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MILWAUKEE VALVE





# CLA23E 2"-12"

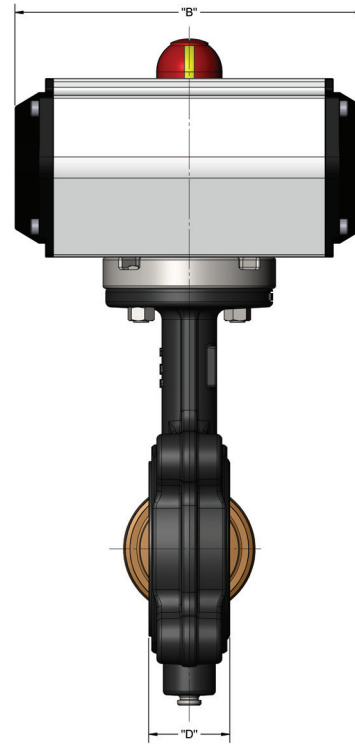
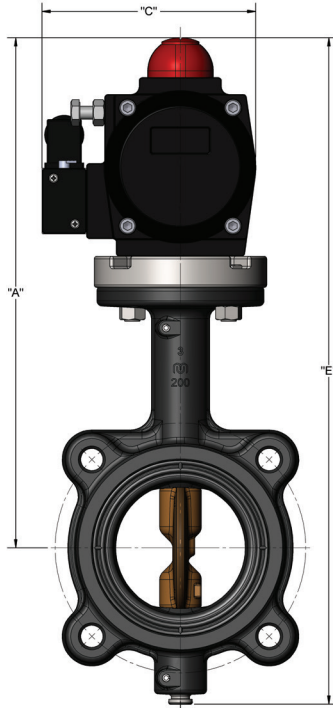


ABS Type Approved;  
Cat. A  
CFR-46



Tested and Certified by  
IAFMOR&T to NSF/ANSI 372  
and NSF/ANSI 61

**Iron Butterfly Valve for Potable Water**  
**200 psi Non-Shock WOG**  
**Bi-Directional Dead End Service to 200 psi Max**  
**Air to Air Pneumatic Actuator**  
**Specifications: API-609 MSS SP-67 Type 1**



- Cast Iron
- Lug Pattern
- Aluminum Bronze Disc
- EPDM Liner
- 200 WOG
- Temp Range: 0° to 250° F for HVAC service
- Double-acting actuator sized for 80 psi air supply
- 120V four-way NEMA 4/4x NAMUR mounted solenoid
- For on/off service

## DIMENSIONS

AIR TO AIR ACTUATOR ASSEMBLY						
Valve	Model	Dimensions in Inches				
Size	Actuator	A "	B "	C "	D "	E "
2	MC3C	10.48	6.61	2.83	1.69	13.54
2 1/2	MC3C	10.98	6.61	2.83	1.81	14.29
3	MC3C	11.23	6.61	2.83	1.81	14.98
4	MC5C	12.45	7.24	3.19	2.07	16.70
5	MC5C	12.98	7.24	3.19	2.19	17.92
6	MC10C	14.14	10.31	3.86	2.19	19.70
8	MC29C	17.70	11.65	5.02	2.38	23.26
10	MC29C	18.88	11.65	5.02	2.69	26.76
12	MC58C	21.97	18.03	6.22	3.06	31.22

**\*Note:** Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content  $\leq 0.25\%$ . Source: California Health and Safety Code (116875).

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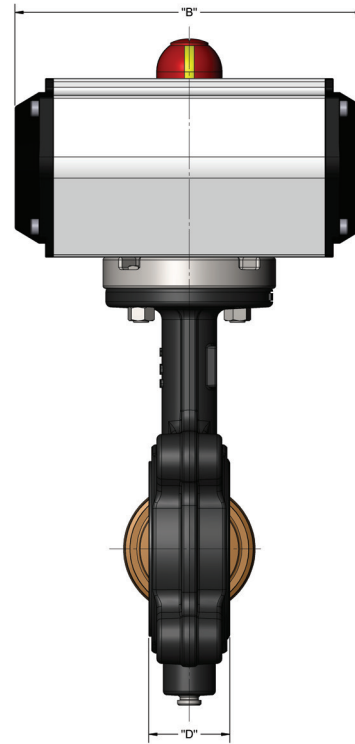
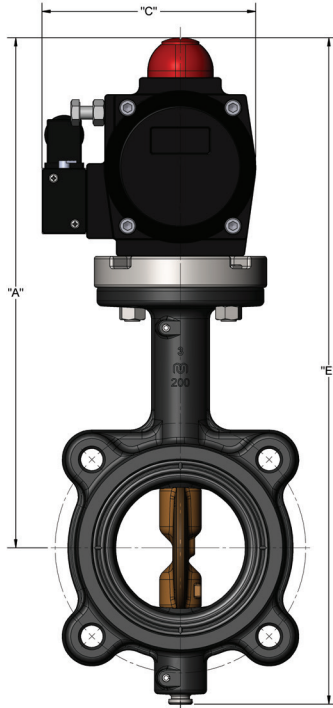


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**Iron Butterfly Valve for Potable Water**  
**200 psi Non-Shock WOG**  
**Bi-Directional Dead End Service to 200 psi Max**  
**Spring Return Pneumatic Actuator**  
**Specifications: API-609 MSS SP-67 Type 1**



- Cast Iron
- Lug Pattern
- Aluminum Bronze Disc
- EPDM Liner
- 200 WOG
- Temp Range: 0° to 250° F for HVAC service
- Spring return fail closed actuator
- 120V four-way NEMA 4/4x NAMUR mounted solenoid
- For on/off service

**DIMENSIONS**

SPRING RETURN ACTUATOR ASSEMBLY						
Valve	Model	Dimensions in Inches				
Size	Actuator	A "	B "	C "	D "	E "
2	MC3S4C	10.48	6.61	2.83	1.69	13.54
2 1/2	MC3S4C	10.98	6.61	2.83	1.81	14.29
3	MC5S4C	11.70	7.24	3.19	1.81	15.45
4	MC10S4C	13.14	10.31	3.86	2.07	17.39
5	MC14S4C	15.55	10.55	4.31	2.19	20.49
6	MC29S4C	16.89	11.65	5.02	2.19	22.45
8	MC58S4C	19.35	18.03	6.22	2.38	24.91
10	MC58S4C	20.53	18.03	6.22	2.69	28.41
12	MC121S4C	27.22	22.20	8.27	3.06	36.47

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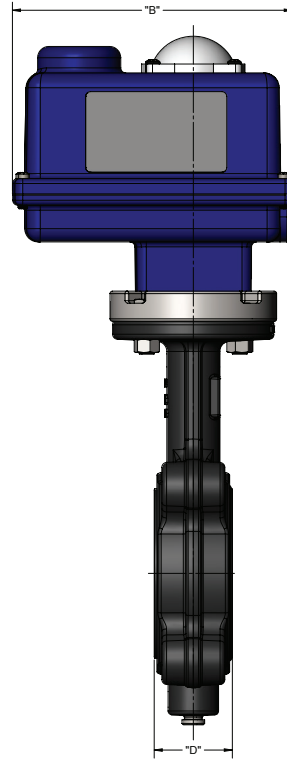
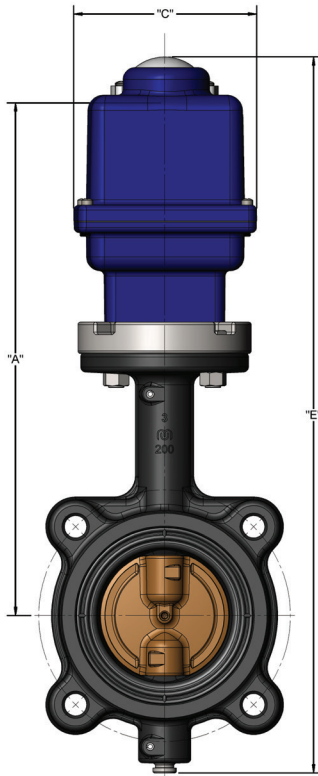




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and NSF/ANSI 61



- Cast Iron
- Lug Pattern
- Aluminum Bronze Disc
- EPDM Liner
- 200 WOG
- Temp Range: 0° to 250° F for HVAC service
- 120VAC NEMA 4 rated electric actuator
- 25% duty cycle
- For on/off service
- Two limit switches
- Manual override
- Visual position indicator

**DIMENSIONS**

120 VAC ELECTRIC ACTUATOR ASSEMBLY						
Valve	Model	Dimensions in Inches				
Size	Actuator	A "	B "	C "	D "	E "
2	MCRB200I	12.55	6.88	4.25	1.69	15.61
2 1/2	MCRB200I	13.05	6.88	4.25	1.81	16.36
3	MCRB200I	13.30	6.88	4.25	1.81	17.05
4	MCRB675I	18.26	7.00	7.00	2.07	22.51
5	MCRB675I	19.15	7.00	7.00	2.19	24.09
6	MCRB1000I	19.62	7.00	7.00	2.19	25.18
8	MCRB1500I	21.00	7.00	7.00	2.38	26.56
10	AT25-25	18.93	16.25	27.38	2.69	26.81
12	AT50-25	25.30	16.25	28.38	3.06	34.55

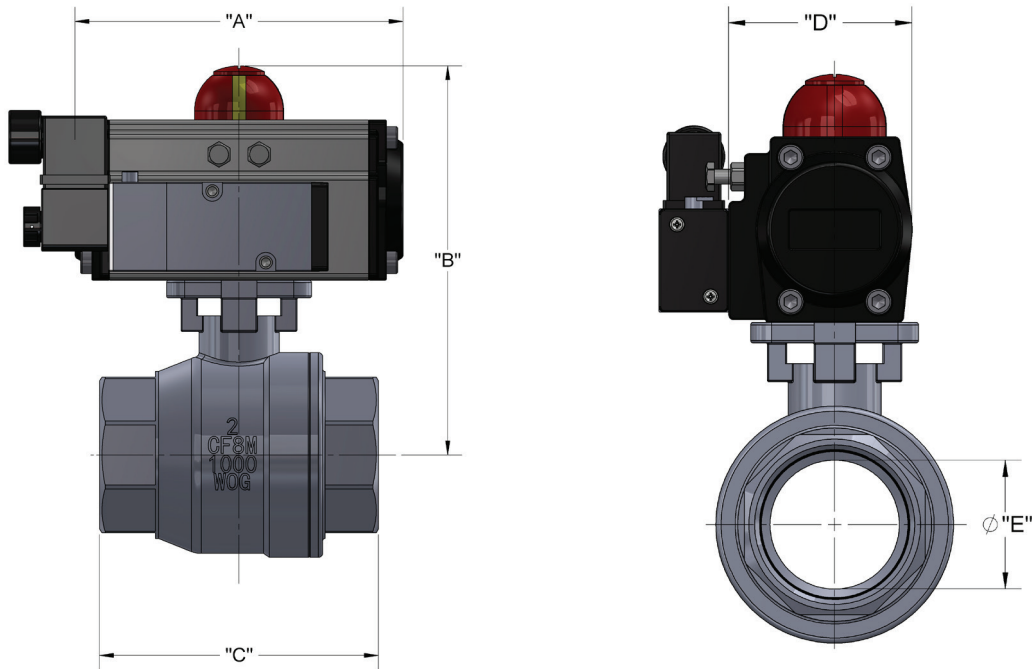
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# BA260LDA 1/4"-3"

Stainless Steel Ball Valve  
 Full Port  
 1000 WOG  
 Air to Air Actuator Pneumatic Actuator  
 Blow-Out Proof Stem  
 Specifications: MSS SP110



- CF8M (316 SS) two-piece full port
- 316 SS ball and stem
- TFM 1600 PTFE seats and packing
- 1000 psi rated @ 100° F
- Temp range: -20° to 450° F 50 psi SWP
- Double-acting actuator sized for 80 psi air supply
- 120V four-way NEMA 4/4x NAMUR mounted solenoid
- For on/off service

AIR TO AIR ACTUATOR ASSEMBLY DIMENSIONS						
Valve	Model	Dimensions in Inches				
Size	Actuator	A "	B "	C "	D "	E "
1/4	MC2C	5.79	5.27	2.64	2.81	0.42
3/8	MC2C	5.79	5.27	2.64	2.81	0.50
1/2	MC2C	5.79	5.27	2.64	2.81	0.59
3/4	MC2C	5.79	5.55	2.76	2.81	0.79
1	MC2C	5.79	5.90	3.35	2.81	0.98
1 1/4	MC2C	5.79	6.10	3.70	2.81	1.26
1 1/2	MC3C	6.61	7.03	4.13	3.27	1.50
2	MC5C	7.24	7.77	4.92	3.74	1.97
2 1/2	MC7C	8.03	9.07	6.10	4.05	2.50
3	MC10C	10.31	9.68	6.81	4.27	2.99

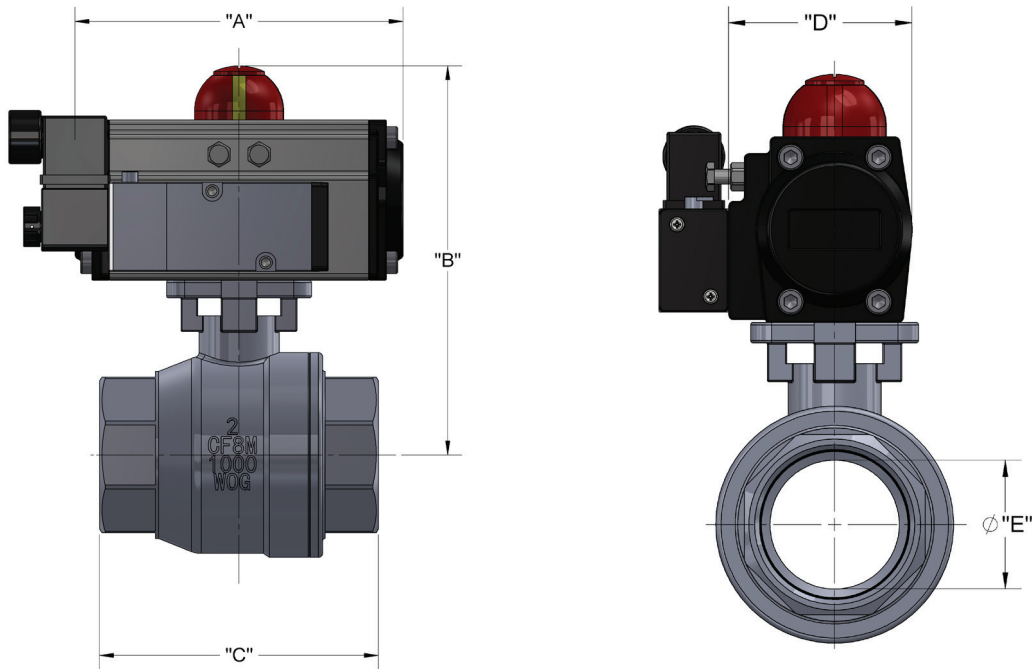
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# BA260LDB 1/4"-3"

Stainless Steel Ball Valve  
 Full Port  
 1000 WOG  
 Spring Return (Fail Closed) Pneumatic Actuator  
 Blow-Out Proof Stem  
 Specifications: MSS SP110



- CF8M (316 SS) two-piece full port
- 316 SS ball and stem
- TFM 1600 PTFE seats and packing
- 1000 psi rated @ 100° F
- Temp range: -20° to 450° F 50 psi SWP
- Spring Return (fail closed) actuator size for 80 psi air supply
- 120V three-way NEMA 4/4x NAMUR mounted solenoid
- For on/off service

