



# Section 21

## Actuators

(Electric and Pneumatic)

## Pneumatic Actuator

### FEATURES OF SINGLE AND DOUBLE ACTING ACTUATORS

- Self Energizing V-Seal piston ring
- Double rack & Pinion
- High Corrosion Resistance
- Pinion Supported on polyacetal bearings
- Anodized Body inside and out
- Hard anodized pistons
- ISO5211 mounting for interchange ability
- Anti-blowout pinion
- Smooth burnished cylinder wall
- Seal Guaranteed for 3 million cycles

Specifications	
MAX Temperature	-40°C - 80°C
Cold Working Pressure	820kPa

The advantage of choosing the Spring return actuator over the Double acting actuator is predominantly for safety reasons. The spring return (which is air to open and spring to close) actuator can be set up for fail open or fail safe. This is designed so that if you loose air pressure while the valve is in operation pumping flammable fluids the fail close set up will shut the valve preventing a fire. The double acting actuator (air to open and air to close) is a alternative to the spring return and is used in systems that require air pressure to open and close the valve.

Materials			
PART	MATERIAL	PART	MATERIAL
Body	Aluminium	External Circlip	Spring Steel
Cover	Aluminium	Cover Seal	NBR
Piston with Rack	Aluminium	Piston Seal	Polyethylene
Pinion	Steel / EN	Spring	Spring Steel GR3
Pinion Bearing	Polyacetal	Slide Ring	Polyacetal
Centre Bore Sleeve	Polyacetal	Piston Bearing	Polyacetal
Cam Insert	Steel	Pinion Seal	Polyethylene
Pinion Seal	Polyethylene		

Torque (Nm)

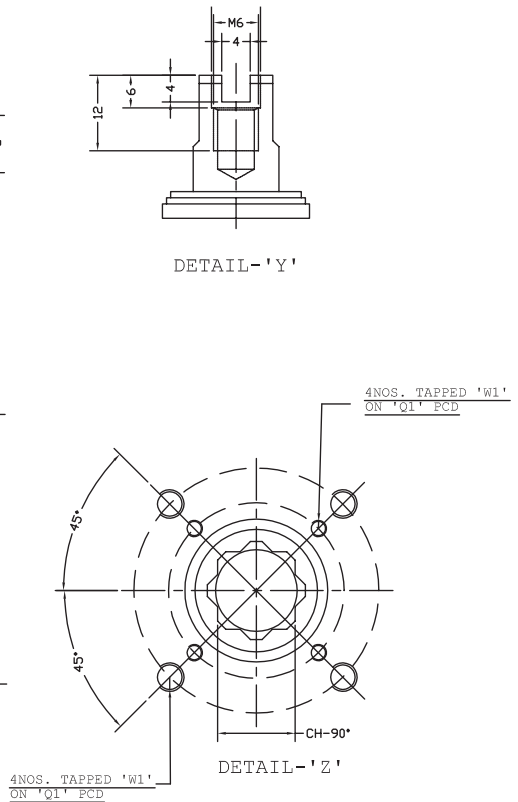
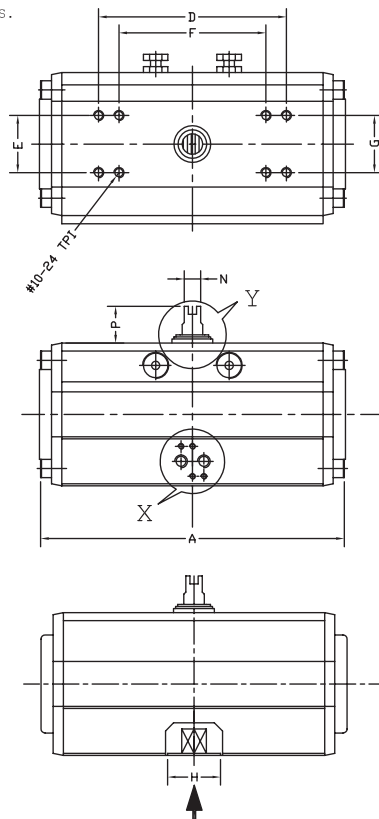
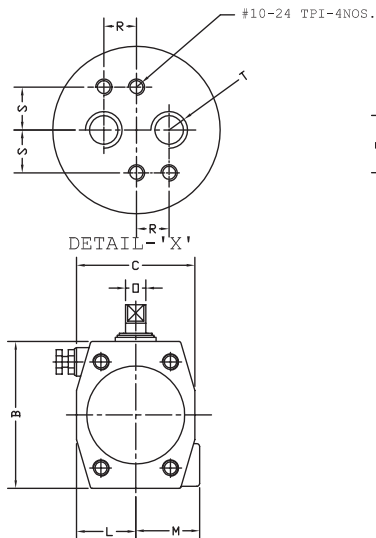
Torque (Nm)					
Double Acting					
MODEL	3 bar	4 bar	5 bar	6 bar	7 bar
VEC32	4	5	7	8	10
VEC40	10	13	17	20	23
VEC50	15	19	25	29	33
VEC63	29	39	48	59	68
VEC80	48	64	80	96	112
VEC90	75	100	125	150	175
VEC100	102	136	170	204	238
VEC110	127	169	212	254	297
VEC125	175	233	292	350	408
VEC150	293	390	488	586	684
VEC175	429	573	716	860	1000
VEC200	696	928	1160	1390	1625
VEC250	1130	1510	1890	2265	2640
VEC300	1630	2170	2715	3260	3800
VEC350	2190	2920	3650	4380	5110

