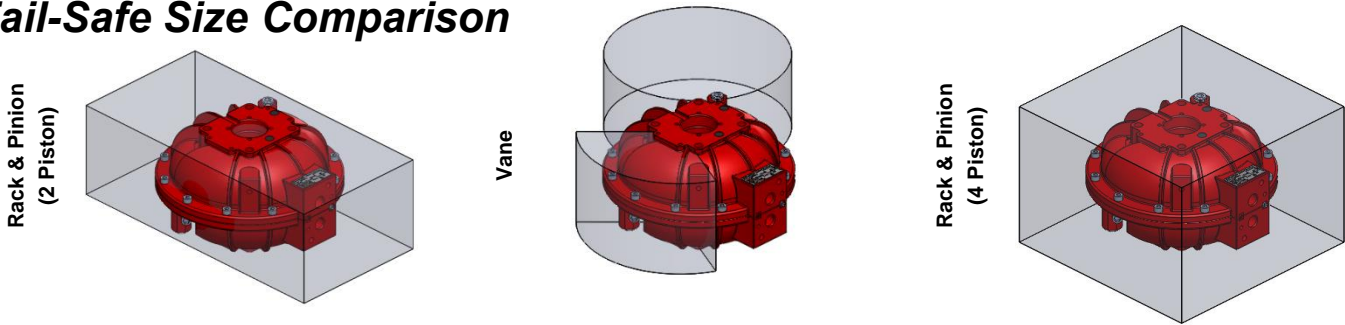


Mining and milling present some of the harshest environments for automated valves. Instrument air is not guaranteed to be clean, dry or particle free. Environmental air can be of poor quality and laden with contaminants. EZ Vane's actuators thrive in these conditions and have been used extensively in mining on a multitude of applications.

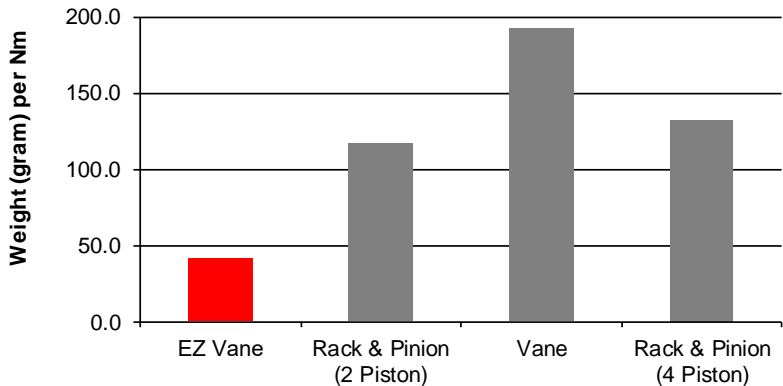
Smallest, Lightest and One of the Fastest Actuators

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

Fail-Safe Size Comparison



Fail-Safe Weight Comparison @ 5.5 BAR (80 PSI)



Weight Differential

Automating 12" butterfly valve for fail-safe

49 lb (~22kg) EZ

or

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

EZ Vane Actuator's Unique Solutions and Benefits

EZ's 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 EZ Vane.”
– Customer testimonial

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

EZ direct mounts to almost all valve brands, actuator accessories, or existing mounting hardware. With the most flange patterns (accessed by flipping actuator) coupled with adaptable drive inserts, EZ Vane has more mounting combinations than any actuator on the market.



All combinations on the right can direct mount with actuator accessories



Sq. (parallel)

F05
F07
F10



Sq. (diamond)

F05
F07
F10



DD

3.25"

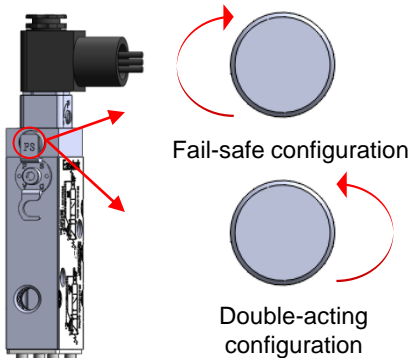
Additional flange patterns created by flipping the actuator (top is now bottom, bottom is now top)

Takes less than 2 minutes to convert the actuator to Fail close, Fail Open, or Double Acting!

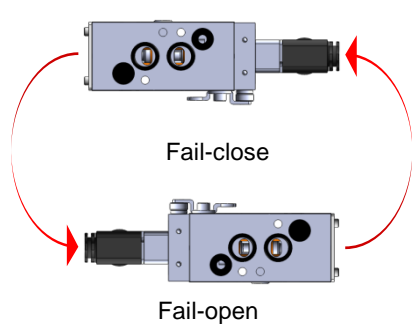
8 total Easytork SKUs for all your valve torque needs (up to a 24" butterfly valve)