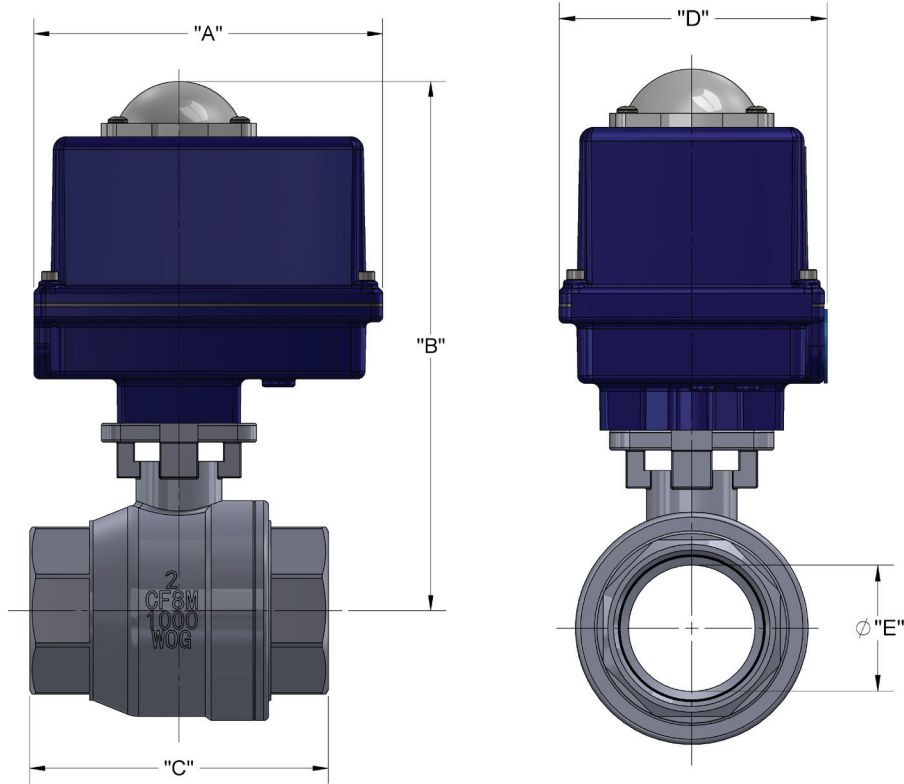
AIR TO AIR ACTUATOR ASSEMBLY DIMENSIONS						
Valve	Model	Dimensions in Inches				
Size	Actuator	A "	B "	C "	D "	E "
1/4	MC2S4C	5.79	5.27	2.64	2.81	0.42
3/8	MC2S4C	5.79	5.27	2.64	2.81	0.50
1/2	MC2S4C	5.79	5.27	2.64	2.81	0.59
3/4	MC3S4C	6.61	7.03	2.76	3.27	0.79
1	MC5SC4	7.24	7.77	3.35	3.74	0.98
1 1/4	MC5SC4	7.24	7.77	3.70	3.74	1.26
1 1/2	MC7SC4	8.03	9.07	4.13	4.05	1.50
2	MC10SC4	10.31	9.07	4.92	4.27	1.97
2 1/2	MC29SC4	11.65	10.89	6.10	5.59	2.50
3	MC29SC4	11.65	11.18	6.81	5.59	2.99

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# BA260LDC 1/4"-3"

Stainless Steel Ball Valve  
 Full Port  
 1000 WOG  
 120VAC Electric Actuator  
 Blow-Out Proof Stem  
 Specifications: MSS SP110



- CF8M (316 SS) two-piece full port
- 316 SS ball and stem
- TFM 1600 PTFE seats and packing
- 1000 psi rated @ 100° F
- Temp range: -20° to 450° F 50 psi SWP
- 120VAC NEMA 4 rated electric actuator
- 25% duty cycle
- Two limit switches / Remote light indication
- Manual override
- Visual position indicator
- For on/off service

AIR TO AIR ACTUATOR ASSEMBLY DIMENSIONS						
Valve	Model	Dimensions in Inches				
Size	Actuator	A "	B "	C "	D "	E "
1/4	MCR100	6.44	7.31	2.64	4.13	0.42
3/8	MCR100	6.44	7.31	2.64	4.13	0.50
1/2	MCR100	6.44	7.31	2.64	4.13	0.59
3/4	MCR100	6.44	7.59	2.76	4.13	0.79
1	MCR200	6.88	8.58	3.35	4.25	0.98
1 1/4	MCR200	6.88	8.78	3.70	4.25	1.26
1 1/2	MCR300	6.88	9.10	4.13	4.25	1.50
2	MCR675	7.00	12.10	4.92	7.00	1.97
2 1/2	MCR675	7.00	13.03	6.10	7.00	2.50
3	MCR1000	7.00	13.32	6.81	7.00	2.99

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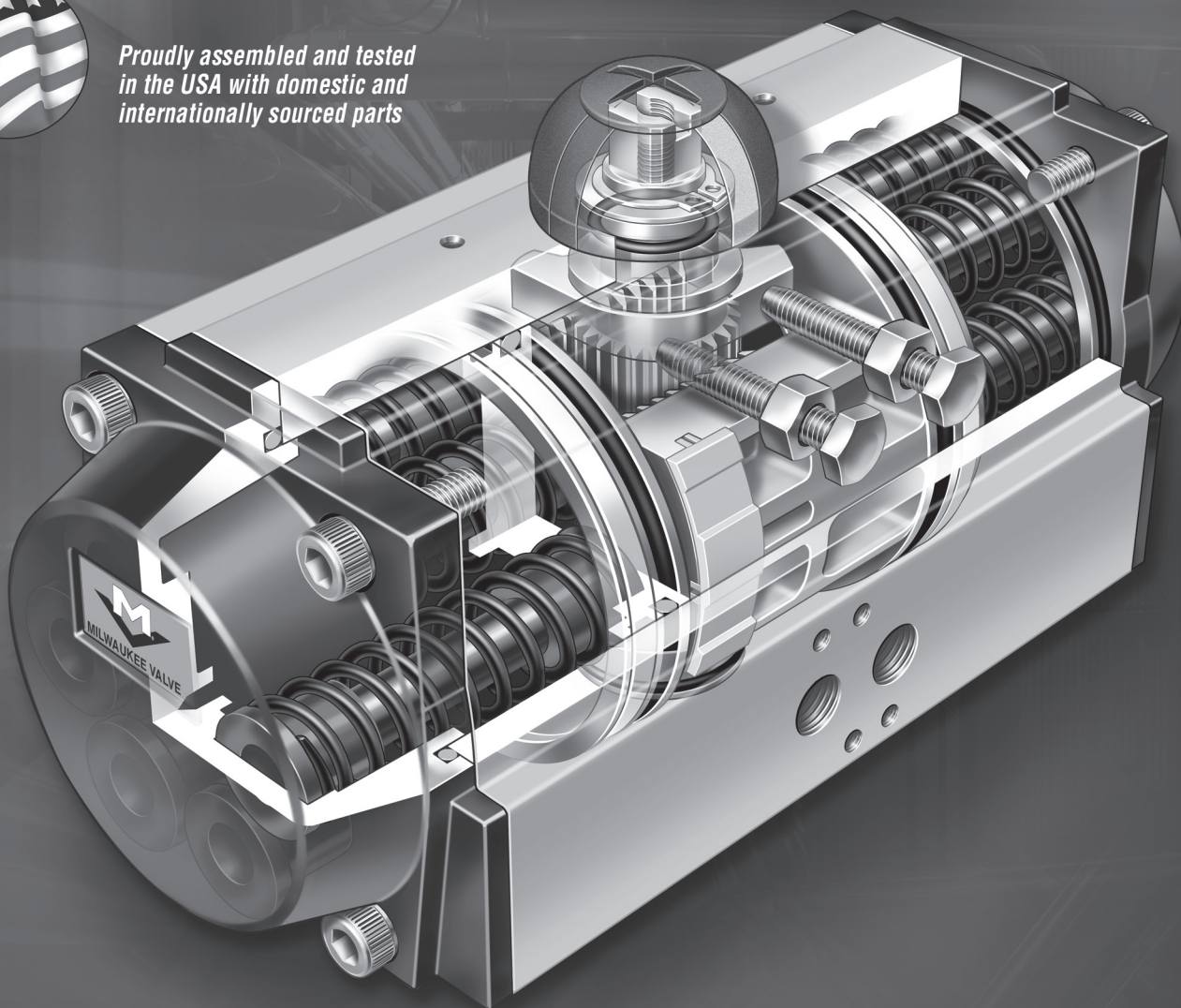


MILWAUKEE VALVE

# MC Series Pneumatic Actuators



*Proudly assembled and tested  
in the USA with domestic and  
internationally sourced parts*



# MC-SERIES | PNEUMATIC ACTUATOR

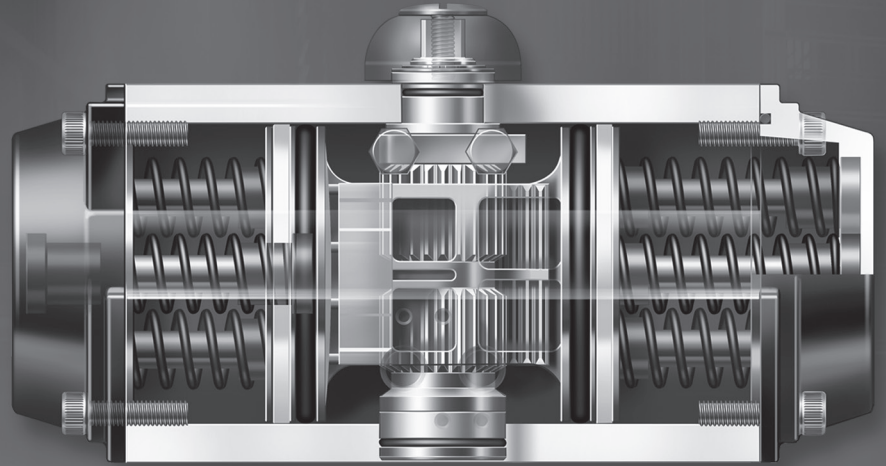
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MILWAUKEE VALVE



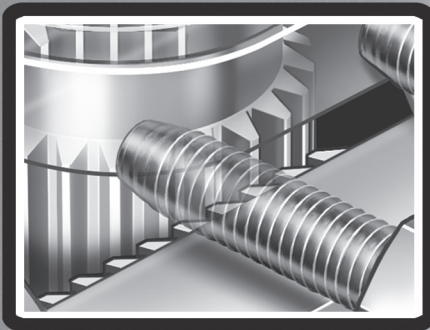


Our new M-Series product line represents a new class of actuators with design features that answer the growing needs and demands in the automation business. From the inside out, these changes help set a new standard in excellence, reliability and performance — qualities that continue to be synonymous with the Milwaukee Valve product line.



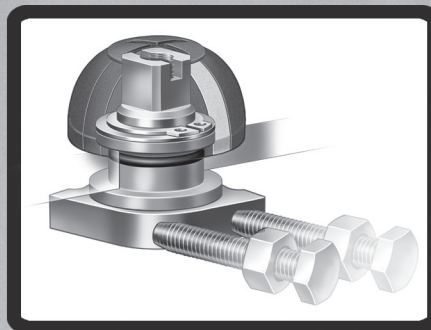
Proudly assembled and tested in the USA with domestic and internationally sourced parts.

## Improved Travel Stop Design



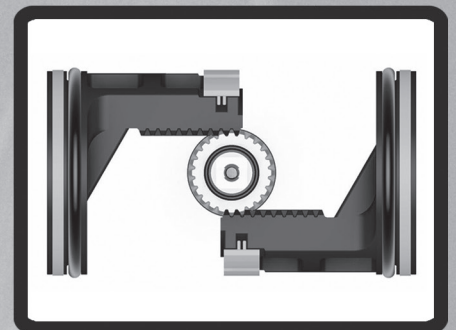
— Allows the actuator to stop off the pinion rather than the pistons. The standard actuator will have 100 degrees of travel with +5 or -5 degrees of adjustment on the open and close stop. The forged steel travel stop can be machined to any length of travel.

## Upgraded Top Hat Thrust Bearing Design



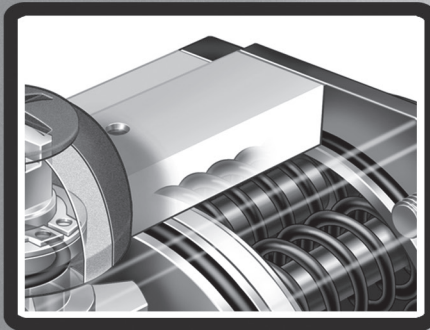
— Provides the largest pinion bearing surface in the industry. This upgraded Thrust Bearing limits friction between the actuator body and pinion, increases durability by absorbing side-load forces, and extends the cycle life of pinion o-rings.

## Increased Tooth Engagement



— A minimum of two teeth are engaged at all times during the stroke for consistent torque output and accuracy.

## Several New High Performance Options Available



### Mounting Options:

- 3.25" and 5" bolt circles along with "Double D" and keyway pinions available for direct valve automation

### Actuator Options:

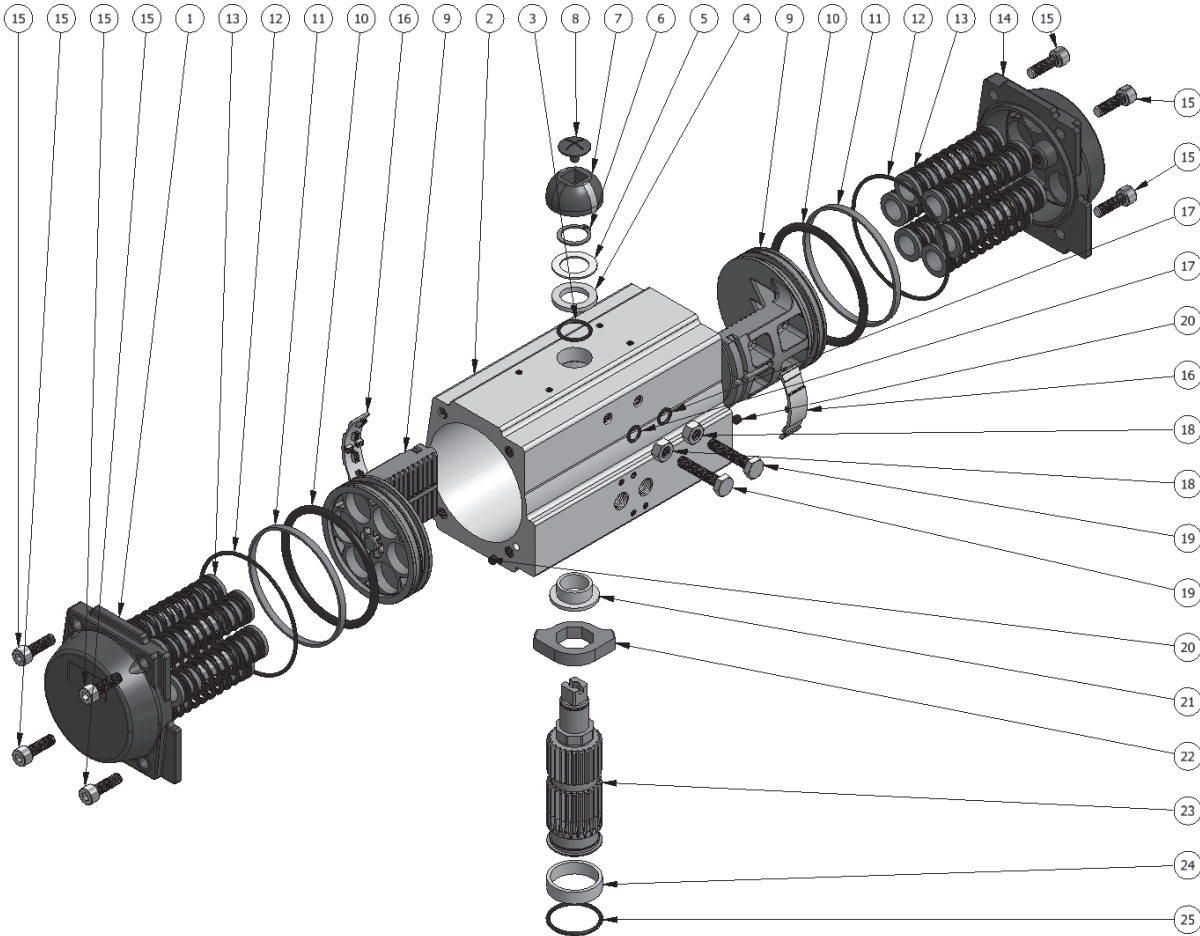
- 120°, 135°, 180° rotation in double acting and spring return
- Low and High temperature
- Fast acting/quick exhaust
- 100% travel stop adjustment
- 3 Position actuators

### Coating Options:

- Anodized type II
- Hard Anodized type III
- Anodized type II / epoxy polyester powder coat
- ANI - high phosphorus nickel impregnated
- Anodized type II or III /PTFE sealed

Several new options are available to provide the level of corrosion protection needed for the required application. Whether your application's pharmaceutical, food and beverage, oil and gas, refining, marine, or chemical processing, our standard and optional coatings will ensure reliable performance.