Torque (Nm)

Torque (Nm)										
Single Acting (Spring Return)										
AAP CODE	SPRING MIN	SPRING MAX	3 BAR		4 BAR		5 BAR		6 BAR	
			AIR MIN	AIR MAX	AIR MIN	AIR MAX	AIR MIN	AIR MAX	AIR MIN	AIR MAX
VEC40E	8	12	-	2.2	1.6	5.6	5	8.9	8.3	12.2
VEC50E	11	16	-	3.2	2.6	8	7.3	12.7	12.1	17.5
VEC63E	23	34	-	7	5	17	15	26	25	36
VEC80E	37	55	-	11	8	27	24	42	40	58
VEC90E	56	84	-	16	13	40	37	65	61	89
VEC100E	80	119	-	23	18	57	52	91	86	126
VEC110E	99	148	-	29	22	71	65	114	107	156
VEC125E	136	203	-	40	31	98	89	156	147	215
VEC150E	221	334	-	72	57	169	154	267	252	365
VEC175E	318	492	-	112	81	255	224	398	367	541
VEC200E	566	838	-	131	91	363	323	595	555	828
VEC250E	791	1327	-	341	182	718	560	1095	937	1473
VEC300E	1265	1889	-	364	283	908	827	1451	1370	1991
VEC350E	1697	2540	-	-	-	-	1329	2146	2095	2964

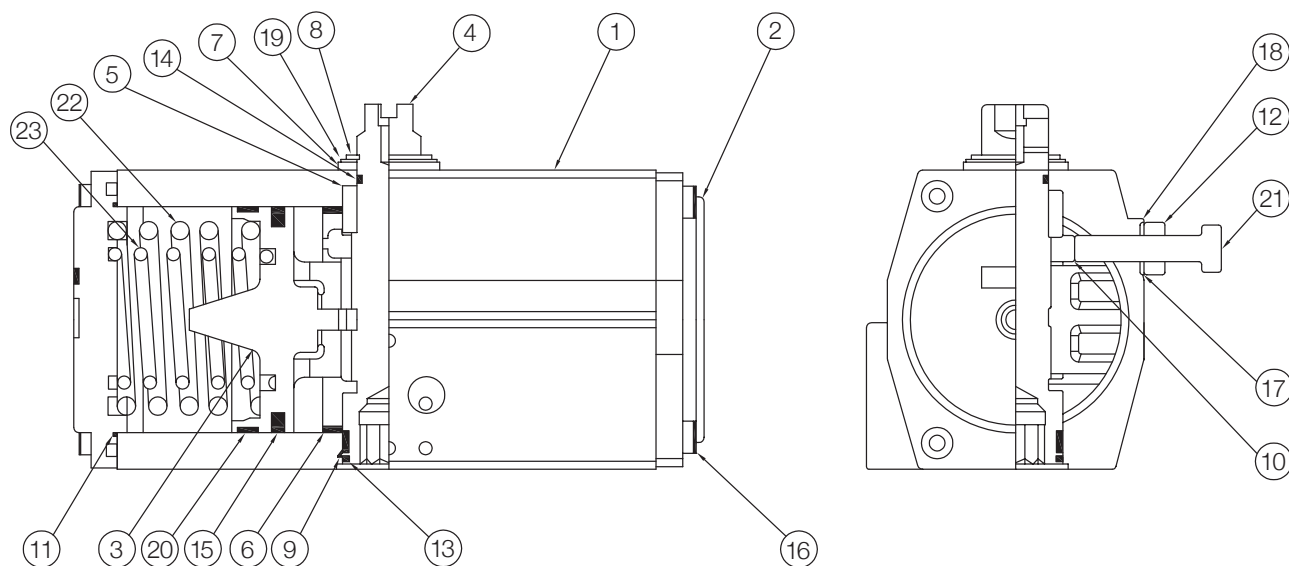
## Double Acting Pneumatic & Spring Return Actuator