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

Convert Actuator to FS or DA

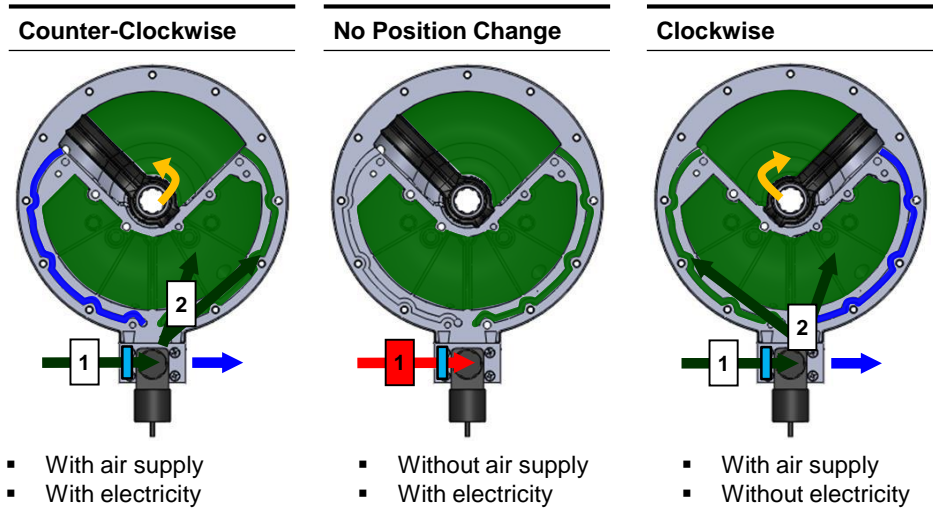


Convert Actuator to FC or FO

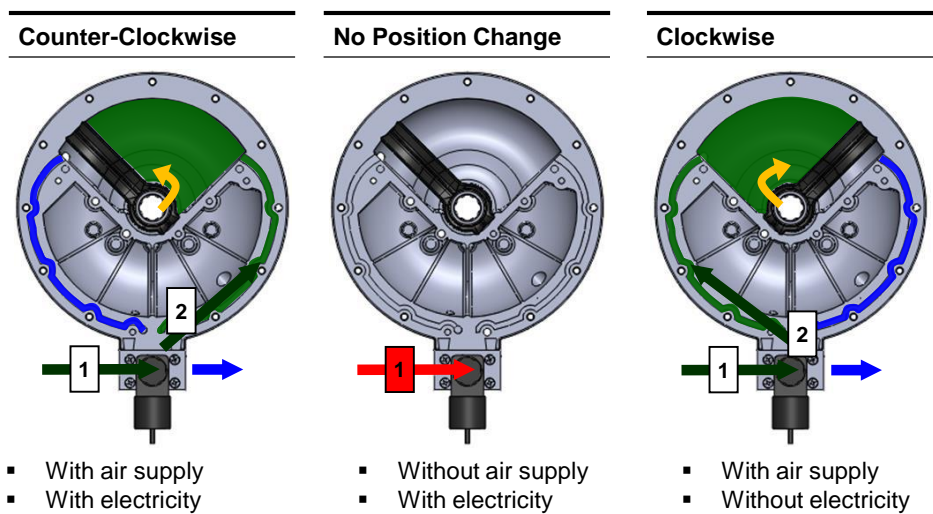


Direct Mounted Solenoid – Air Flow Path Principle

Double-Acting with EZ Vane's Solenoid Valve



Double-Acting with 5/2 Solenoid alve



Patents: Air Flow Principle

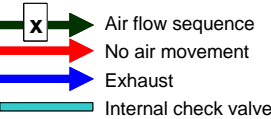
USA = 8,573,558

China = 2701057, 2323461, 2173061

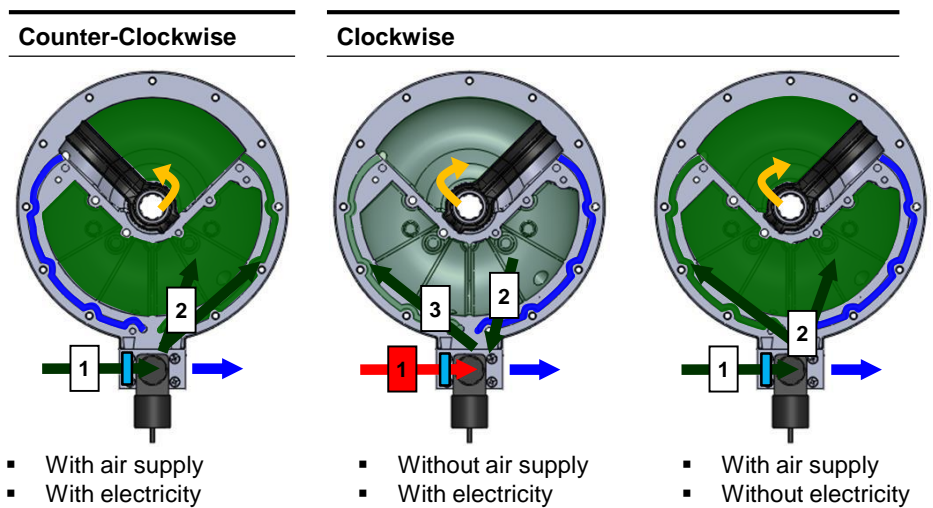
Taiwan = M412285, M414523, M425196

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

Other countries pending