Part List for Milwaukee Valve MC-Series Actuators

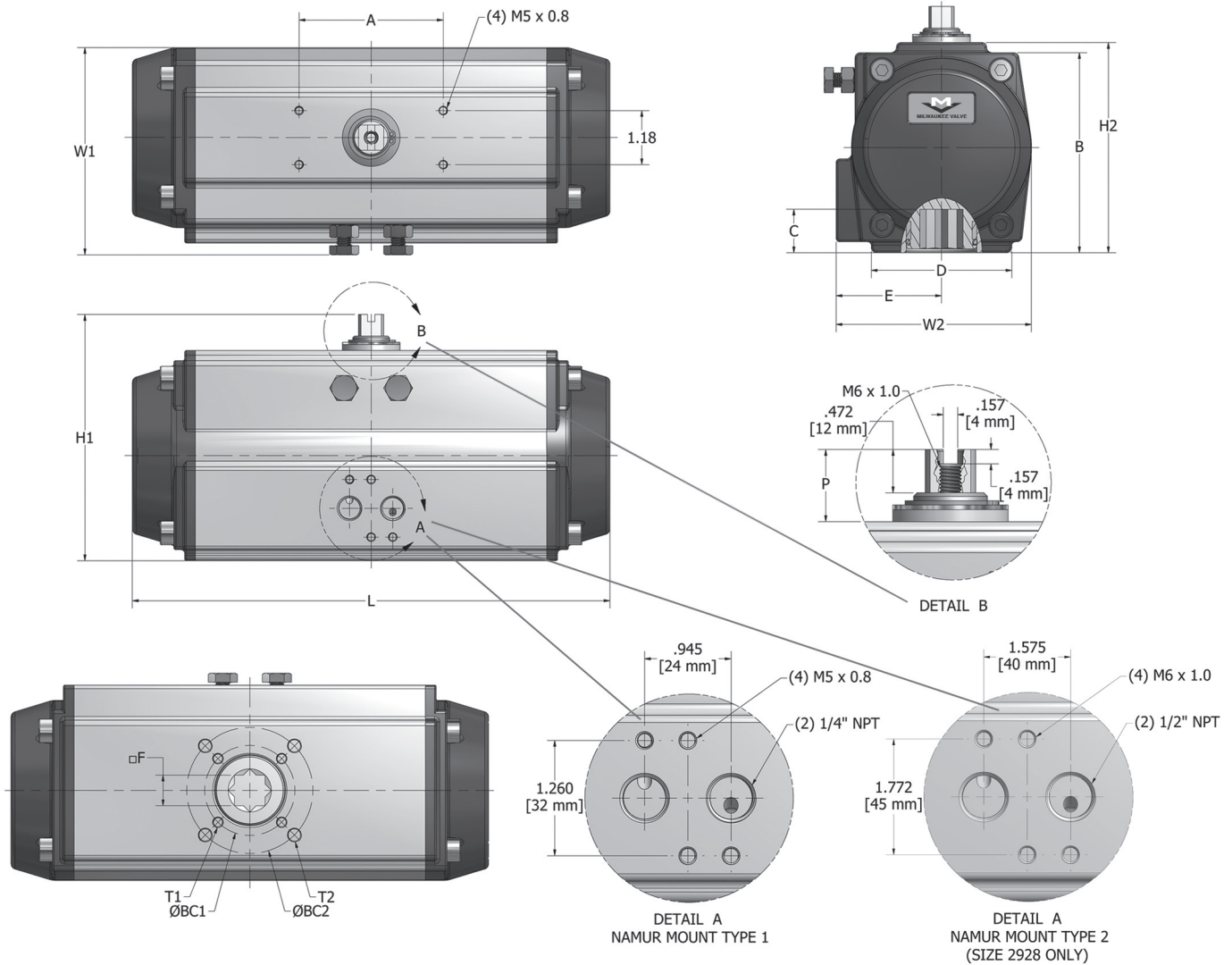
Item #	Qty.	Part Name	Material
1	1	Left End Cap	ASTM 384 Cast Aluminum
2	1	Body	6005T5 Extruded Aluminum
3	1	Upper Pinion O-Ring	NBR/Viton*/Low Temp NBR**
4	1	Flange Bearing	Delrin/Polysulphone (PSU)*
5	1	Pinion Washer	Stainless Steel
6	1	Pinion Circlip	Stainless Steel
7	1	Indicator	ABS
8	1	Indicator Screw	ABS
9	2	Piston	ASTM A23320 Anodized
10	2	Piston O-Ring	NBR/Viton*/Low Temp NBR**
11	2	Piston Guide	Bronze Impregnated PTFE
12	2	End Cap O-Ring	NBR/Viton*/Low Temp NBR**
13	0-12	Spring Cartridge	Epoxy Coated Spring Steel
14	1	Right End Cap	ASTM 384 Cast Aluminum
15	8	End Cap Socket Head Cap Screw	Stainless Steel
16	2	Piston Skate	Delrin/Polysulphone (PSU)*
17	2	Stop O-Ring	NBR/Viton*/Low Temp NBR**
18	2	Stop Nut	Stainless Steel
19	2	Stop Bolt	Stainless Steel
20	2	Air Channel Plug	NBR/Viton*/Low Temp NBR**
21	1	Thrust Bearing	Delrin/Polysulphone (PSU)*
22	1	Pinion Cam	Electroless Nickel/Forged 1045 Carbon Steel
23	1	Pinion	Electroless Nickel/Alloy Steel
24	1	Lower Pinion Bearing	Delrin/Polysulphone (PSU)*
25	1	Lower Pinion O-Ring	NBR/Viton*/Low Temp NBR**

\* Material used for high temperature applications. \*\* Material used for low temperature applications.



# Technical Dimensions

# MC-SERIES



SIZE	L	W1	W2	H1	H2	P	BC1	T1	BC2	T2	A	B	C	D	E	F
MC1	4.91	3.11	2.38	3.17	2.38	0.79 (20mm)	1.417 (F03)	#10-32 UNF	1.969 (F05)	1/4-20 UNC	3.15	-	0.55	1.89	1.44	0.433 (11mm)
MC20	5.79	3.15	2.80	3.62	2.83	0.79 (20mm)	1.417 (F03)*	#10-32 UNF*	1.969 (F05)*	1/4-20 UNC*	3.15	-	0.59	2.09	1.61	0.433 (11mm)
MC34	6.69	3.50	3.30	4.24	3.46	0.79 (20mm)	1.969 (F05)	1/4-20 UNC	2.756 (F07)	5/16-18 UNC	3.15	3.19	0.71	2.67	1.85	0.551 (14mm)
MC48	7.32	3.90	3.74	4.71	3.93	0.79 (20mm)	1.969 (F05)	1/4-20 UNC	2.756 (F07)	5/16-18 UNC	3.15	3.70	0.71	3.07	2.09	0.551 (14mm)
MC75	8.35	4.43	4.06	5.08	4.29	0.79 (20mm)	1.969 (F05)	1/4-20 UNC	2.756 (F07)	5/16-18 UNC	3.15	3.88	0.94	3.07	2.25	0.669 (17mm)
MC105	10.43	4.72	4.27	5.38	4.59	0.79 (20mm)	1.969 (F05)	1/4-20 UNC	2.756 (F07)	5/16-18 UNC	3.15	4.37	0.93	3.07	2.30	0.669 (17mm)
MC157	10.67	5.16	4.78	6.06	5.28	0.79 (20mm)	2.756 (F07)	5/16-18 UNC	4.016 (F10)	3/8-16 UNC	3.15	4.84	1.22	3.62	2.52	0.866 (22mm)
MC237	12.28	5.87	5.61	7.32	6.14	1.18 (30mm)	2.756 (F07)	5/16-18 UNC	4.016 (F10)	3/8-16 UNC	3.15/5.12**	5.75	1.10	3.94	2.93	0.866 (22mm)
MC331	15.04	6.08	5.75	7.68	6.50	1.18 (30mm)	4.016 (F10)	3/8-16 UNC	4.921 (F12)	1/2-13 UNC	3.15/5.12**	6.10	1.30	4.33	2.95	0.866 (22mm)
MC406	15.51	6.24	5.98	7.99	6.81	1.18 (30mm)	4.016 (F10)	3/8-16 UNC	4.921 (F12)	1/2-13 UNC	3.15/5.12**	6.36	1.42	4.72	3.03	1.063 (27mm)
MC633	18.11	7.26	6.85	8.98	7.80	1.18 (30mm)	4.016 (F10)	3/8-16 UNC	4.921 (F12)	1/2-13 UNC	3.15/5.12**	7.26	1.46	4.72	3.43	1.063 (27mm)
MC1009	20.87	8.78	8.11	10.28	9.09	1.18 (30mm)	5.512 (F14)	5/8-11 UNC	-	-	5.12	8.52	1.65	5.12	4.06	1.417 (36mm)
MC1260	21.50	9.70	8.90	11.26	10.08	1.18 (30mm)	5.512 (F14)	5/8-11 UNC	-	-	5.12	9.29	1.65	5.12	4.45	1.417 (36mm)
MC1831	25.28	11.42	10.24	12.64	11.46	1.18 (30mm)	6.496 (F16)	3/4-10 UNC	-	-	5.12	10.45	2.24	6.30	5.12	1.811 (46mm)
MC2928	29.13	12.48	11.57	14.17	12.99	1.18 (30mm)	6.496 (F16)	3/4-10 UNC	-	-	5.12	11.85	2.24	6.30	5.79	1.811 (46mm)

\*The size 20 is also available with an F04 (#10-32 UNF on a 1.654 B.C.) mounting pattern in place of the F03/F05.

\*\*Sizes 237-633 have 3.15 x 1.18 and a 5.12 x 1.18 top mounting with (8) M5 x 0.8 threaded holes.

## WEIGHT

### MC-Series Weights (lbs)

Size	DA	K55	Single Spring
MC1	2.00	-	-
MC20	3.00	3.30	0.03
MC34	4.65	5.05	0.04
MC48	5.75	6.25	0.05
MC75	7.65	8.65	0.10
MC105	10.45	11.95	0.15
MC157	13.25	14.75	0.15
MC237	21.00	23.50	0.25
MC331	26.85	30.35	0.35
MC406	30.05	34.55	0.45
MC633	45.05	51.55	0.65
MC1009	72.45	82.95	1.05
MC1260	87.20	104.70	1.75
MC1831	124.00	149.00	2.50
MC2928	180.00	222.00	4.20

## AIR VOLUME

### MC-Series Free Internal Air Volume Cubic Inches (in<sup>3</sup>)

Size	Opening Stroke	Closing Stroke (DA only)
MC1	4.27	5.49
MC20	5.49	11.59
MC34	8.54	15.87
MC48	13.43	23.19
MC75	20.75	32.34
MC105	30.51	56.75
MC157	46.99	72.62
MC237	76.28	104.96
MC331	111.06	163.54
MC406	131.81	195.28
MC633	206.87	294.74
MC1009	341.12	484.53
MC1260	405.20	642.58
MC1831	590.71	994.08
MC2928	911.08	1502.40

Actual air consumption is calculated using the internal volume and supply pressure in the following equation.

Air Consumption (Standard Cubic feet) per Stroke =

$$\frac{V}{1728} \left( \frac{\text{Supply Pressure} + 14.7}{14.7} \right)$$

## SPEED

### MC-Series Speed of Operation (sec)

Size	Double Acting			Spring Return		
	Opening Stroke	Closing stroke	Per cycle	Opening Stroke	Closing stroke	Per cycle
MC1	0.2	0.2	0.4	-	-	-
MC20	0.2	0.2	0.4	0.3	0.3	0.6
MC34	0.3	0.3	0.6	0.3	0.4	0.7
MC48	0.3	0.4	0.7	0.4	0.5	0.9
MC75	0.4	0.5	0.9	0.5	0.6	1.1
MC105	0.6	0.6	1.2	0.7	0.9	1.6
MC157	0.8	0.8	1.6	0.9	1.1	2.0
MC237	0.9	1.1	2.0	1.2	1.4	2.6
MC331	1.2	1.3	2.5	1.4	1.5	2.9
MC406	1.4	1.4	2.8	1.5	1.8	3.3
MC633	1.7	1.8	3.5	1.8	2.1	3.9
MC1009	2.4	2.5	4.9	2.5	2.8	5.3
MC1260	2.7	3.2	5.9	3.5	4.0	7.5
MC1831	3.5	4.0	7.5	4.1	4.6	8.7
MC2928	4.0	4.5	8.5	4.5	5.0	9.5

## TEMP

### MC-Series Temperature Specifications

Temperature Designation	Temperature Range (F°)	Temperature Range (C°)	Bearing Material	O-ring Material	Grease
Standard Temp	-4° to 176°	-20° to 80°	Delrin/Bronze Impregnated PTFE	NBR	Standard
High Temp	5° to 320°	-15° to 160°	PPSU/Bronze Impregnated PTFE	Viton	High Temp
Low Temp	-58° to 176°	-50° to 70°	Delrin/Bronze Impregnated PTFE	Low Temp NBR	Standard

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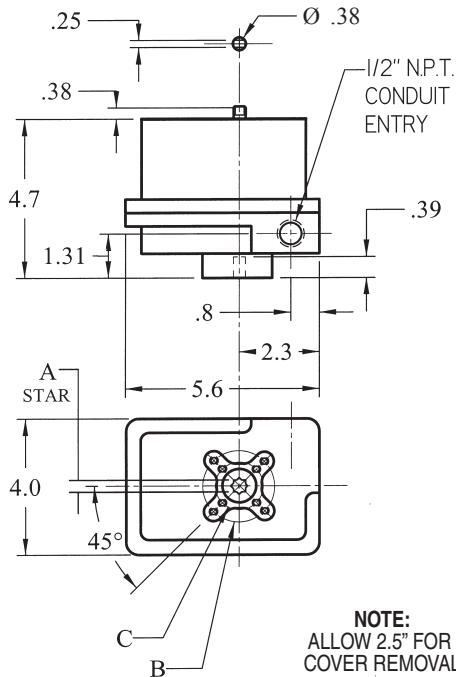
# MCR100I

CSA Certified



## SPECIFICATIONS:

Output Torque.....	100 Lb.-In.
Cycle Time.....	2.5 Sec/90° Rotation
Duty Cycle.....	75%
Motor.....	115Vac, 60Hz, 1Ph. PSC (Optional Voltages Available)
Thermal Over-Load Protection.....	Std.
Enclosure.....	NEMA 4
Enclosure Option.....	NEMA 7 (Omit Manual Override)
Enclosure Material.....	Cast Aluminum
Enclosure Coating.....	Thermally Bonded Polyester Powder
Fasteners.....	S.S.
Output Shaft.....	S.S.
Manual Override.....	Std. (Except NEMA 7 & DC Motors)
Friction Brake.....	Std.
Wired for light indication.....	Std.
Lock Rotor Current.....	.55 Amp
Weight.....	5 Lbs.
Lubrication.....	Permanent
Installation.....	Universal
Temperature.....	-40° F. to +150° F.
Heater Required at 0° F. and Below	
Switches: 10 A 1/2 HP 125, 250 Vac 0.1 A, 125 Vdc	



**NOTE:**  
ALLOW 2.5" FOR  
COVER REMOVAL

	A	B	C		
F03	F04	F03	F04	F03	F04
0.354"	0.433"	4, 1/4-20 TAP	4, 1/4-20 TAP	4, 10/24 TAP	4, 10/24 TAP
Star	Star	0.44" DP.	0.44" DP.	0.44" DP.	0.44" DP.
(9mm)	(11mm)	1.968" B.C.	2.121" B.C.	1.417" B.C.	1.653" B.C.