Double Acting Pneumatic Actuator (Rotex Brand)														
AAP CODE		A	B	C	D	E	F	G	H	I	L	M	N A/F	O
DOUBLE ACTING	SPRING RETURN													
VEC32		138	49	56	-	-	50	25	24	10	25	31	8	10
VEC40	VEC40E	141	79	65	-	-	80	30	30	14	32.5	39	8	10
VEC50	VEC50E	169	79	65	-	-	80	30	30	14	32.5	39	9	12
VEC63	VEC63E	197	94	80	105	22	80	30	32	17	40	46.5	11	15
VEC80	VEC80E	210	109	96	105	22	80	30	40	17	48	54.5	11	15
VEC90	VEC90E	233	140	122	105	22	80	30	40	17	61	64	11	15
VEC100	VEC100E	271	140	122	105	22	80	30	48	25	61	64	11	15
VEC110	VEC110E	295	150	142	105	22	80	30	48	25	71	74	15	20
VEC125	VEC125E	338	150	142	139	22	130	30	60	25	71	74	15	20
VEC150	VEC150E	365	180	174	139	22	130	30	65	29	87	90	15	20
VEC175	VEC175E	495	180	174	139	22	130	30	90	29	87	90	24	30
VEC200	VEC200E	550	245	264	139	22	130	30	90	40	132	157	24	30
VEC250	VEC250E	695	245	264	139	22	130	30	122	40	132	157	34	30
VEC300	VEC300E	634	370	373	-	-	130	30	90	48	186.5	206.5	55	60
VEC350	VEC350E	775	350	373	-	-	130	30	122	48	186.5	206.5	55	60



## Double Acting Pneumatic & Spring Return Actuator

Double Acting Pneumatic Actuator (Rotex Brand)														
AAP CODE		P	Q	Q1	Flange Q	Type Q1	R	S	T-BSP	CH-900	CH-1, 1800	W	W1	APPROX. KG/PC
DOUBLE ACTING	SPRING RETURN													
VEC32		20	36	-	F03	-	12	16	1/4"	9	9	M5	-	2
VEC40	VEC40E	20	36	50	F03	F05	12	16	1/4"	11	9	M5	M6	3
VEC50	VEC50E	20	36	50	F03	F05	12	16	1/4"	11	9	M5	M6	4
VEC63	VEC63E	20	50	70	F05	F07	12	16	1/4"	14	11	M6	M8	6
VEC80	VEC80E	20	50	70	F05	F07	12	16	1/4"	17	11	M6	M8	8
VEC90	VEC90E	20	50	70	F05	F07	12	16	1/4"	17	11	M6	M8	11
VEC100	VEC100E	20	70	102	F07	F10	12	16	1/4"	22	14	M8	M10	16
VEC110	VEC110E	20	70	102	F07	F10	12	16	1/4"	22	14	M8	M10	19
VEC125	VEC125E	20	70	102	F07	F10	12	16	1/4"	22	14	M8	M10	22
VEC150	VEC150E	20	102	125	F10	F12	12	16	1/4"	27	22	M10	M12	26
VEC175	VEC175E	20	102	125	F10	F12	12	16	1/4"	27	22	M10	M12	35
VEC200	VEC200E	20	102	140	F10	F14	12	16	1/4"	36	27	M10	M16	61
VEC250	VEC250E	30	-	140	F14	-	12	16	1/4"	36	27	-	M16	105
VEC300	VEC300E	30	80	165	F16	-	20	22.5	1/2"	46	36	-	M20	130
VEC350	VEC350E	30	80	165	F16	-	20	22.5	1/2"	46	36	-	M20	156