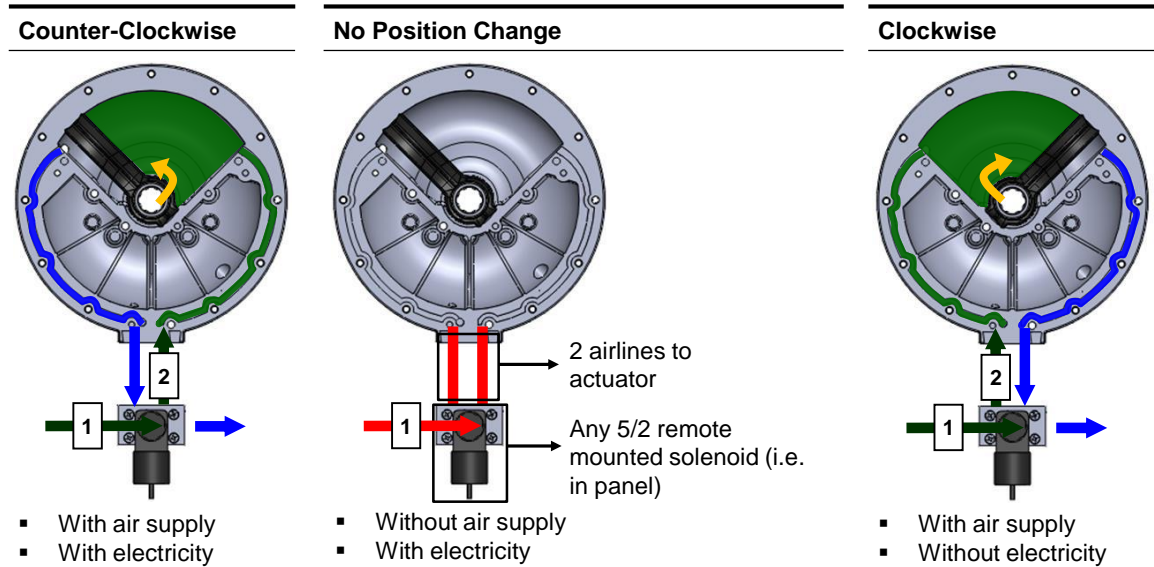


Fail-safe with Easytork Solenoid Valve

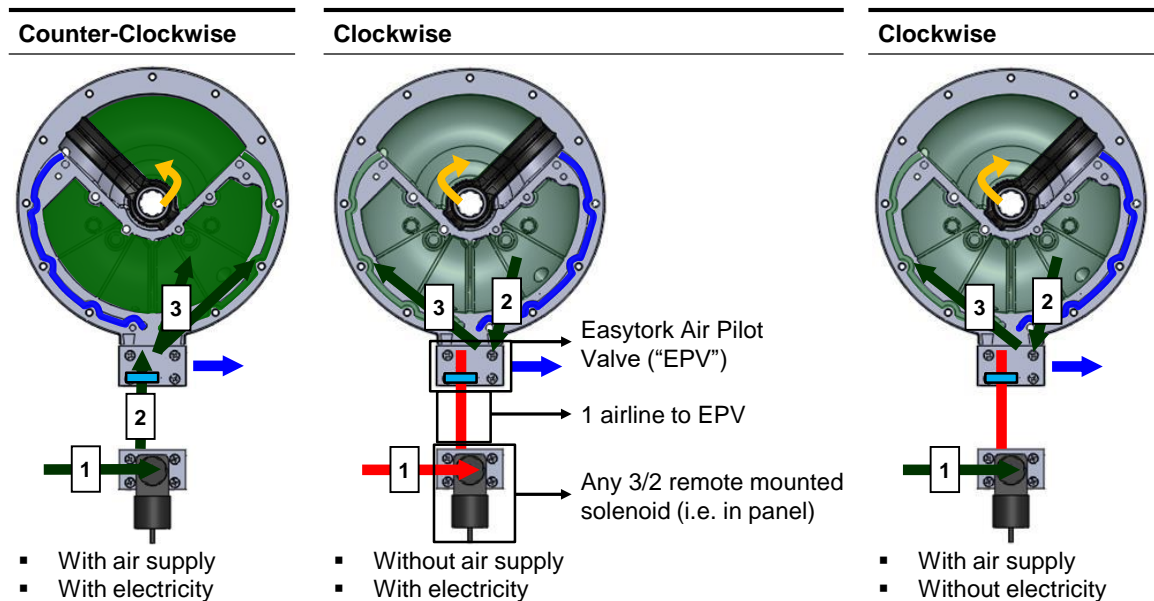


Remote Mounted Solenoid – Air Flow Path Principle

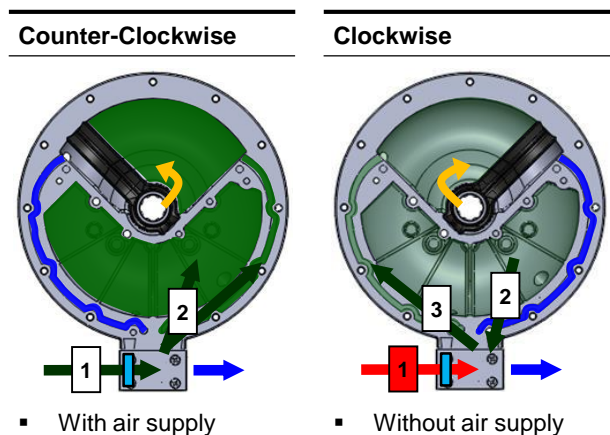
Remote Mounted Solenoid Valve (5/2)



Remote Mounted Solenoid Valve (3/2)



EZ Vane Air Pilot Valve



Remote Mounted Setup (Spec Friendly)

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

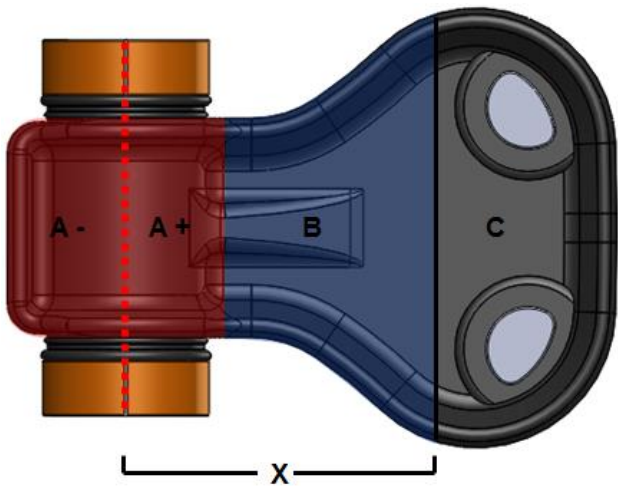
Easytork Air Pilot Valve

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

EZ 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.