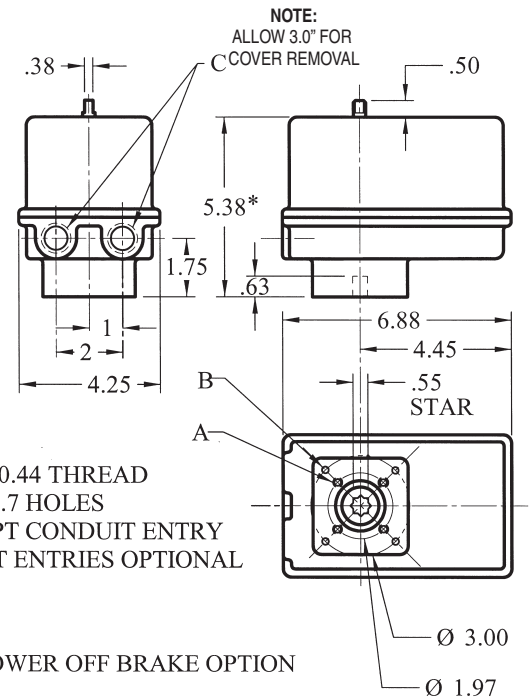
# MCR200I MCR300I

CSA Certified File No. LR79567



## SPECIFICATIONS:

Output Torque.....	200 Lb.-In. 300 Lb.-In.
Cycle Time.....	5 Sec/90° Rotation
Duty Cycle.....	25%
Optional Extended Duty.....	75%
Cycle Time (W/Ext. Duty).....	10 Sec/90° Rotation
Motor.....	115Vac, 60Hz, 1Ph. PSC (Optional Voltages Available)
Thermal Over-Load Protection.....	Std.
Enclosure.....	NEMA 4
Enclosure Material.....	Die Cast Aluminum
Enclosure Coating.....	Thermally Bonded Polyester Powder
Mounting Dim.....	ISO 5211 F05
Fasteners.....	S.S.
Output Shaft.....	S.S.
Manual Override.....	Std. (Except DC Motors)
Friction Brake.....	Std.
Wired for light indication.....	Std.
Terminal Strip Connection.....	AWG 14
Lock Rotor Current.....	SD, .75 Amp SDX, .99 Amp
Weight.....	6 Lbs.
Lubrication.....	Permanent
Installation.....	Universal
Temperature.....	-40° F. to +150° F.
Heater Required at 0° F. and Below	
Switches: 15 A 1/2 HP 125, 250 Vac 0.5 A, 125 Vdc	



A, 4, 1/4-20 X 0.44 THREAD  
B, 4, 0.257 X 0.7 HOLES  
C, 1, 1/2-14 NPT CONDUIT ENTRY  
2 CONDUIT ENTRIES OPTIONAL

\*6.13 WITH POWER OFF BRAKE OPTION

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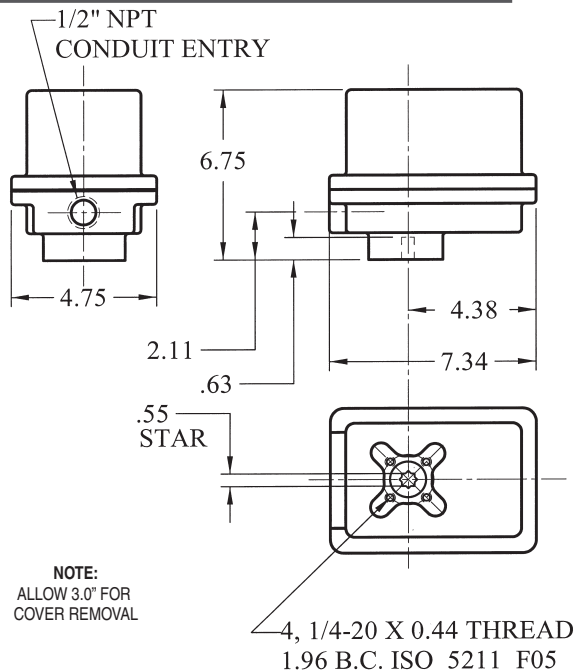
# MCRB200I/MCRB300I

Select This Enclosure When Positioner, Timer, Brake or Speed Control is Required



## SPECIFICATIONS:

Output Torque.....	200 Lb.-In.
.....	300 Lb.-In.
Cycle Time.....	5 Sec/90° Rotation
Duty Cycle.....	25%
Optional Extended Duty.....	75%
Cycle Time (W/Ext. Duty).....	10 Sec/90° Rotation
Motor.....	115Vac, 60Hz, 1Ph. PSC (Optional Voltages Available)
Thermal Over-Load Protection.....	Std.
Enclosure.....	NEMA 4
Enclosure Material.....	Cast Aluminum
Enclosure Coating.....	Thermally Bonded Polyester Powder
Mounting Dim.....	ISO 5211 F05
Fasteners.....	S.S.
Output Shaft.....	S.S.
Manual Override.....	Not Available
Friction Brake.....	Std.
Wired for light indication.....	Std.
Terminal Strip Connection.....	AWG 14
Lock Rotor Current.....	SR, .75 Amp SX, .99 Amp
Weight.....	8 Lbs.
Lubrication.....	Permanent
Installation.....	Universal
Temperature.....	-40° F. to +150° F.
Heater Required at 0° F. and Below	
Switches: 15 A 1/2 HP 125, 250 Vac 0.5 A, 125 Vdc	

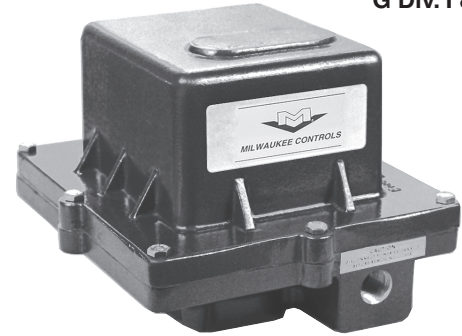


# MCR W/NEMA 4/7

CSA Certified File No. LR79567

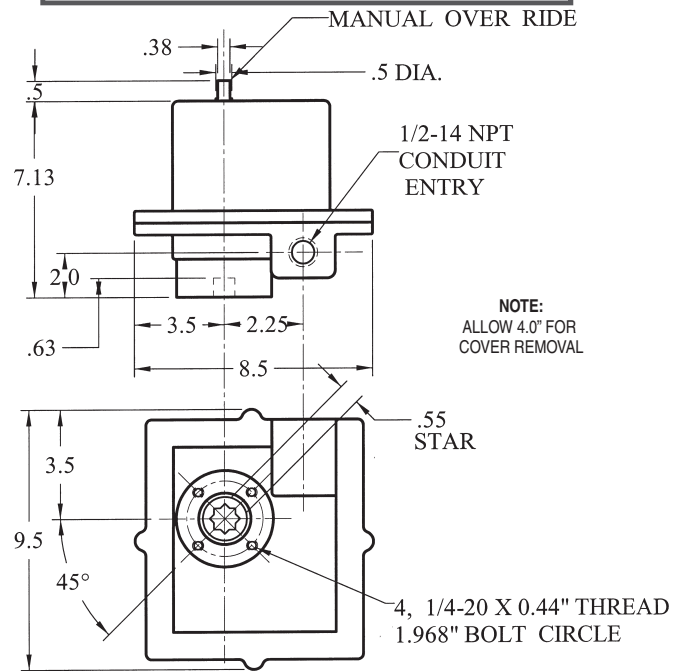
Class I Groups C &

Class II Groups E, F &  
G Div. I & II



## SPECIFICATIONS:

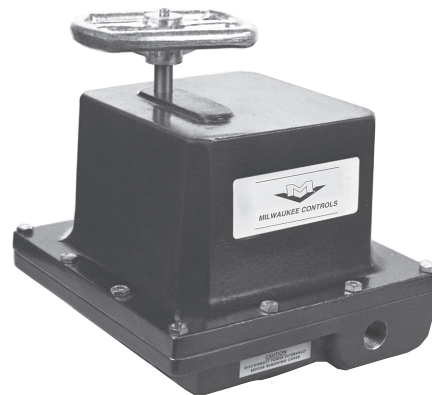
Output Torque .....	200 Lb.-In.
.....	300 Lb.-In.
Cycle Time.....	5 Sec/90° Rotation
Duty Cycle.....	25%
Optional Extended Duty.....	75%
Cycle Time (W/Ext. Duty).....	10 Sec/90° Rotation
Motor.....	115Vac, 60Hz, 1Ph. PSC (Optional Voltages Available)
Thermal Over-Load Protection.....	Std.
Enclosure.....	NEMA 7
Enclosure Material.....	Cast Aluminum
Enclosure Coating.....	Thermally Bonded Polyester Powder
Mounting Dim.....	ISO 5211 F05
Fasteners.....	S.S.
Output Shaft.....	S.S.
Manual Override.....	Optional
Friction Brake.....	Std.
Wired for light indication.....	Std.
Terminal Strip Connection.....	AWG 14
Lock Rotor Current.....	SR, .75 Amp SX, .99 Amp
Weight.....	15 Lbs.
Lubrication.....	Permanent
Installation.....	Universal
Temperature.....	-40° F. to +140° F.
Heater Required at 0° F. and Below	
Switches: 15 A 1/2 HP 125, 250 Vac 0.5 A, 125 Vdc	



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# MCR400I, MCR675I, MCR1000I, MCR1500I, MCRB400I, MCRB675I, MCRB1000I, MCRB1500I

CSA Certified



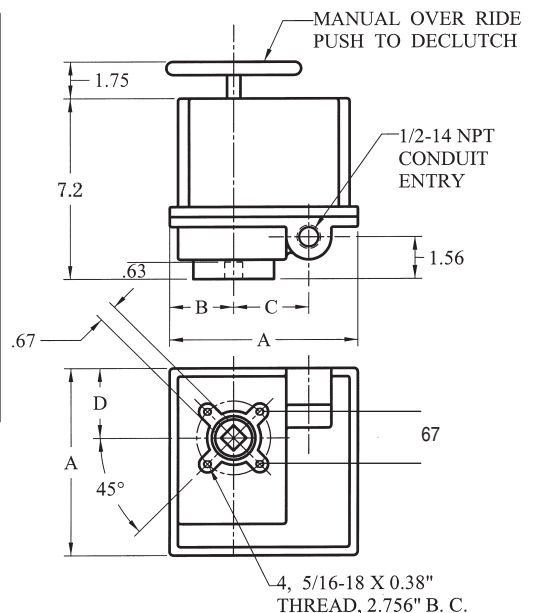
## SPECIFICATIONS:

Output Torque.....	400 Lb.-In.
.....	675 Lb.-In.
.....	1000 Lb.-In.
.....	1500 Lb.-In.
Cycle Time.....	10 Sec/90° Rotation
.....	15 Sec/90° Rotation
.....	30 Sec/90° Rotation
Duty Cycle.....	25%
Motor.....	115Vac, 60Hz, 1Ph. PSC (Optional Voltages Available)
Thermal Over-Load Protection.....	Std.
Enclosure.....	NEMA 4
Enclosure Option.....	NEMA 7
Enclosure Material.....	Cast Aluminum
Mounting Dim.....	ISO 5211 F07
Enclosure Coating.....	Thermally Bonded Polyester Powder
Fasteners.....	S.S.
Output Shaft.....	S.S.
Manual Override.....	Std. NEMA 4, Opt. NEMA 7
Friction Brake.....	Std.
Wired for light indication.....	Std.
Terminal Strip Connection.....	AWG 14
Lock Rotor Current.....	.75 Amp
.....	1.1 Amps
Weight.....	13 Lbs. NEMA 4, 16 Lbs. NEMA 7
Lubrication.....	Permanent
Installation.....	Universal
Temperature.....	-40° F. to +150° F.
Heater Required at 0° F. and Below	
Switches: 15 A 1/2 HP 125, 250 Vac 0.5 A, 125 Vdc	

NOTE: MCRB - Includes Motor Brake

	Enclosure	
	NEMA 4	NEMA 7
A	7.0	8.5
B	2.38	3.13
C	2.81	2.81
D	2.63	3.38

Dimensions in inches



NOTE:  
ALLOW 4.0\"/>

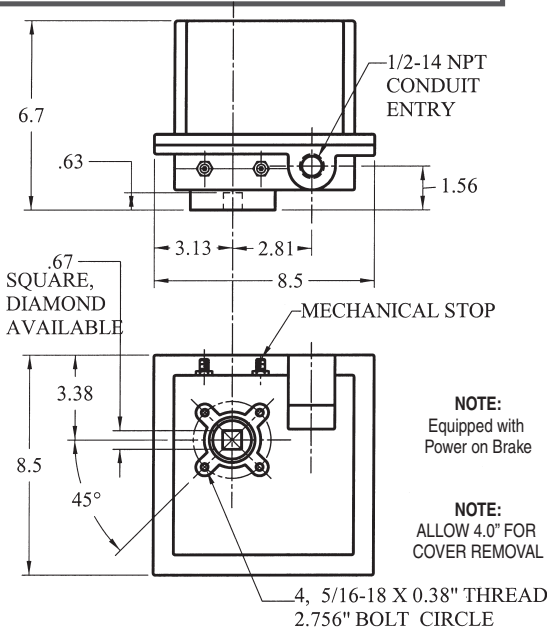


# MCSRE200



## SPECIFICATIONS:

Output Torque .....	200 Lb.-In.
Cycle Time.....Power Stroke.....	10 Sec/90° Rotation
Spring Stroke.....	3 Sec/90° Rotation
Duty Cycle.....	25%
Motor.....	115 Vac, 60 Hz, 1 Ph. PSC Or 220 Vac, 60 Hz, 1Ph.
Thermal Over-Load Protection.....	Std.
Enclosure .....	NEMA 4
Enclosure Option.....	NEMA 7
Enclosure Material.....	Cast Aluminum
Enclosure Coating.....	Thermally Bonded Polyester Powder
Fasteners.....	S.S.
Output Shaft.....	S.S.
Terminal Strip Connection.....	AWG 14
Lock Rotor Current.....	.75 Amps
Weight.....	13 Lbs.
Lubrication.....	Permanent
Mounting.....	ISO 5211 F07
Installation.....	Universal
Temperature.....	0° F. to +150° F.
Heater Required at 32° F. and Below	
Switches: 15 A 1/2 HP 125, 250 Vac 0.5 A, 125 Vdc	



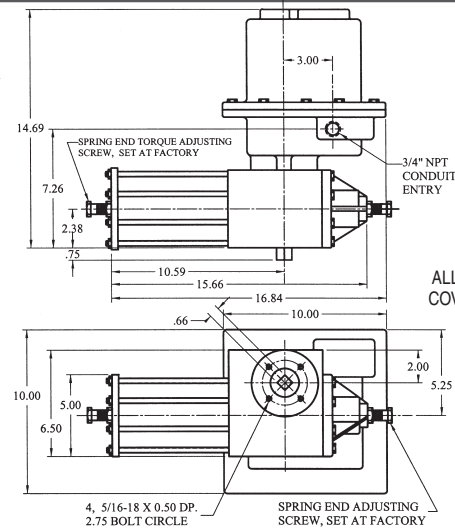
All units are supplied with two limit switches for electrically controlling open and close positions; a mechanical stop is set at the factory for positioning the designated fail position. The designated fail position is available in both open (CCW rotation) or close (CW rotation) position. Spring return actuators are not intended to be used in control applications.