Part List							
S.N.	Part Description	Qty	Material	S.N.	Part Description	Qty	Material
1	Body	1	Aluminium Alloy	13	Pinion Seal	1	NBR
2	Cover	2	Aluminium	14	Pinion Seal	1	NBR
3	Piston with Rack	2	Aluminium	15	Piston Seal	2	NBR
4	Pinion	1	Steel	16	Hex Socket Screw	8	AISI 304
5	Pinion Bearing	1	Polyacetal	17	O Ring	2	NBR
6	Center Bore Sleeve	1	Polyacetal	18	Washer	2	AISI 304
7	Washer	1	Polyacetal	19	Washer	1	AISI 304
8	External Circlip	1	Spring Steel	20	Piston Bearing	2	Polyacetal
9	Pinion Bearing	1	Polyacetal	21	Stroke Adjustment Screw	2	HGA Steel/SS304
10	Cam Insert	1	Cast Carbon Steel	22	Outer Spring	2	Spring Steel Grade 3
11	Cover Seal	2	NBR	23	Inner Spring	2	Spring Steel Grade 3
12	Lock Nut	2	AISI 304				

## OM-1 Electric Actuator

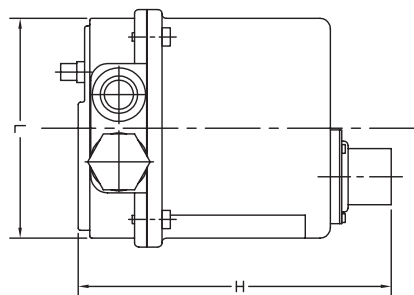
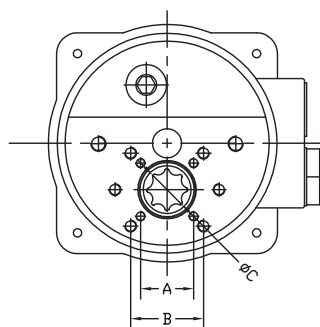
OM-1 Electric Actuator											
AAP CODE	AC/DC	VOLTS	POWER (Watts)	TORQUE (Nm)	SPEED (Sec/90°)	H	L	A	B	C	APPROX KG/PC
VOM112VDC	DC	12	10	35	20	150	115	25	35	19	2
VOM124VAC	AC	24	10	35	20	150	115	25	35	19	2
VOM124VDC	DC	24	10	35	20	150	115	25	35	19	2
VOM1110VAC	AC	110	10	35	20	150	115	25	35	19	2
VOM1240VAC	AC	240	10	35	20	150	115	25	35	19	2

## OM-2 Electric Actuator

OM-2 Electric Actuator											
AAP CODE	AC/DC	VOLTS	POWER (Watts)	TORQUE (Nm)	SPEED (Sec/90°)	H	L	A	B	C	APPROX KG/PC
VOM212VDC	DC	12	40	90	15	290	250	-	50	14	9
VOM224VAC	AC	24	40	90	15	290	250	-	50	14	9
VOM224DC	DC	24	40	90	15	290	250	-	50	14	9
VOM2240VAC	AC	240	40	90	15	290	250	-	50	14	9

## OM-3 Electric Actuator

OM-3 Electric Actuator											
AAP CODE	AC/DC	VOLTS	POWER (Watts)	TORQUE (Nm)	SPEED (Sec/90°)	H	L	A	B	C	APPROX KG/PC
VOM312VDC	DC	12	40	150	22	260	210	-	50	30	9
VOM324VAC	AC	24	40	150	22	260	210	-	50	30	9
VOM324VDC	DC	24	40	150	22	260	210	-	50	30	9
VOM3110VAC	AC	110	40	150	22	260	210	-	50	30	9
VOM3240VAC	AC	240	40	150	22	260	210	-	50	30	9