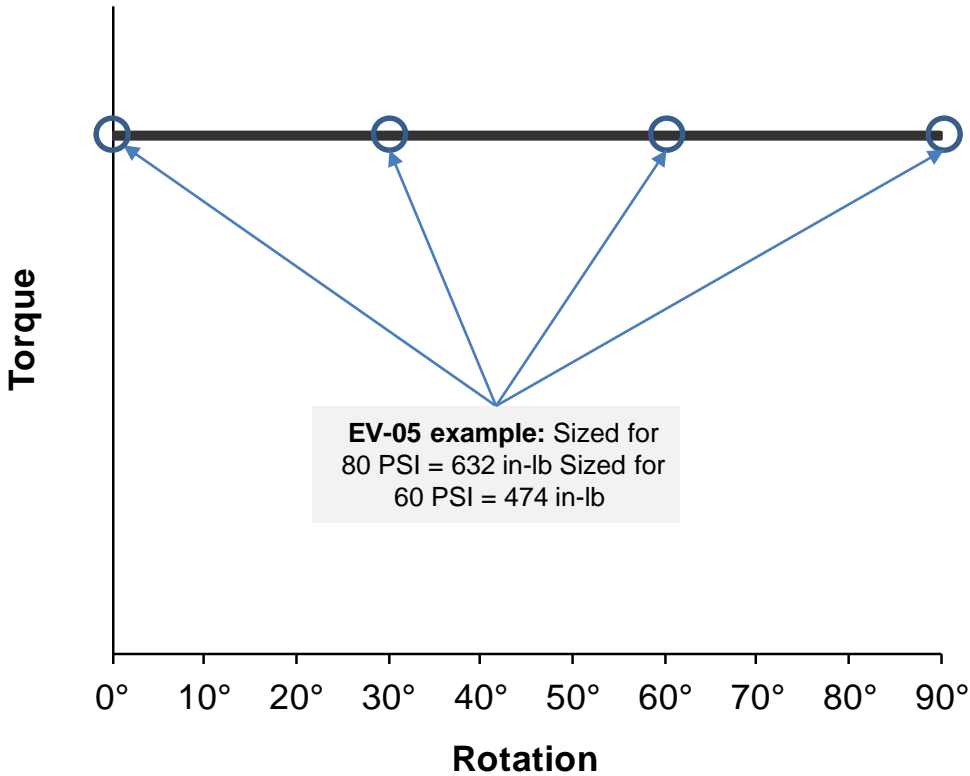


Torque calculation

As EZ Vane's is a pear shape, the 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.