# MCSRE400 MCSRE600

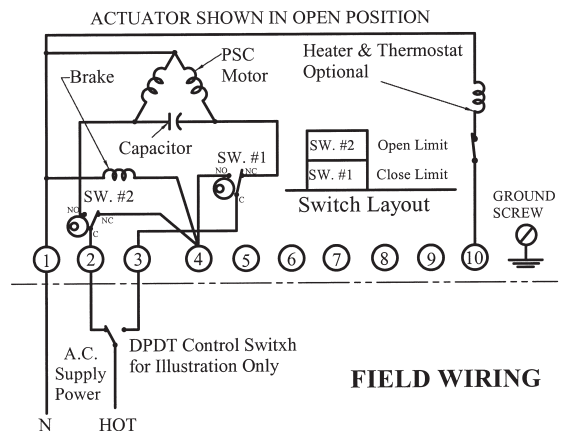


## SPECIFICATIONS:

Torque (Lb.-In.)	Spring Start	600	800
	Spring End	400	600
	Power Stroke	400	600
Cycle Time Sec./90° Rotation	Power Stroke	12 Sec	12 Sec
	Spring Start	3 Sec	3 Sec
Lock Rotor Current		2.0 Amp	2.0 Amp



## Electric Spring Return Wiring Diagram:



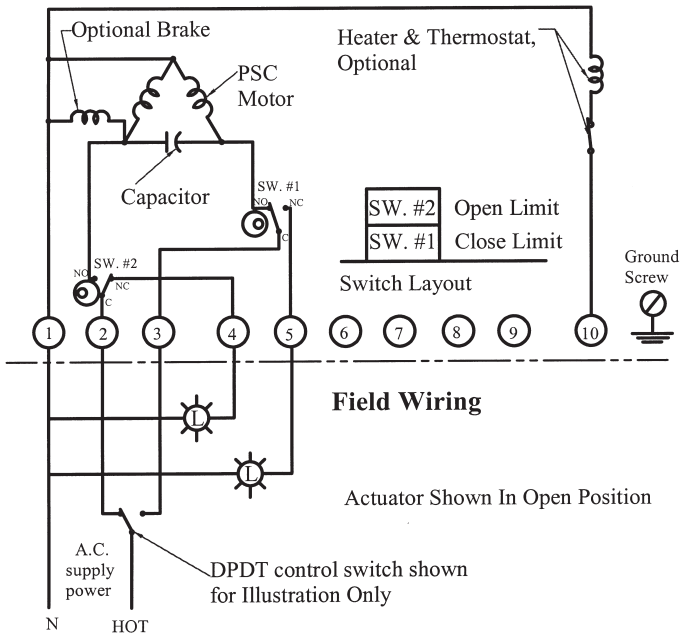
**NOTES:**  
Power to 1 & 2 opens the valve (CCW Rotation)  
Power to 1 & 3 closes the valve (CW Rotation)

Loss of power causes actuator to drive to the fail position. With the return of power the actuator will travel to the position designated by the control switch.

DO NOT power actuator into mechanical stops, OUTPUT PINION WILL BE DAMAGED.

# ACTUATOR WIRING

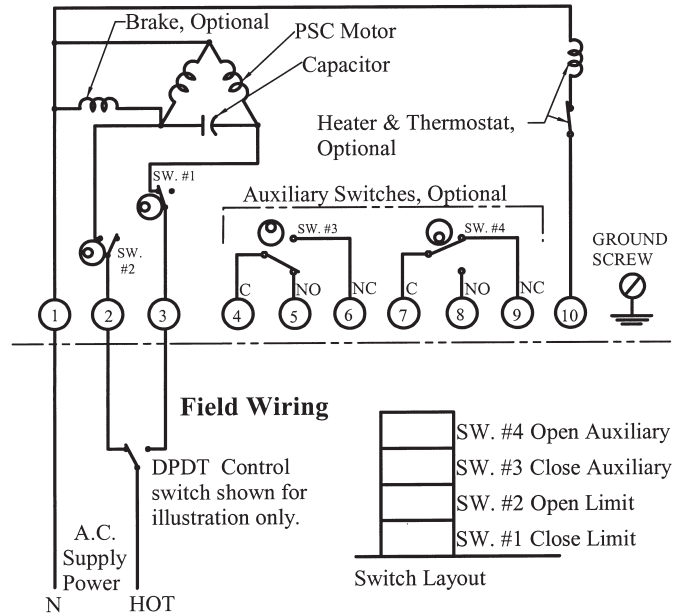
Typical Wiring Diagram



**NOTES:**

- Power to terminals 1 & 2 opens valve (CCW rotation).
- Power to terminals 1 & 3 closes valve (CW rotation).
- Terminals 4 & 5 for light indication.

Typical Wiring Diagram With Two Auxiliary Switches



**NOTES:**

- Power to terminals 1 & 2 opens valve. (CCW ROTATION)
- Power to terminals 1 & 3 closes valve. (CW ROTATION)
- Terminals 4 through 9 for auxiliary switch connection.

Wiring diagram illustrates the actuator in the open position. Actuators are shipped in the open position.

**MC SERIES ELECTRIC ACTUATORS: OPTIONS**

- VOLTAGES: 120 VAC, 220 VAC 1 PH, 24 VAC, 24 VDC, 12 VDC
- AUX. SWITCHES: 1 SWITCH, 2 SWITCHES
- MOTOR BRAKE: REQUIRED FOR BUTTERFLY VALVES
- 1 K POT
- VALVE POSITIONER: 4-20 MADC OR 0-10 VDC
- HEATER THERMOSTAT
- SPEED CONTROL
- EXTENDED DUTY MOTORS

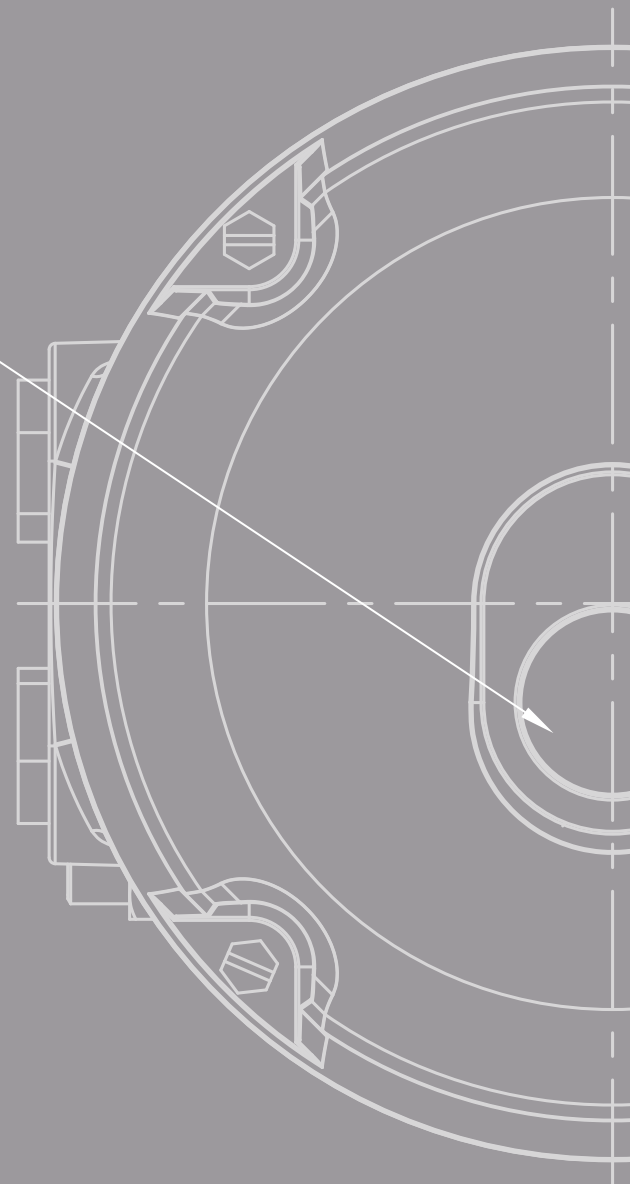
- TIMER
- THREE POSITION
- DIAL POSITION INDICATOR
- 4-20 MADC TRANSMITTER
- REMOTE ON AND OFF AND LOCAL
- TWO WIRE RELAY
- TORQUE SWITCHES
- SPECIAL MOUNTING MALE OR ISO
- HOUSING, NEMA 4/4X AND NEMA 7

LABEL

FIRST BC



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CONTROLS



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New

Weatherproof Quarter-turn Actuators  
Servomoteurs Quart de tour Etanches

**AQ RANGE / GAMME AQ**

TECHNICAL DATA / DONNÉES TECHNIQUES

TEC01-03\_E+F\_GRP\_rev6E

# AQ SWITCH Specifications

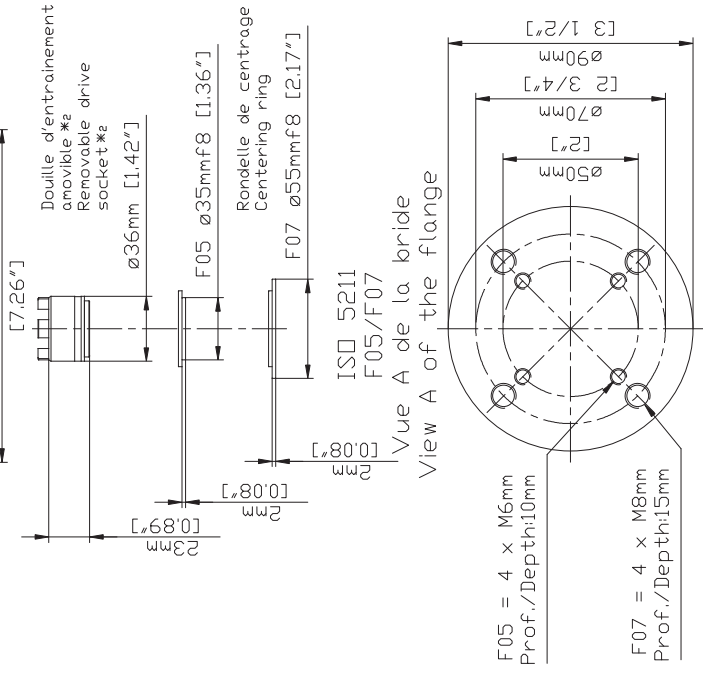
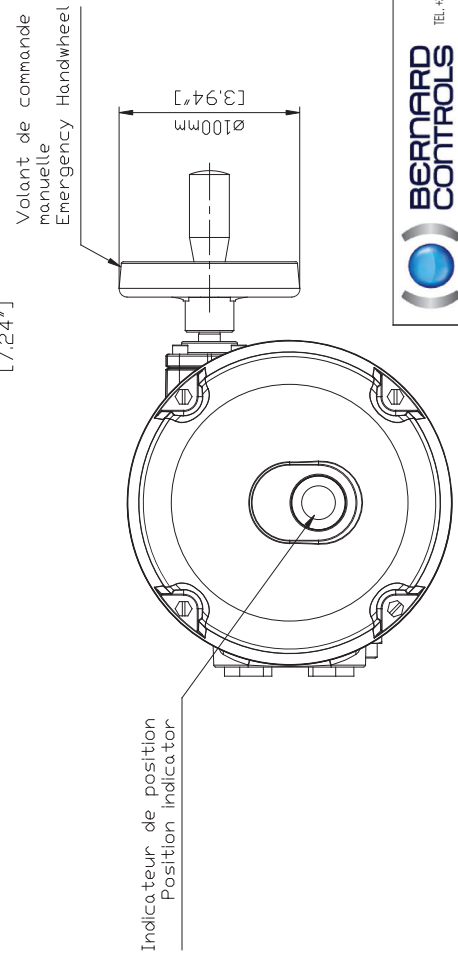
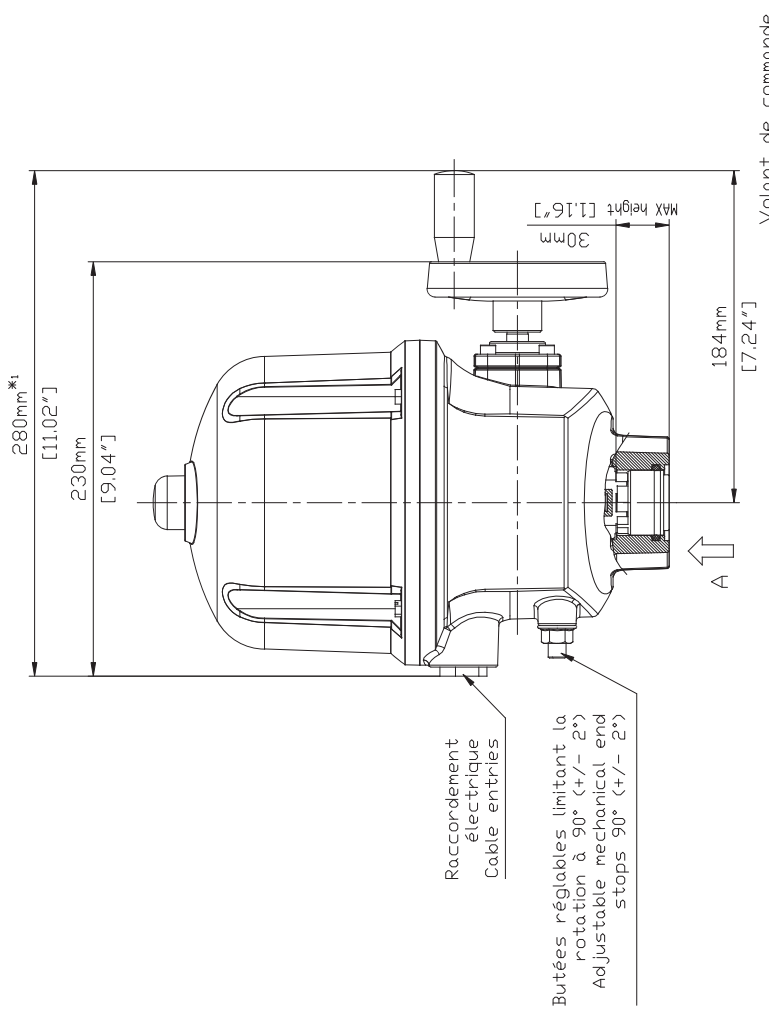
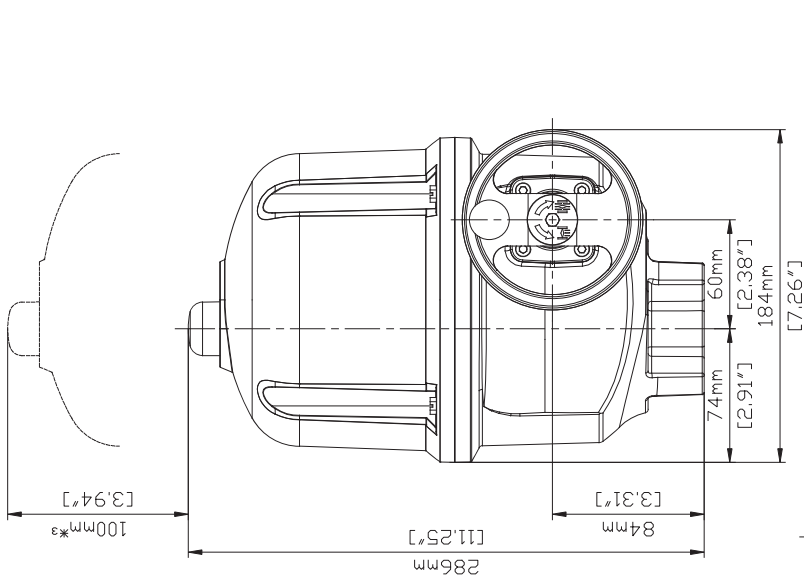
GENERAL	Description	All AQ actuators include motor with thermal protection, gear case, emergency handwheel, travel limit switches, torque switches (for torque >150Nm), output drive with removable socket and anti-condensation heater.
	Torque range	50 to 500 N.m
	Duty Classification	Adapted to process requirements: <ul style="list-style-type: none"> <li>On-Off: Class A actuators complying with EN15714-2</li> <li>Inching/Positioning: Class B actuators complying with EN15714-2</li> </ul>
ENCLOSURE – PROTECTION	Casing	<ul style="list-style-type: none"> <li>Aluminium casting</li> <li>Cover fastened by captive and stainless screws</li> </ul>
	External Protection	<ul style="list-style-type: none"> <li>Type: Epoxy powder coating as standard</li> <li>Protection: C3 according to ISO 12944</li> <li>Color: Black &amp; Champagne</li> </ul> Other colors and finishes, please consult us
	Weatherproofness	IP68 / NEMA 4X as standard
	Ambient temperature range	<ul style="list-style-type: none"> <li>-20...+60°C / -4 ... +140°F</li> <li>-40°C (-40°F) as an option</li> </ul> Other temperatures, please consult us
MOTOR	Motor technology	<ul style="list-style-type: none"> <li>3-phase or single-phase asynchronous motor, Class F insulation with integral thermal overload protection.</li> <li>DC motors with 2-wire connection available for some references</li> </ul>
	Motor duty rating	<ul style="list-style-type: none"> <li>On/Off operation (complying with EN15714-2 Class A) and Inching/ Positioning (complying with EN15714-2 Class B): S4-30% motor duty rating. Up to 360 starts per hour at peak of operation. S4-50% as an option.</li> <li>BC Modulating Class III (complying with EN15714- 2 Class C): S4-50% motor duty rating. Up to 1 200 starts per hour at peak of operation.</li> </ul>
MECHANICAL SPECIFICATIONS	Gear design	Actuator is mechanically self-locking
	Manual emergency operation	Manual override handwheel Automatic declutch
	Output flange	Actuator flanges comply with ISO 5211
	Lubrication	The actuators are lubricated for the product lifetime and do not require any special service.
ELECTRICAL SPECIFICATIONS	Power supply	The actuators can operate on a wide variety of power supplies: <ul style="list-style-type: none"> <li>3-phase, single-phase or DC</li> <li>50 or 60 Hz ...</li> </ul>
	Terminal compartment	Screw-type terminals for controls and power supply. Internal earth grounding post.
	Conduit entries	2 x M20 as standard (or 2 x 3/4")
POSITION & TORQUE SENSORS	Travel limit systems	<ul style="list-style-type: none"> <li>Limit switches actuated by adjustable camblock</li> <li>2 SPDT switches as standard (Open and Close) + 2 auxiliary switches (for signaling)</li> </ul>
	Torque limiting system	<ul style="list-style-type: none"> <li>Torque limitation available from AQ25</li> <li>The torque limiting system is calibrated at the factory</li> <li>2 switches as standard (1 in opening and 1 in closing); SPDT; 250VAC-5Amax (resistive load)</li> <li>Adjustable torque from 40 to 100% of max torque (intrusive setting)</li> </ul>
	Position Transmitter (option)	POSITION TRANSMITTER OPTION: <ul style="list-style-type: none"> <li>2 wires for 4-20mA Position Transmitter</li> <li>POT 1000Ω</li> </ul>
CONTROLS	Visual position indication	Mechanical position indicator
SETTINGS	Actuator on valve settings	Easy and quick setting of position and torque camblocks with a standard screwdriver
	Application for mobile device	BERNARD CONTROLS new mobile application is available as standard. BERNARD CONTROLS mobile interface allows the user to: <ul style="list-style-type: none"> <li>Access to the documentation relative to the selected actuator (enter the Serial number) or scan the QR code on the nameplate of the actuator</li> <li>Access to BERNARD CONTROLS contact information according to the area concerned</li> </ul>
CONFORMITY TO EC	Compliance with EC Directives	AQ actuators comply with: <ul style="list-style-type: none"> <li>directive 2004/108/EC Electromagnetic compatibility</li> <li>directive 2006/95/EC Low voltage</li> <li>the following harmonised standards: EN 61000- 6-4: Generic emissions standard for industrial environments; EN 61000- 6-2: Generic immunity standard for industrial environments; EN 60034-1: Rotating electrical machines; EN 60529: Degrees of protection provided by enclosures (IP ratings code)</li> </ul>