## OM-4 Electric Actuator

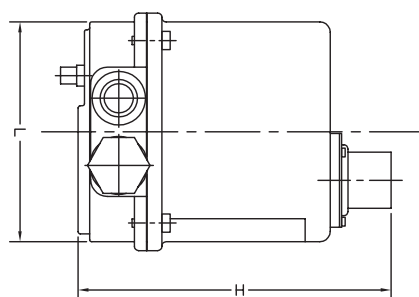
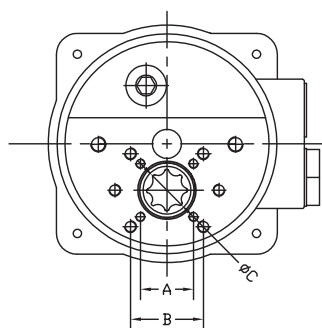
OM-4 Electric Actuator											
AAP CODE	AC/DC	VOLTS	POWER (Watts)	TORQUE (Nm)	SPEED (Sec/90°)	H	L	A	B	C	APPROX KG/PC
VOM412VDC	DC	12	120	400	22	310	300	-	72	46	17.5
VOM424VAC	AC	24	120	400	22	310	300	-	72	46	17.5
VOM424VDC	DC	24	120	400	22	310	300	-	72	46	17.5
VOM4110VAC	AC	110	120	400	22	310	300	-	72	46	17.5
VOM4240VAC	AC	240	120	400	22	310	300	-	72	46	17.5

## OM-A Electric Actuator

OM-A Electric Actuator											
AAP CODE	AC/DC	VOLTS	POWER (Watts)	TORQUE (Nm)	SPEED (Sec/90°)	H	L	A	B	C	APPROX KG/PC
VOMA24VDC	DC	24	10	50	20	190	130	35	50	23	3
VOMA240VAC	AC/DC	240	10	50	20	190	130	35	50	23	3

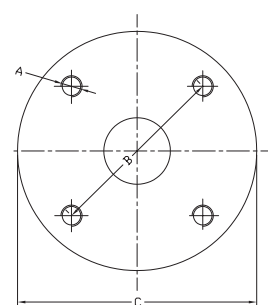
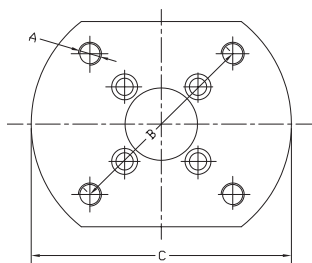
## OM-A-M Electric Actuator (Manual Override)

OM-A-M Electric Actuator (Manual Override)											
AAP CODE	AC/DC	VOLTS	POWER (Watts)	TORQUE (Nm)	SPEED (Sec/90°)	H	L	A	B	C	APPROX KG/PC
VOMAM12VDC	DC	12	10	50	20	190	130	35	50	23	3
VOMAM24VAC	AC/DC	24	10	50	20	190	130	35	50	23	3
VOMAM24VDC	DC	24	10	50	20	190	130	35	50	23	3
VOMAM110VAC	AC/DC	110	10	50	20	190	130	35	50	23	3
VOMAM240VAC	AC/DC	240	10	50	20	190	130	35	50	23	3



## Mounting Pads

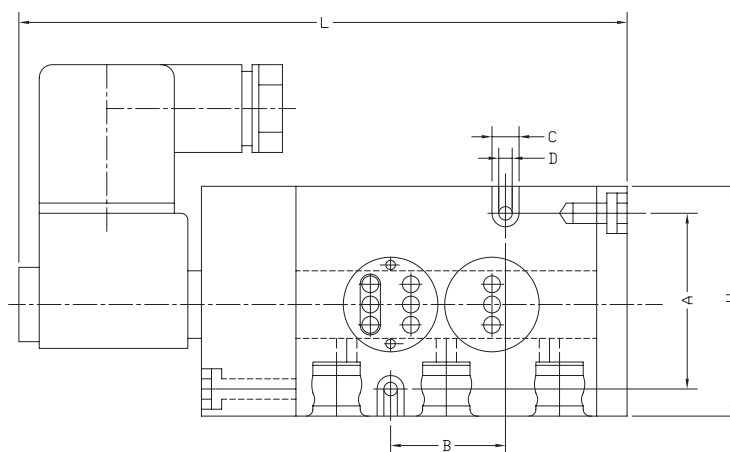
Mounting Pads					
AAP CODE	SUITS	A	B	C	APPROX. KG/PC
VMKU0	50/65 Single Actuating Butterfly Valves	M6	70	90	0.24
	50/65/80 Double Actuating Butterfly Valves	M6	70	90	0.24
VMKU1	80 Single Actuating Butterfly Valves	M8	70	90	0.25
	100/125/150 Butterfly Valves	M8	70	90	0.25
VMKU2	200/250/300 Butterfly Valves	M10	102	125	0.5