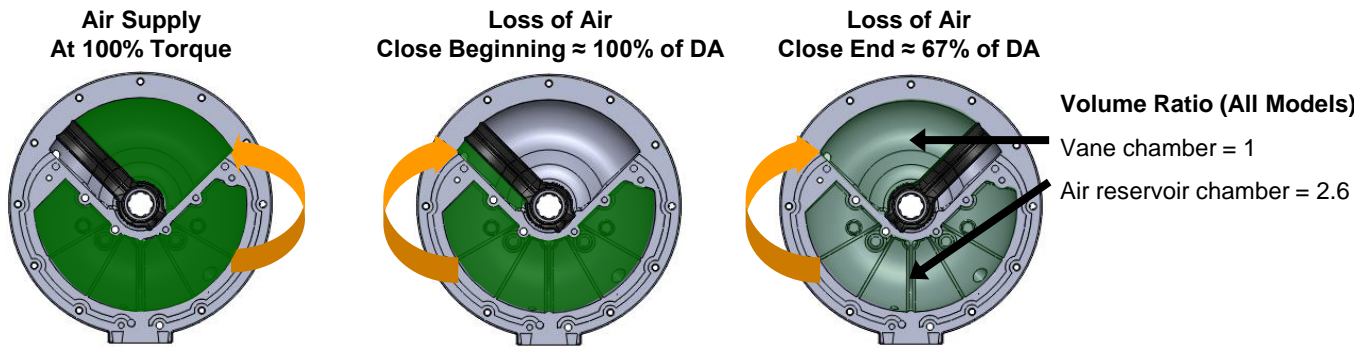
Double-Acting Torque Output



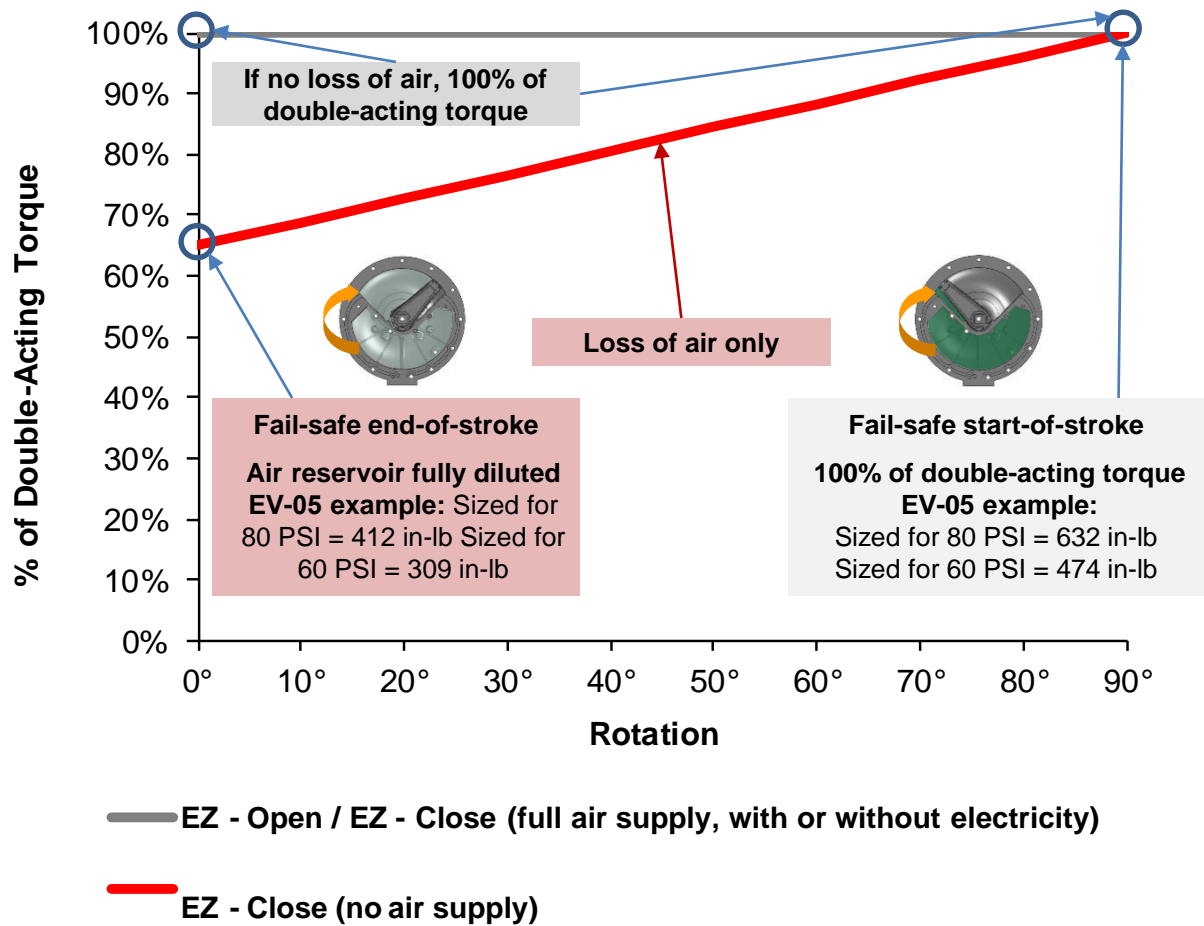
EZ Vane Fail-Safe Principle and Sizing

Fail-safe principle

EZ 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



EZ Torque Output

Metric

Double-Acting (NM)							
Model / BAR	2.0	3.0	4.0	5.0	5.5	6.0	7.0
EV-04	14.0	21.1	28.1	35.1	38.6	42.1	49.2
EV-05	25.9	38.8	51.8	64.7	71.2	77.6	90.6
EV-07	55.2	82.7	110.3	137.9	151.7	165.5	193.1
EV-10	111.5	167.2	222.9	278.7	306.6	334.4	390.2
EV-12	247.3	370.9	494.5	618.1	679.9	741.8	865.4
EV-14	431.4	647.1	862.8	1,078.5	1,186.4	1,294.2	1,509.9
EV-16	948.0	1,422.0	1,896.0	2,370.0	2,607.0	2,844.0	3,318.0
EV-16T 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
EV-04	9.0	13.5	18.0	22.5	24.7	27.0	31.5
EV-05	16.9	25.3	33.7	42.2	46.4	50.6	59.0
EV-07	36.7	55.0	73.4	91.7	100.9	110.0	128.4
EV-10	73.8	110.7	147.5	184.4	202.9	221.3	258.2
EV-12	167.0	250.5	334.0	417.4	459.2	500.9	584.4
EV-14	291.2	436.8	582.4	728.0	800.8	873.6	1,019.2
EV-16	635.1	952.7	1,270.2	1,587.8	1,746.5	1,905.3	2,222.9
EV-16T 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
EV-04	129	171	214	257	300	343	386	429
EV-05	237	316	395	474	553	632	711	790
EZ-07	505	673	842	1,010	1,178	1,347	1,515	1,683
EV-10	1,020	1,361	1,701	2,041	2,381	2,721	3,061	3,401
EV-12	2,263	3,018	3,772	4,527	5,281	6,036	6,790	7,545
EV-14	3,949	5,265	6,582	7,898	9,215	10,531	11,847	13,164
EV-16	8,678	11,571	14,463	17,356	20,249	23,141	26,034	28,927
EV-16T 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
EV-04	82	110	137	165	192	219	247	274
EV-05	154	206	257	309	360	412	463	514
EV-07	336	448	560	672	783	895	1,007	1,119
EV-10	675	900	1,126	1,351	1,576	1,801	2,026	2,251
EV-12	1,529	2,038	2,548	3,057	3,567	4,076	4,586	5,095
EV-14	2,666	3,554	4,443	5,331	6,220	7,108	7,997	8,886
EV-16	5,814	7,752	9,690	11,627	13,565	15,503	17,441	19,379
EV-16T 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.

EZ Vane Technical Data

			Model							
	Note	Unit	EV-03	EV- 04	EV-05	EV-07	EV-10	EV-12	EV-14	EV-16
Weight		Kg	1.3	1.8	2.8	5.8	10.5	22.2	39.1	75.6
		Lb	2.8	4.0	6.1	12.7	23.1	48.9	86.1	166.7
Total air volume 90° stroke with dead volume	DA or FS	Litre	0.075	0.150	0.300	0.600	1.200	2.400	4.800	9.600
	CCW or CW	In³	4.6	9.2	18.3	36.6	73.2	146.5	292.9	585.8
	DA and FS	Litre	0.150	0.300	0.600	1.200	2.400	4.800	9.600	19.200
	CCW and CW	In³	9.2	18.3	36.6	73.2	146.5	292.9	585.8	1171.7
Stroke time										
With 1.8 Cv	DA	Sec	0.14/0.14	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	(open / close)									
No load	FS	Sec	0.14/0.17	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
	(open / close)									

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

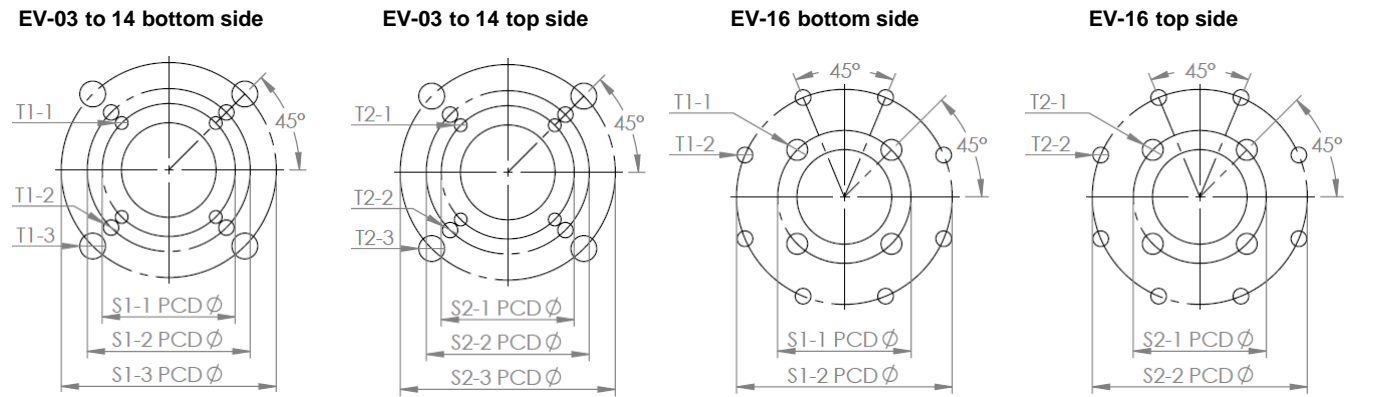
Standard and Specifications Complied	
ISO 5211:2001 (E)	Industrial valves – part-turn actuator attachments
Namur VDI/VDE 3845	Interface between valves, actuators and auxiliary equipment
CEN/TC 69	Basic requirements for pneumatic part-turn actuators on industrial valves
CE Marking	Machinery Directive 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