Max torque $\Pi m$	Type	Operating time s/90°	On - Off	Inching / Positioning	Modulating	Power <sup>2</sup> kW	Nominal current A	Current start A
Temps de manoeuvre s/90°	Modèle	Couple max $\Pi m$	Tout ou Rien	Positionnement pas à pas	Régulation	Puissance <sup>2</sup> kW	Courant nominal A	Courant démarrage A
<b>1x110-115VAC 50HZ<sup>1</sup></b>								
50	AQ5	16	A	B	III	0,02	1,1	1,4
100	AQ10	25	A	B	III	0,02	1,1	1,4
150	AQ15	30	A	B	III	0,02	1,3	1,6
250	AQ25	30	A	B	III	0,04	1,5	1,7
250		30	A	B	III	0,04	1,5	1,7
300	AQ30	35	A	B	III	0,04	1,5	1,7
500	AQ50	35	A	B	III	0,06	3,9	4,3
500		55	A	B	III	0,04	1,5	1,7
800	AQ80	55	A	B	III	0,06	3,9	4,3
980	AQ100	55	A	B	III	0,06	3,9	4,3
<b>1x110-115VAC 60HZ<sup>1</sup></b>								
50	AQ5	13	A	B	III	0,02	1,1	1,4
100	AQ10	21	A	B	III	0,02	,1	1,4
150	AQ15	25	A	B	III	0,02	1,3	1,6
250	AQ25	25	A	B	III	0,04	1,5	1,7
250		25	A	B	III	0,04	1,5	1,7
300	AQ30	30	A	B	III	0,04	1,5	1,7
500	AQ50	30	A	B	III	0,06	2,5	4,2
500		45	A	B	III	0,04	1,5	1,7
800	AQ80	45	A	B	III	0,06	2,5	4,2
1000	AQ100	45	A	B	III	0,06	2,5	4,2

<sup>1</sup> Voltage  $\pm 10\%$ , Frequency  $\pm 2\%$   
Tension  $\pm 10\%$ , fréquence  $\pm 2\%$

<sup>2</sup> Mechanical power of the electrical motor given for an actuator output torque equal to 33% of Max torque /  
Puissance mécanique du moteur électrique donnée pour un couple de sortie de l'actionneur égal à 33% du couple Max

Values are indicative without charge / Les valeurs sont indicatives et données à vide



**BERNARD CONTROLS**  
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Encembrement / External Dimensions		AQ5 / AQ10 / AQ15		Etranche / Weatherproof	
None		Switch		switch	
Masse / Weight:		10kg   22lbs		Echelle / Scale:	
Unités / Units:		mm   inch		Planche / Sheet:	
Forme / Form:		SOCKET		1/1	
Bride / Flange:		F05/F07		Modification:	
Approuvé par:		K. Xim		CD_01_500_01	
Verifié par:		R. Guillaume		Ind. Rev.:	
19/07/17		21/07/17		A	

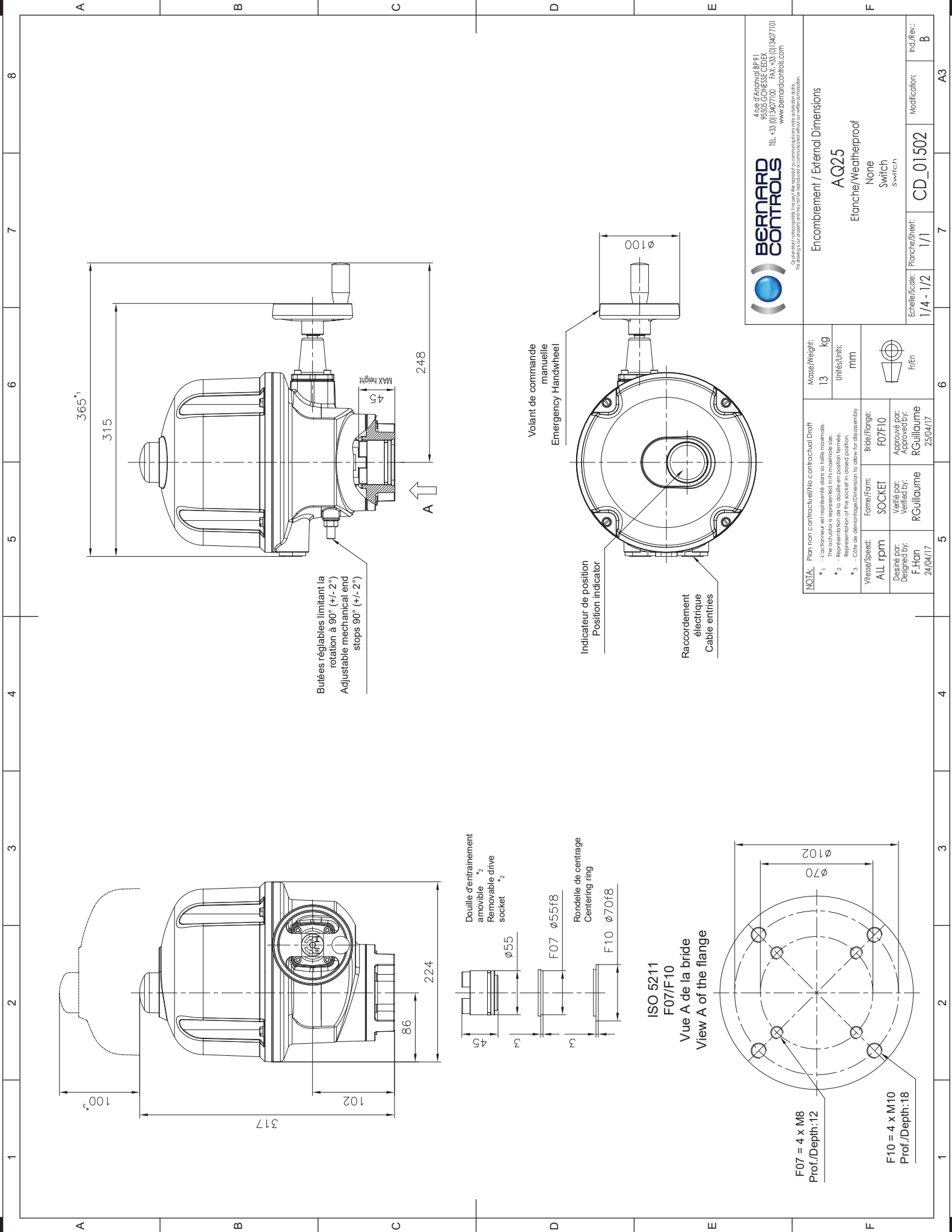
NOTA: Plan non contractuel / No contractual Draft

\*1 - L'oculteur est représenté dans sa taille maximale. The occluder is represented in its maximum size.

\*2 - Représentation de la douille en position fermée. Representation of the socket in closed position.

\*3 - Cote de démontage dimension to allow for disassembly.

Vue A de la bride  
View A of the flange

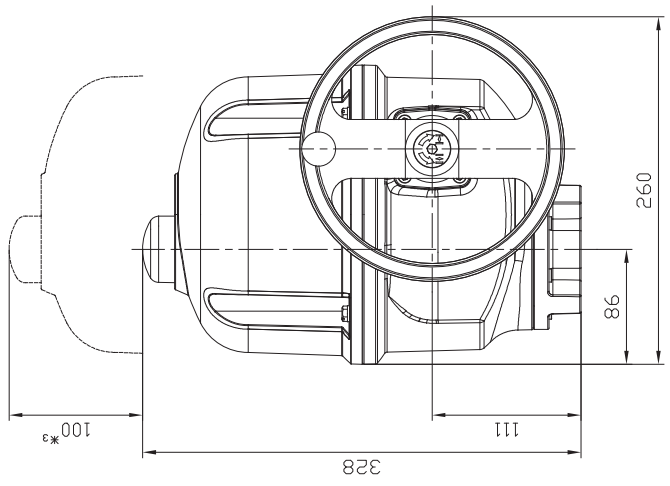


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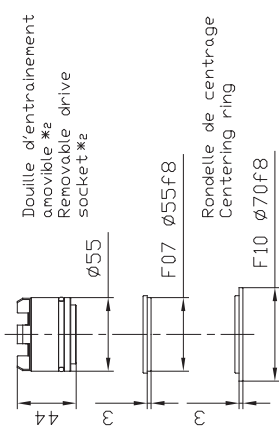
Encombrement / External Dimensions	
A Q25	
Etranche/Weatherproof	
None	
Switch	
Switch	
Ind.Rev.: B	
Echelle/Scale: 1/4 - 1/2	Modification: CD_01502
Planchette/Sheet: 1/1	7
A3	

NOTE: Plan non contractuel/No contractual Draft	Masse/Weight: 13 kg
*1 - Localisation et représenté, dans sa taille nominale. The actuator is represented in its nominal size.	Unités/Units: mm
*2 - Représentation de la douille en position fermée. Representation of the socket in closed position.	
*3 - Cote de démontage/Dimension to allow for disassembly	
Vitesse/Speed: ALL rpm	Forme/Form: SOCKET
Designé par: F.Han	Bride/Flange: F07/F10
24/04/17	Approuvé par: RGUILLAUME
	Verifié par: RGUILLAUME
	25/04/17

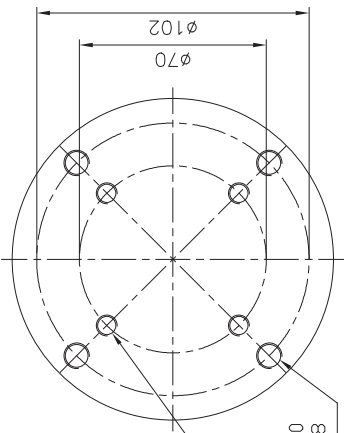
Masse/Weight: 13 kg	
Unités/Units: mm	
Forme/Form: SOCKET	
Bride/Flange: F07/F10	
Approuvé par: RGUILLAUME	
Verifié par: RGUILLAUME	
25/04/17	



Butées réglables limitant la rotation à 90° (+/- 2°)  
Adjustable mechanical end stops 90° (+/- 2°)



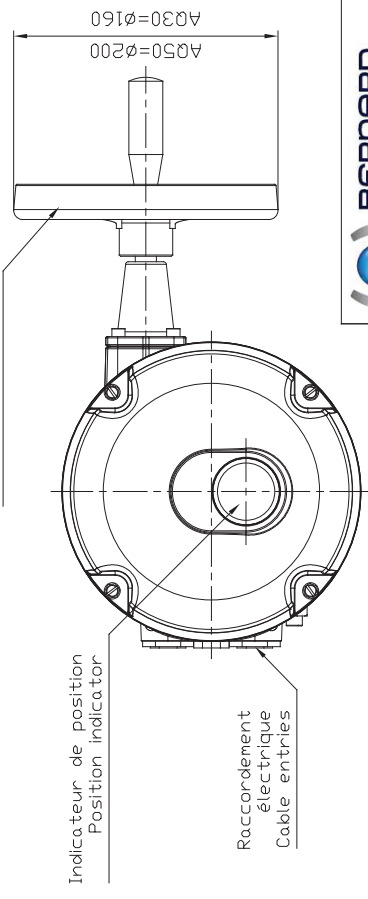
ISO 5211  
F07/F10  
Vue A de la bride  
View A of the flange



F07 = 4 x M8  
Prof./Depth:12

F10 = 4 x M10  
Prof./Depth:18

Volant de commande manuelle  
Emergency Handwheel



Indicateur de position  
Position indicator

Raccordement électrique  
Cable entries



4 rue d'Alsace BP 01  
95955 GONNESE-CEDEX  
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NOTA: Plan non contractuel/No contractual Draft		Masse/Weight:	
*1 - L'actuateur est représenté dans sa taille maximale. The actuator is represented in its maximum size.		15	kg
*2 - Représentation de la douille en position fermée. Representation of the socket in closed position.		Unités/Units:	
*3 - Cote de démontage/Dimension to allow for disassembly.		mm	
Vitesse/Speed:	Forme/Form:	Bride/Flange:	
ALL rpm	SOCKET	F07/F10	
Designé par:	Vérifié par:	Approuvé par:	
G.Liu	J.Jin	F.Han	
06/08/19		06/08/19	