## Solenoid Coil

SPECIFICATIONS	
Port Connection	1/4
Minimum Operation Pressure	100kPa
Maximum Operating Pressure	1000kPa
Orifice	4mm

Solenoid Coil									
AAP CODE	AC/DC	VOLTS	L	H	A	B	C	D	APPROX. KG/PC
VWS012VDC	DC	12	125	40	32	24	10	5.5	0.07
VWS024VAC	AC	24	125	40	32	24	10	5.5	0.07
VWS024VDC	DC	24	125	40	32	24	10	5.5	0.07
VWS110VAC	AC	110	125	40	32	24	10	5.5	0.07
VWS240VAC	AC	240	125	40	32	24	10	5.5	0.07
VWSBLOCK									0.29





## Limit Switch

Material List		
PART	MATERIAL (WEATHER PROOF)	MATERIAL (EXPLOSION PROOF)
Housing	Aluminium Alloy LM-6	Aluminium Alloy LM-6
Cover	Aluminium Alloy LM-6	Aluminium Alloy LM-6
Cam	Polycarbonate	Polyamide
Cam-Lock	Delrin	POM
Shaft	Stainless Steel	Stainless Steel
Gasket	NBR	NBR
Spring	Stainless Steel	Stainless Steel
O-Ring	NBR	NBR

Specifications	
Temperature Range	-15°C ~ 60°C

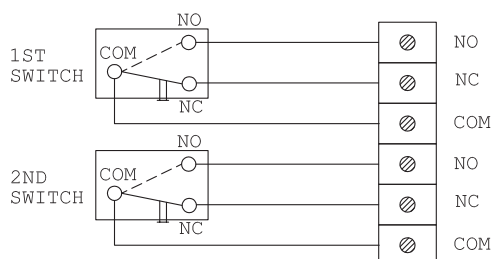
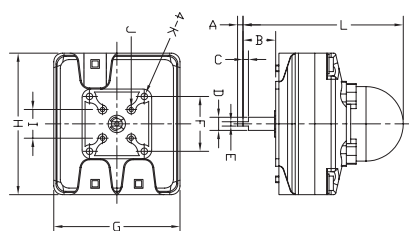
### FEATURES (EXPLOSION PROOF)

- Enclosure certified to UL1203 and UL508
- Switch Box conforms to EX D 11C, T6 Highest Level of Safety
- ATEX certified by CESI (Cert No. CESI 05 ATEX017)
- Weather Proof enclosure to IP67
- Poly carbonate Dome, shatterproof
- Aluminium die cast enclosure, powder coated for superior corrosion resistance
- Colour coded cams easy to identify, and easy to set
- Special circuit board eliminates internal wiring
- Serrated cams locked together ensures adjusted settings secured against any vibration
- Special circuit board eliminates internal wiring

### FEATURES (WEATHER PROOF)

- Weather Proof enclosure to IP67
- Poly carbonate Dome, shatterproof
- Aluminium die cast enclosure, powder coated for superior corrosion resistance
- Colour coded cams easy to identify, and easy to set
- Special circuit board eliminates internal wiring
- Serrated cams locked together ensures adjusted settings secured against any vibration
- Special circuit board eliminates internal wiring

Limit Switch														
AAP CODE	FUNCTION	A	B	C	D	E	F	G	H	I	J	4-K	L	APPROX. KG/PC
VWLS50/X30	WEATHER PROOF	4	29	4	12	4	57	105	120	35.4	4-M6	5/16UNC	136.5	0.82
VWLSEXP50/X30	EXPLOSION PROOF	4	29	4	12	4	57	148	155	36.4	4-M7	5/16UNC	154	0.82



## Actuator Guide For Stainless Steel Ball Valves - Electric Actuators

Electric Actuators									
SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
AAP CODE	SS3B-V15MP	SS3B-V20MP	SS3B-V25MP	SS3B-V32MP	SS3B-V40MP	SS3B-V50MP	SS3B-V65MP	SS3B-V80MP	SS3B-V100MP