EZ Vane Valve Interface Dimensions

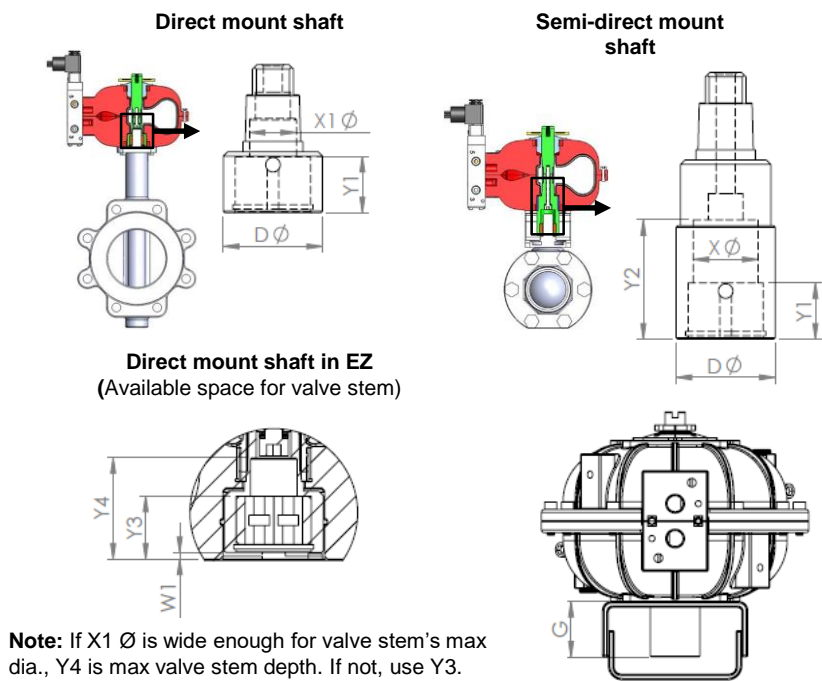
EZ Valve and Auxiliary Interface Summary

Actuator Size	Valve Mounting														Auxiliary Mounting			
	Flange Type Available												Drive Insert		Shafts		VD/IDE 3845	NAMUR
	ISO						Non ISO			Standard		Semi-						
	F03	F04	F05	F07	F10	F12	F14	F16	F25	3.25"	5.00"	6.50"	Issuance	Other	Direct	Direct		
EV-03	✓	✓	✓										9mm sq	✓	✓	✓	✓	✓
EV-04	✓	✓	✓	✓									11mm sq	✓	✓	✓	✓	✓
EV-05		✓	✓	✓						✓			14mm sq	✓	✓	✓	✓	✓
EV-07			✓	✓	✓					✓			17mm sq	✓	✓	✓	✓	✓
EV-10				✓	✓	✓				✓	✓		22mm sq	✓	✓	✓	✓	✓
EV-12 (Imp)					✓	✓		✓		✓	✓	✓	27mm sq	✓	✓	✓	✓	✓
EV-12 (Metric)					✓	✓	✓	✓				✓	27mm sq	✓	✓	✓	✓	✓
EV-14 (Imp)						✓		✓			✓	✓	36mm sq	✓	✓	✓	✓	✓
EV-14 (Metric)						✓	✓	✓				✓	36mm sq	✓	✓	✓	✓	✓
EV-16								✓	✓			✓	Blank	✓	✓	✓	✓	✓

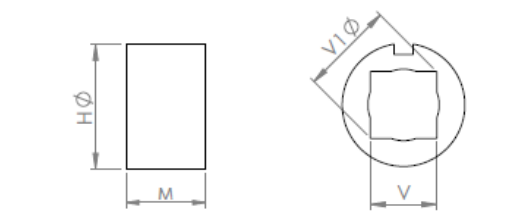
Flange Type (ISO Compliant and Traditional Mounting Available)



Shafts (Shafts Can Be Indexed Every 45°)



Standard Issuance Drive Insert Square Head (ISO5211 Compliant)



Custom Insert (Max Size Allowed)



EZ Vane Valve Interface Dimensions

(Imperial)

Dimensions (inch)	Model							
	EV-03	EV-04	EV-05	EV-07	EV-10	EV-12	EV-14	EV-16

Flange Type Available (ISO5211 Compliant)

S1-1 PCD Ø	1.42 / F03	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	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	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	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	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	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	0.35	0.43	0.55	0.67	0.87	1.06	1.42	Blank
V1 Ø	0.48	0.56	0.77	0.94	1.21	1.46	1.93	Blank
H Ø	0.69	0.87	1.02	1.28	1.73	2.36	3.07	3.74
M	0.39	0.55	0.65	0.83	1.02	1.34	1.71	2.19

Shaft

Y1	0.47	0.63	0.75	0.94	1.16	1.50	1.89	2.46
D Ø	0.89	1.06	1.34	1.59	2.14	2.81	3.62	4.72

Direct Mount Shaft

X1 Ø	0.41	0.51	0.63	0.83	1.13	1.40	1.69	2.26
Y3	0.52	0.71	0.84	1.05	1.26	1.61	2.05	2.64
Y4	0.82	1.04	1.35	1.68	2.07	3.06	3.50	4.29
W1	0.05	0.08	0.09	0.10	0.10	0.11	0.16	0.18