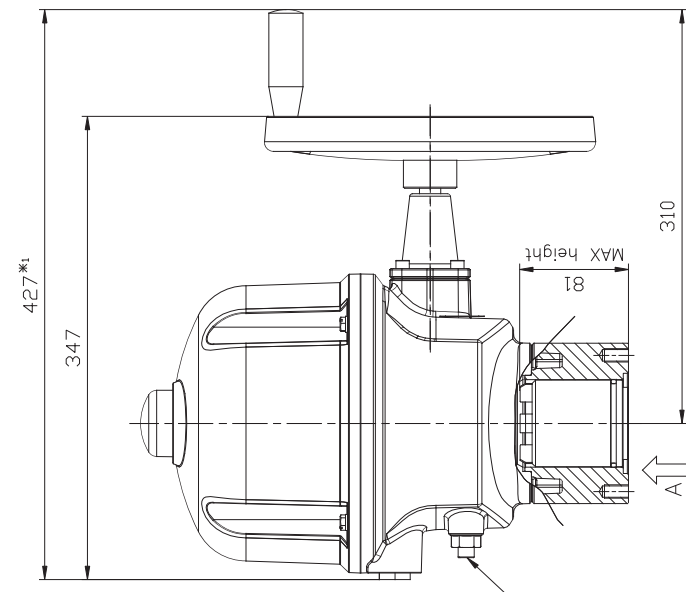
Encombrement / External Dimensions

AQ30 | AQ50

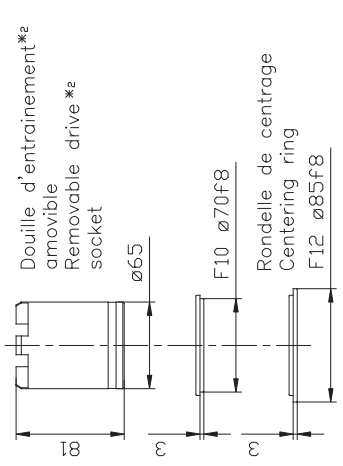
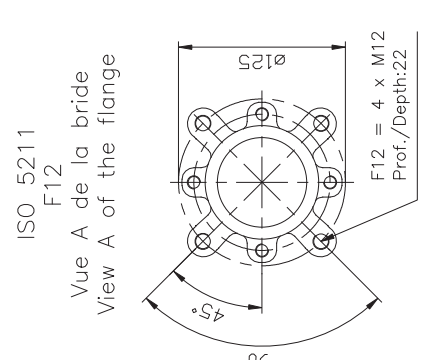
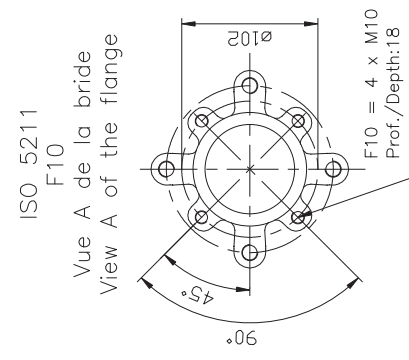
Flanche/Weatherproof  
None  
Switch  
Switch

Echelle/Scale:	Planches/Sheet:	Modification:	Ind./Rev.:
1/4 - 1/2	1/1	CD_01504	C

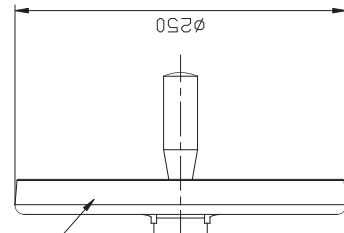




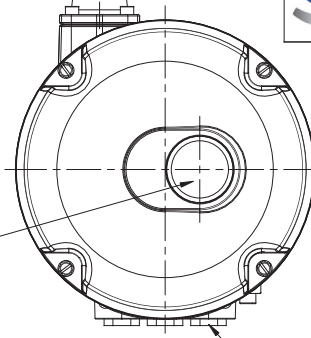
Butées réglables limitant la rotation à 90° (+/- 2°)  
Adjustable mechanical end stops 90° (+/- 2°)



Volant de commande manuelle  
Emergency Handwheel



Indicateur de position  
Position indicator



Raccordement électrique  
Cable entries



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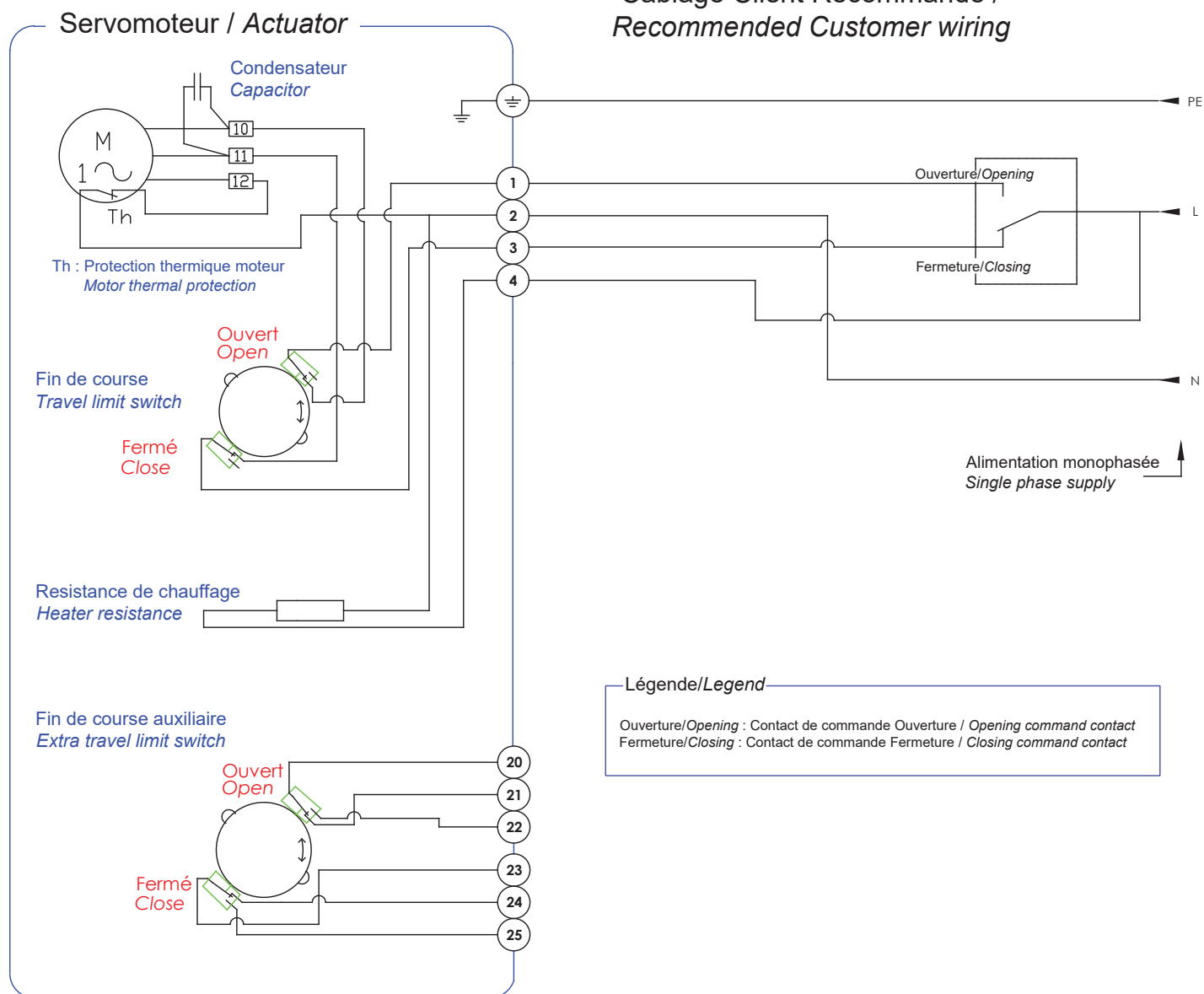
NOTA: Plan non contractuel/No contractual Draft	
*1 - L'actuateur est représenté dans sa taille maximale. The actuator is represented in its maximum size.	Masses/Weight: 18 kg
*2 - Représentation de la douille en position fermée. Representation of the socket in closed position.	Unités/Units: mm
*3 - Cote de démontage/Dimension to allow for disassembly.	
Vitesse/Speed: ALL rpm	Forme/Form: SOCKET
Destiné par: G.Liu	Bride/Flange: F10/F12
Conçu par: 06/03/19	Vérifié par: F.Hon
Approuvé par: 08/03/19	Approved by: F.Hon

Encadrement / External Dimensions	
AQ80/AQ100	
Flanche/Weatherproof	
None	Ind. Rev.: D
Switch	Modification: 1/1 CD_02075_FR_EN
Switch	Echelle/Scale: 1/4 -
Switch	Planchette/Sheet: 6

A B C D E F 1 2 3 4 5 6 7 8

A B C D E F 1 2 3 4 5 6 7 8

## Câblage Client Recommandé / Recommended Customer wiring



### Légende/Legend

Ouverture/Opening : Contact de commande Ouverture / Opening command contact  
Fermeture/Closing : Contact de commande Fermeture / Closing command contact



4 rue d'Arsonval BP 91  
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**AQ-5-10-15 MONOPHASE PRECABLE  
SINGLE PHASE AQ-5-10-15 PREWIRED**

Projet/Project:

Etude/Study:

Modification:  
DM\_20372

Dessiné par:  
Designed by:  
G.Hou  
02/12/20

Vérfié par:  
Checked by:  
F.Han  
03/12/20

Approuvé/Approved  
PROTO  
->  
->

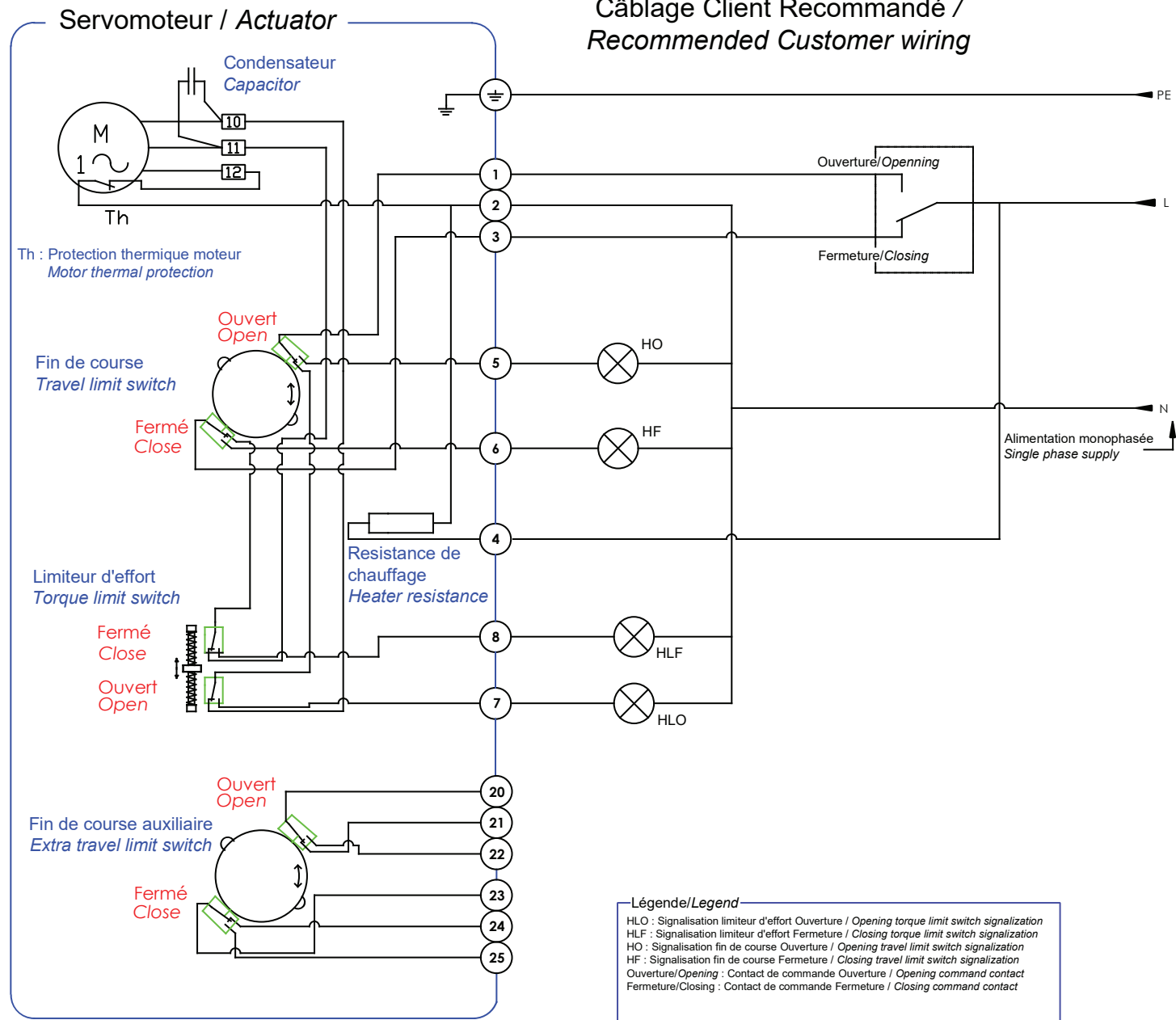
Approuvé/Approved  
PROD  
A.Le Gall  
23/12/20

WD\_500057\_FR\_EN

Planche/Sheet:

Ind./Rev.:  
B

## Câblage Client Recommandé / Recommended Customer wiring



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 95505 GONESSE CEDEX  
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 FAX. +33 (0)1 34 07 71 01  
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**AQ25-30-50 MONOPHASE PRECABLE**  
**SINGLE PHASE AQ25-30-50 PREWIRED**

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Projet/Project:  
15M24

Etude/Study:

Modification:

Dessiné par:  
Designed by:  
G.Hou  
18/07/17

Vérfié par:  
Checked by:  
F.Han  
18/07/17

Validé par:  
Validated by:  
RGuillaume  
19/07/17

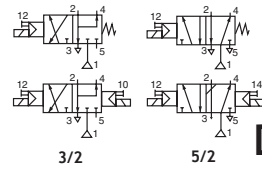
Approuvé/Approved  
PROTO  
->  
->

Approuvé/Approved  
PROD  
RGuillaume  
19/07/17

WD\_500061\_FREN

Planche/Sheet:

Ind./Rev.:  
A



**Features**

- Compact spool valve convertible from 3/2 to 5/2.
- NAMUR Mount construction.
- Standard manual operator.
- DIN, Watertight and Explosionproof solenoids available.
- Single and dual solenoid constructions.
- Mountable in any position.

**Construction**

Valve Parts in Contact with Fluid	
Body	Black Anodized Aluminum
Spring	Phosphate treated black steel
Shading Coil	Copper
Seals	NBR + PUR
Core and Core tube	Stainless Steel / Brass
End Covers and Plate	6/6 glass filled PA/FV
Spool	Aluminum
Internal Parts	Zamak, Steel, CA

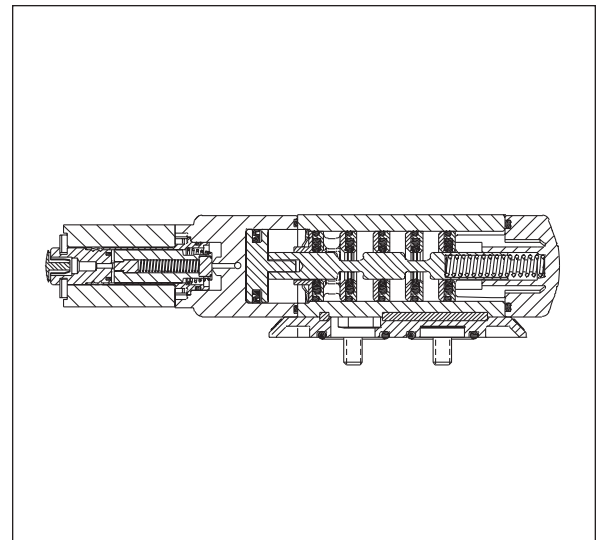
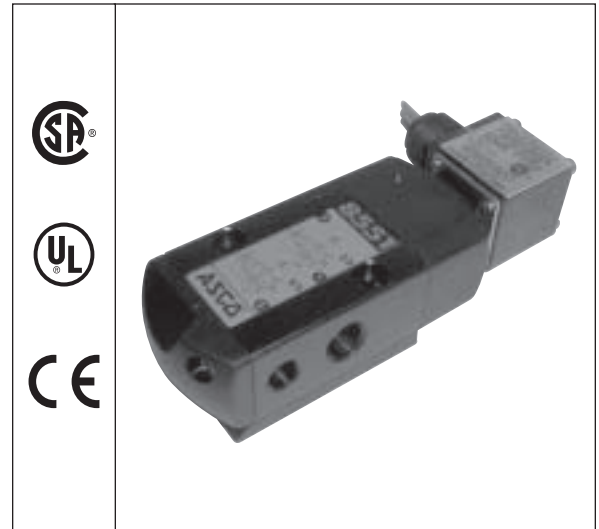
**Electrical**