12V (DC)	ELECTRIC ACTUATOR - 12 VOLT DC - MANUAL OVER RIDE								
	VOM-112VDC	VOM-112VDC	VOM-112VDC	VOM-112VDC	VOM-112VDC	VOMAM-12VDC	VOM-212VDC	VOM-212VDC	VOM-412VDC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOMAMK	VOM4MK

24 VOLT (AC)	ELECTRIC ACTUATOR - 24 VOLT AC - MANUAL OVER RIDE								
	VOM-124VAC	VOM-124VAC	VOM-124VAC	VOM-124VAC	VOM-124VAC	VOMAM-24VAC	VOM-224VAC	VOM-224VAC	VOM-424VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOMAMK	VOM4MK

24 VOLT (DC)	ELECTRIC ACTUATOR - 24 VOLT DC - MANUAL OVER RIDE								
	VOM-124VDC	VOM-124VDC	VOM-124VDC	VOM-124VDC	VOM-124VDC	VOMAM-24VDC	VOM-224VDC	VOM-224VDC	VOM-424VDC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOMAMK	VOM4MK

110 VOLT (AC)	ELECTRIC ACTUATOR - 110 VOLT AC - MANUAL OVER RIDE								
	VOM-1110VAC	VOM-1110VAC	VOM-1110VAC	VOM-1110VAC	VOM-1110VAC	VOMAM-110VAC	VOM-2110VAC	VOM-3110VAC	VOM-4110VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOMAMK	VOM4MK

240 VOLT (AC)	ELECTRIC ACTUATOR - 240 VOLT AC - MANUAL OVER RIDE								
	VOM-1240VAC	VOM-1240VAC	VOM-1240VAC	VOM-1240VAC	VOM-1240VAC	VOMAM-240VAC	VOM-2240VAC	VOM-2240VAC	VOM-4240VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOMAMK	VOM4MK



## Actuator Guide For Stainless Steel Ball Valves - Pneumatic Actuators

SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
AAP CODE	SS3BV15MP	SS3BV20MP	SS3BV25MP	SS3BV32MP	SS3BV40MP	SS3BV50MP	SS3BV65MP	SS3BV80MP
DOUBLE ACTING	DOUBLE ACTING ACTUATOR - PNEUMATIC							
	VEC40	VEC40	VEC40	VEC63	VEC63	VEC63	VEC80	VEC90
SINGLE ACTING	SINGLE ACTING ACTUATOR - SPRING RETURN							
	VEC40E	VEC50E	VEC63E	VEC63E	VEC80E	VEC90E	VEC100E	VEC110E