Semi-Direct Mount Shaft

G	1.00	1.00	1.50	1.50	1.75	1.75	2.00	3.00
X Ø	0.56	0.71	0.87	1.11	1.42	2.05	2.68	C/F
Y2	1.08	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	0.56	0.71	0.87	1.11	1.42	2.05	2.68	3.07
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EZ Vane Valve Interface

Dimensions (Metric)

Dimensions (mm)	Model							
	EV-03	EV-04	EV-05	EV-07	EV-10	EV-12	EV-14	EV-16

Flange Type Available (ISO5211 Compliant)

S1-1 PCD Ø	36.0 / F03	36.0 / F03	50.0 / F05	50.0 / F05	70.0 / F07	125.0 / F12	140.0 / F14	165.0 / F16
S1-2 PCD Ø	50.0 / F05	50.0 / F05	70.0 / F07	70.0 / F07	102.0 / F10	165.0 / F16	-	254.0 / F25
S1-3 PCD Ø	-	70.0 / F07	-	102.0 / F10	125.0 / F12	-	-	-
S2-1 PCD Ø	42.0 / F04	42.0 / F04	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-M5x0.8 Deep 8.0	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-M12x1.75 Deep18.0	4-M16x2.0 Deep 24.0	4-M20x2.5 Deep 30.0
T1-2	4-M6x1.0 Deep 9.0	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-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	-	-	-
T2-1	4-M5x0.8 Deep 8.0	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-M16x2.0 Deep 24.0	4-M20x2.5 Deep30.0	8-M16x2 Deep 24.0
T2-3	-	-	-	-	-	-	-	-

Standard Issued Drive Insert (V measurements reflect valve stem. Inserts subsequently made with appropriate tolerance for valve stem interface)

V	9.0	11.0	14.0	17.0	22.0	27.0	36.0	Blank
V1 Ø	12.2	14.3	19.7	23.9	30.8	37.1	49.1	Blank
H Ø	17.5	22.0	25.8	32.5	44.0	60.0	78.0	95.0
M	10.0	14.0	16.5	21.0	26.0	34.0	43.5	55.5

Shaft

Y1	12.0	16.0	19.0	24.0	29.5	38.0	48.0	62.5
D Ø	22.5	27.0	34.0	40.5	54.3	71.5	92.0	119.9

Direct Mount Shaft

X1 Ø	10.5	13.0	16.0	21.0	28.7	35.5	43.0	57.5
Y3	13.3	18.0	21.3	26.6	32.0	40.8	52.0	67.0
Y4	20.8	26.5	34.3	42.6	52.5	77.8	89.0	109.0
W1	1.3	2.0	2.3	2.6	2.5	2.8	4.0	4.5

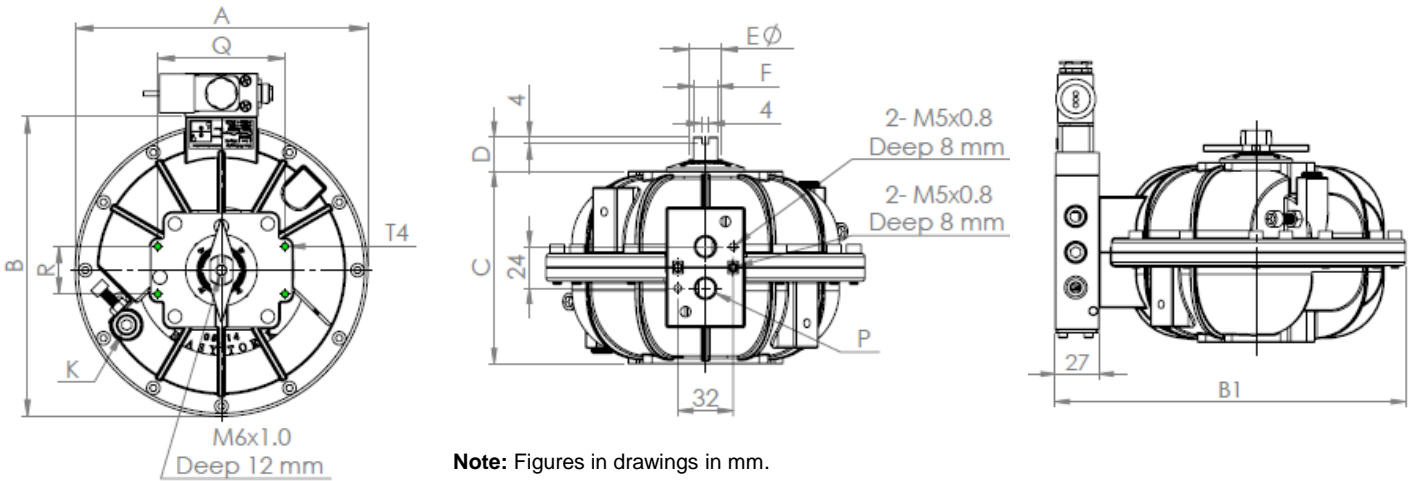
Semi-Direct Mount Shaft

G	25.4	25.4	38.1	38.1	44.5	44.5	50.8	76.2
X Ø	14.1	18.1	22.1	28.1	36.1	52.0	68.0	C/F
Y2	27.5	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	14.1	18.1	22.1	28.1	36.1	52.0	68.0	78.0
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EZ Vane and Auxiliary Interface Dimensions



Note: Figures in drawings in mm.