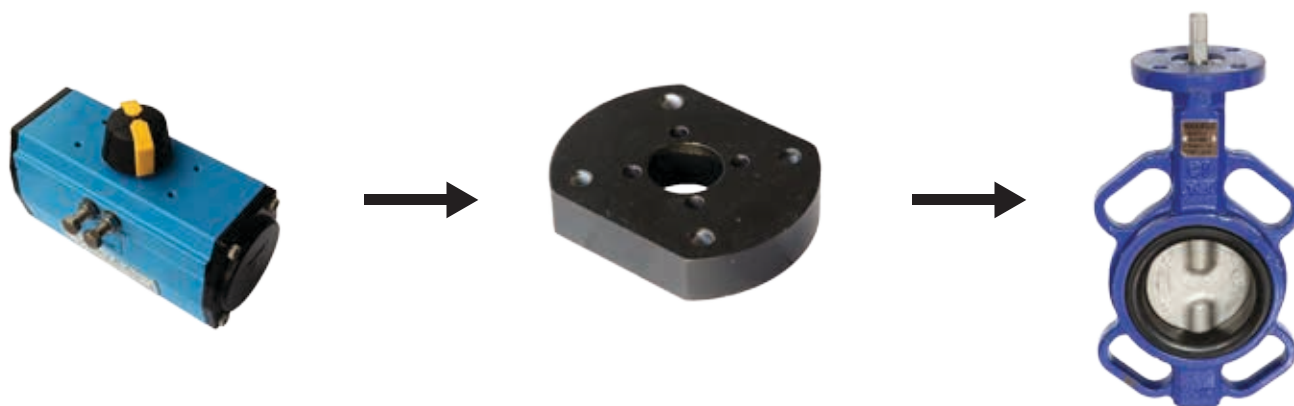


## Actuator Guide For Butterfly Valves - Double Acting

Double Acting Actuators									
SIZE	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
	Either wafer or lugged butterfly valve can be used. For part numbers refer to butterfly section.								
MOUNTING KIT	MOUNTING KITS to suit DOUBLE ACTING ACTUATORS								
	VMKU0	VMKU0	VMKU0	VMKU1	VMKU1	VMKU1	VMKU2	VMKU2	VMKU2
DOUBLE ACTING WET SERVICE	DOUBLE ACTING ACTUATOR - PNEUMATIC - WET SERVICE								
	VEC40	VEC50	VEC50	VEC63	VEC80	VEC80	VEC90	VEC125	VEC150

## Actuator Guide For Butterfly Valves - Single Acting

Single Acting Actuators									
SIZE	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
	Either wafer or lugged butterfly valve can be used. For part numbers refer to butterfly section.								
MOUNTING KIT	MOUNTING KITS to suit DOUBLE ACTING ACTUATORS								
	VMKU1	VMKU1	VMKU1	VMKU1	VMKU1	VMKU1	VMKU2	VMKU2	VMKU2
SINGLE ACTING WET SERVICE	SINGLE ACTING ACTUATOR - SPRING RETURN - WET SERVICE								
	VEC63E	VEC63E	VEC80E	VEC80E	VEC90E	VEC100E	VEC110E	VEC150E	VEC175E
SINGLE ACTING DRY SERVICE	SINGLE ACTING ACTUATOR - SPRING RETURN - DRY SERVICE								
	VEC63E	VEC80E	VEC80E	VEC90E	VEC100E	VEC110E	VEC150E	VEC175E	VEC175E



## [21] ACTUATORS

### Actuator Guide for Butterfly valves – Electric Actuators

Electric Actuators									
SIZE	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
	Either wafer or lugged butterfly valve can be used. For part numbers refer to butterfly section.								

12V (DC)	ELECTRIC ACTUATOR - 12 VOLT DC - MANUAL OVER RIDE								
	VOM-112VDC	VOM-112VDC	VOM-112VDC	VOM-112VDC	VOM-212VDC	VOM-212VDC	VOM-312VDC	VOM-412VDC	VOM-412VDC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOM3MK	VOM4MK	VOM4MK

24 VOLT (AC)	ELECTRIC ACTUATOR - 24 VOLT AC - MANUAL OVER RIDE								
	VOM-124VAC	VOM-124VAC	VOM-124VAC	VOM-124VAC	VOM-224VAC	VOM-224VAC	VOM-324VAC	VOM-424VAC	VOM-424VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOM3MK	VOM4MK	VOM4MK

24 VOLT (DC)	ELECTRIC ACTUATOR - 24 VOLT DC - MANUAL OVER RIDE								
	VOM-124VDC	VOM-124VDC	VOM-124VDC	VOM-124VDC	VOM-224VAC	VOM24VAC	VOM-324VAC	VOM-424VAC	VOM-424VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOM3MK	VOM4MK	VOM4MK

110 VOLT (AC)	ELECTRIC ACTUATOR - 110 VOLT AC - MANUAL OVER RIDE								
	VOM-1110VDC	VOM-1110VDC	VOM-1110VDC	VOM-1110VDC	VOM-3110VAC	VOM-3110VAC	VOM-3110VAC	VOM-4110VAC	VOM-4110VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOM3MK	VOM3MK	VOM3MK	VOM4MK	VOM4MK

240 VOLT (AC)	ELECTRIC ACTUATOR - 240 VOLT AC - MANUAL OVER RIDE								
	VOM-1240VAC	VOM-1240VAC	VOM-1240VAC	VOM-1240VAC	VOM-2240VAC	VOM-240VAC	VOM-3240VAC	VOM-4240VAC	VOM-4240VAC
	MOUNTING KIT TO SUIT								
	VOM1MK	VOM1MK	VOM1MK	VOM1MK	VOMAMK	VOMAMK	VOM3MK	VOM4MK	VOM4MK



## Notes

[illegible]