Imperial

Dimensions (inch)	Model							
	EV-03	EV-04	EV-05	EV-07	EV-10	EV-12	EV-14	EV-16
Actuator Dimensions								
A	5.00	6.02	7.24	9.41	11.61	15.20	18.50	23.03
B	5.20	6.22	7.44	9.61	11.81	15.31	18.70	23.21
B1	6.26	7.28	8.50	10.67	12.87	16.38	19.76	24.27
C	3.03	3.62	4.41	5.71	7.17	9.37	11.26	14.08
F	0.55	0.55	0.55	0.55	0.94	0.94	0.94	0.94
E Ø	0.75	0.75	0.75	0.75	1.30	1.30	1.30	1.30
P	1/8-27NPT	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	M5x25mm	M5x30mm	M6x35mm	M8x45mm	M8x50mm	M12x60mm	M12x70mm	M16x100mm
Actuator Dimensions of Accessories Flange								
D	0.79	0.79	0.79	0.79	1.18	1.18	1.18	1.18
R	0.98	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Q	1.97	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	4x10-24UNC Deep 0.31

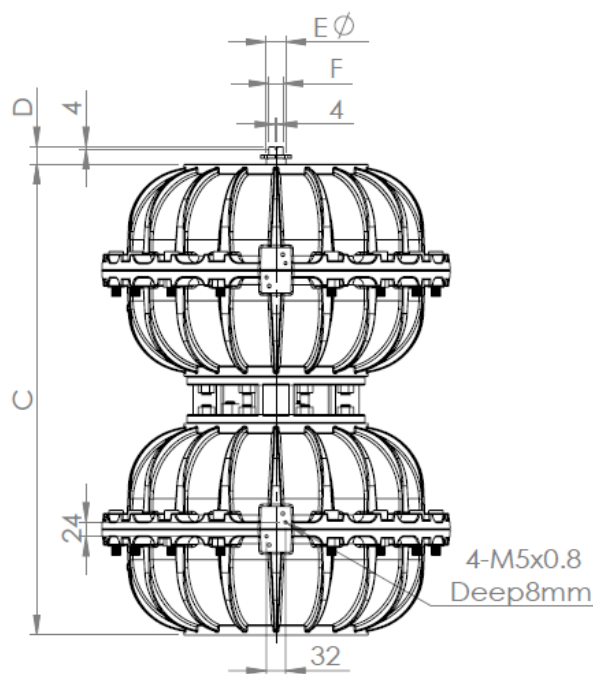
Metric

Dimensions (mm)	Model							
	EV-03	EV-04	EV-05	EV-07	EV-10	EV-12	EV-14	EV-16
Actuator Dimensions								
A	127	153	184	239	295	386	470	585
B	132	158	189	244	300	389	475	590
B1	159	185	216	271	327	416	502	617
C	77	92	112	145	182	238	286	358
F	14	14	14	14	24	24	24	24
E Ø	19	19	19	19	33	33	33	33
P	1/8-28 BSPP	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	M5x25mm	M5x30mm	M6x35mm	M8x45mm	M8x50mm	M12x60mm	M12x70mm	M16x100mm
Actuator Dimensions of Accessories Flange								
D	20	20	20	20	30	30	30	30
R	25	30	30	30	30	30	30	30
Q	50	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	4-M5x0.8 Deep 8

Tandem EZ Vane Actuators

Dual-stack

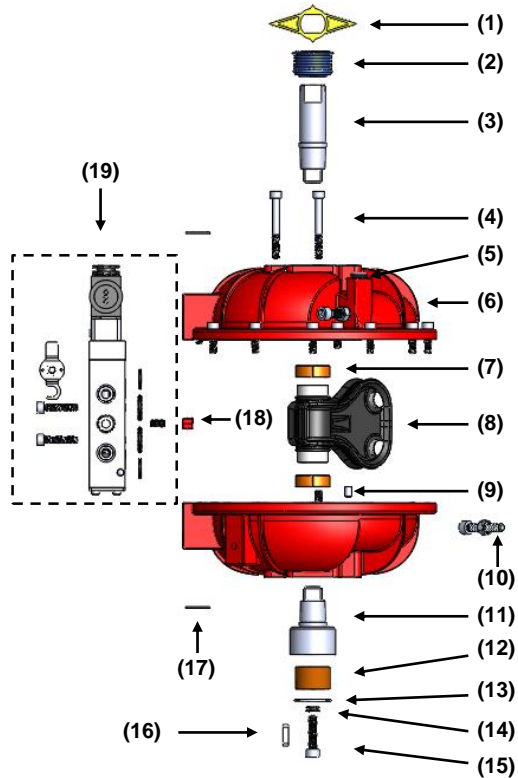
EZs can be dual-stacked to achieve increased torque output.



Note: Figures in drawings in mm.

Model		
Dimensions	EV-16T 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

EZ Vane Bill of Material



Ref No	Description	Standard Version	Chemical Version	Quantity
1	Yellow position & degree indicator	NBR	NBR	1
2	Blue graduated ring	NBR	NBR	1
3	Upper shaft	Nickel-plated steel	Stainless steel	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 & internal finish	Aluminum A383 / Xylan 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	Mild steel	Mild steel	2
11	Lower shaft	Stainless steel	Stainless steel	1
12	Drive insert lower	Nickel-plated steel	Stainless steel	1
13	Drive insert circlip	Nickel-plated steel	Stainless steel	1
14	Belleville washer	Stainless steel	Stainless steel	1
15	Shaft connect bolt	High tensile steel	High tensile steel	2
16	Drive insert key	Stainless steel	Keysteel	1
17	Tag plate*	Stainless steel	Keysteel	1
18	Locator insert*	Keysteel	Stainless steel	1
19	Main solenoid valve	Stainless steel	Plastic	1
		Plastic	(See ESV for details)	2
		(See ESV for details)		1

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

Ordering Codes

EZ Vane Actuator

Model Number		Actuator Attributes				Valve Interface Installed With Actuator		
		Thread	EZ Material (Corrosion Rating)	Seal (Temp. Rating)		Lower Shaft Type	Drive Insert Type	Drive Insert Size
-	X	-	X	X	-	X	X	X
EV-03		1: Imperial	1: Standard version	1: CR for all temp rating (-40°C to 120°C or -40°F to 248°F)		1: Direct mount (standard issuance)	1: Square drive (standard issuance)	1: Standard size (standard issuance)
EV-04		2: Metric	2: Chemical resistant version			2: Semi-direct mount		
EV-05								
EV-07								
EV-10								
EV-12								
EV-14								
EV-16								
1T - 8T: Corresponding actuator's tandem version								
1W - 8W: Corresponding actuator, propelled with water instead of pressurized air								

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