Standard Coil and Class of Insulation	Enclosure Type	Watt Rating and Power Consumption				Spare Coil Part Number	
		DC Watts	AC Watts	VA Holding	VA Inrush	AC	DC
F	SC	3	2.5	3.5	6	400125	400125
F	EF	6.9	6.3	7	10.1	266762	270007
F	WT	6.9	6.3	7	10.1	266763	270008

**Standard Voltages:** SC: 24, 120, 240 volts AC, 50-60 Hz; 12, 24, 120 volts DC.  
WT and EF: 24/50-60Hz, (120/60, 110-120/50) , (240/60, 220-240/50) volts AC; 6, 12, 24, 120 volts DC.  
**Notes:** Order as 120/60, 110/50  
Order as 240/60, 220/50

**Solenoid Enclosures**

**Standard: - Prefix**  
SC = IP65 type DIN (open frame) per 46244  
WT= Combination General Purpose and Watertight Types 1, 2, 3, 3S, 4, and 4X  
EF = Combination Explosionproof and Watertight Types 3, 3S, 4, 4X, 6, 6P, 7, 9  
CLASS 1, DIV. 1 (Groups A - D) and CLASS 1, DIV.2 Type 9 (Groups E-G)  
**Optional:**  
CENELEC (EEx d,m,em, and i)  
Low Power, Intrinsically Safe, and Red-Hat II versions.  
*Consult factory for details.*



**Nominal Ambient Temperature Ranges:**

**SC:** AC/DC: 5°F to +140°F (-15°C to 60°C)

**EF:** AC: 5°F to +104°F (-15°C to 40°C)  
DC: 5°F to +77°F (-15°C to 25°C)

**WT:** AC: 5°F to +104°F (-15°C to 60°C)  
DC: 5°F to +77°F (-15°C to 25°C)

**Note:** For temperatures below 32°F (0°C) moisture-free air must be used. *Refer to Engineering Section for details.*

**Approvals:**

SC, WT: UL recognized component, CSA certified.  
EF: UL and CSA solenoid approval. Meets applicable CE directives. *Refer to Engineering Section for details.*

**Option:**

Metering-Specify suffix "M" when ordering.  
i.e.: SC8551A001**MMS**

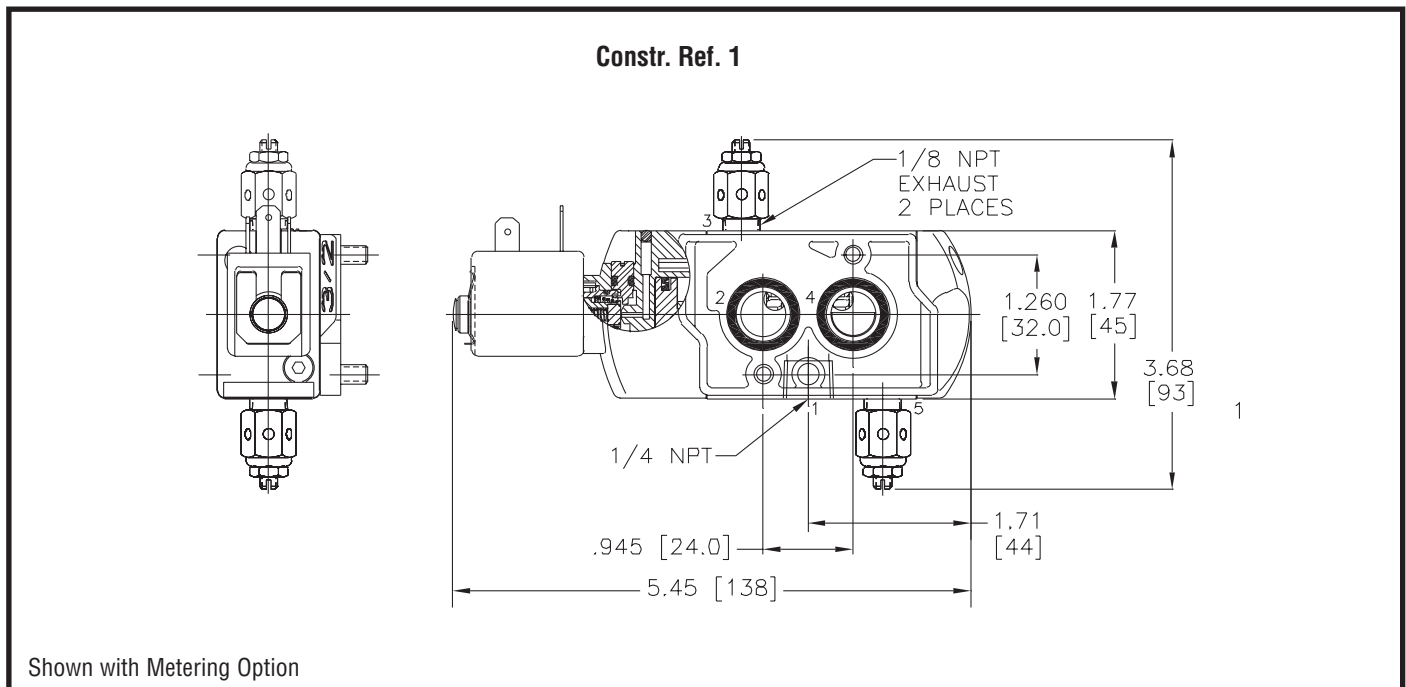
Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Pilot Pressure		Fluid Temperature °F (for single and dual solenoid)			Single Solenoid		Dual Solenoid		Watt Rating/ Class of Coil Insulation		
			Minimum	Maximum	Minimum	Maximum AC	Maximum DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC	
<b>OPEN FRAME DIN COIL</b>														
1/4	1/4	.7	30	150	5	140	140	SC8551A1MS	1	SC8551A2MS	3	2.5	3	
<b>WATERTIGHT ENCLOSURE</b>														
1/4	1/4	.7	30	150	5	104	77	WT8551A1MS	2	WT8551A2MS	4	6.3	6.9	
<b>EXPLOSIONPROOF ENCLOSURE</b>														
1/4	1/4	.7	30	150	5	104	77	EF8551A1MS	2	EF8551A2MS	4	6.3	6.9	
<b>Note:</b> 1/8 inch NPT exhausts.														

Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Pilot Pressure (bars)		Fluid Temperature °C (for single and dual solenoid)			Single Solenoid		Dual Solenoid		Watt Rating/ Class of Coil Insulation		
			Minimum	Maximum	Minimum	Maximum AC	Maximum DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC	
<b>OPEN FRAME DIN COIL</b>														
1/4	6.4	.6	2	10	-15	60	60	SC8551A1MS	1	SC8551A2MS	3	2.5	3	
<b>WATERTIGHT ENCLOSURE</b>														
1/4	6.4	.6	2	10	-15	40	25	WT8551A1MS	2	WT8551A2MS	4	6.3	6.9	
<b>EXPLOSIONPROOF ENCLOSURE</b>														
1/4	6.4	.6	2	10	-15	40	25	EF8551A1MS	2	EF8551A2MS	4	6.3	6.9	
<b>Note:</b> 1/8 inch NPT exhausts.														

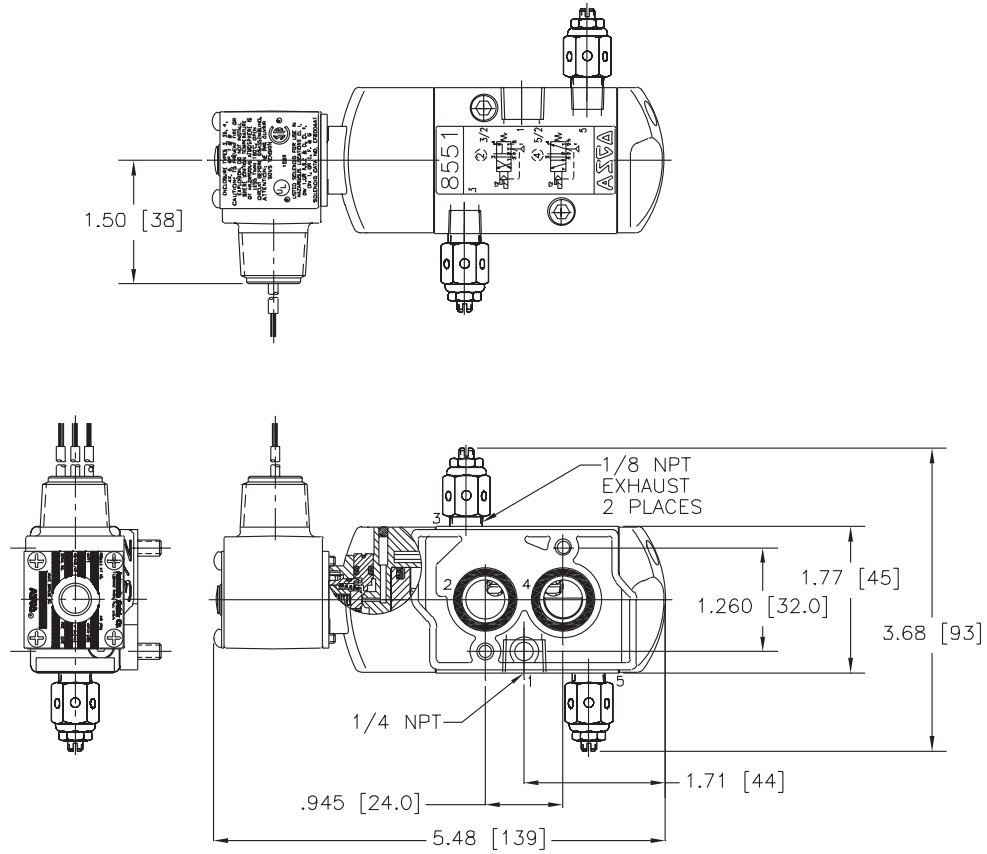
Dimensions: inches (mm)



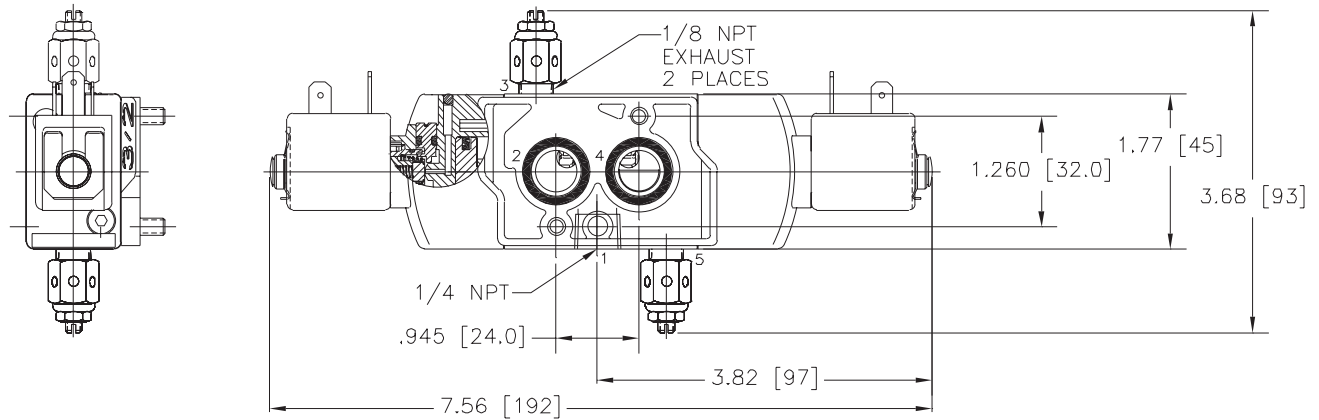
Dimensions: inches (mm)

**Constr. Ref. 2**

Shown with Metering Option



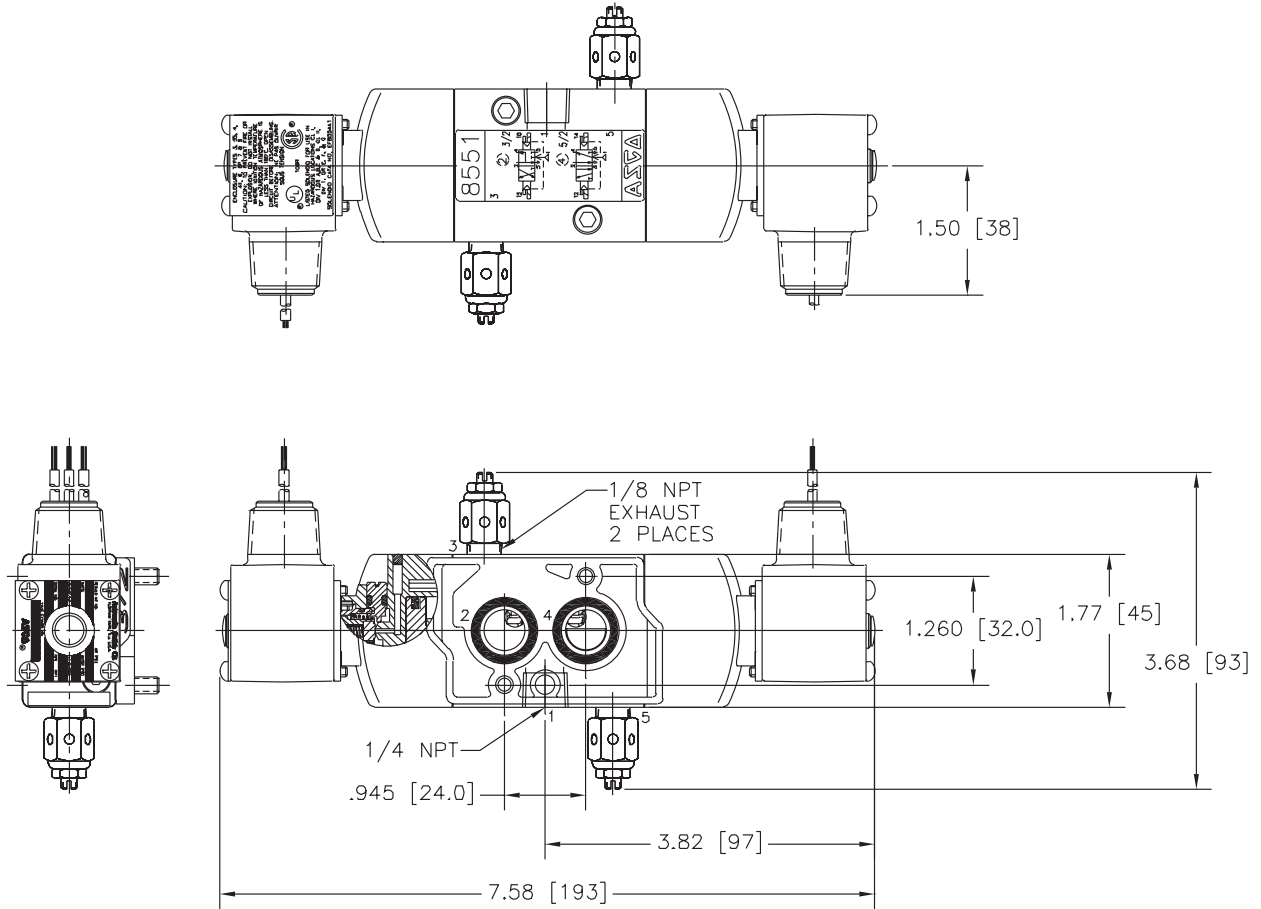
**Constr. Ref. 3**



Shown with Metering Option

Dimensions: inches (mm)

Constr. Ref. 4



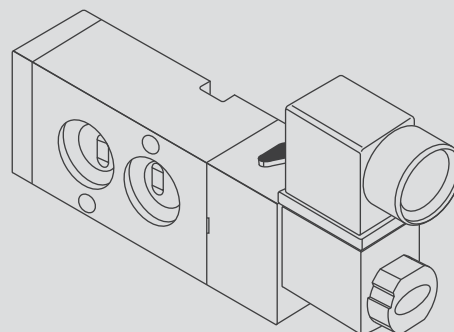
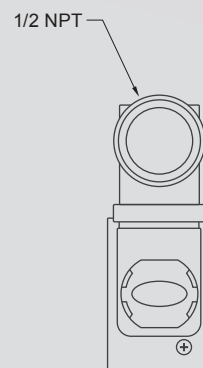
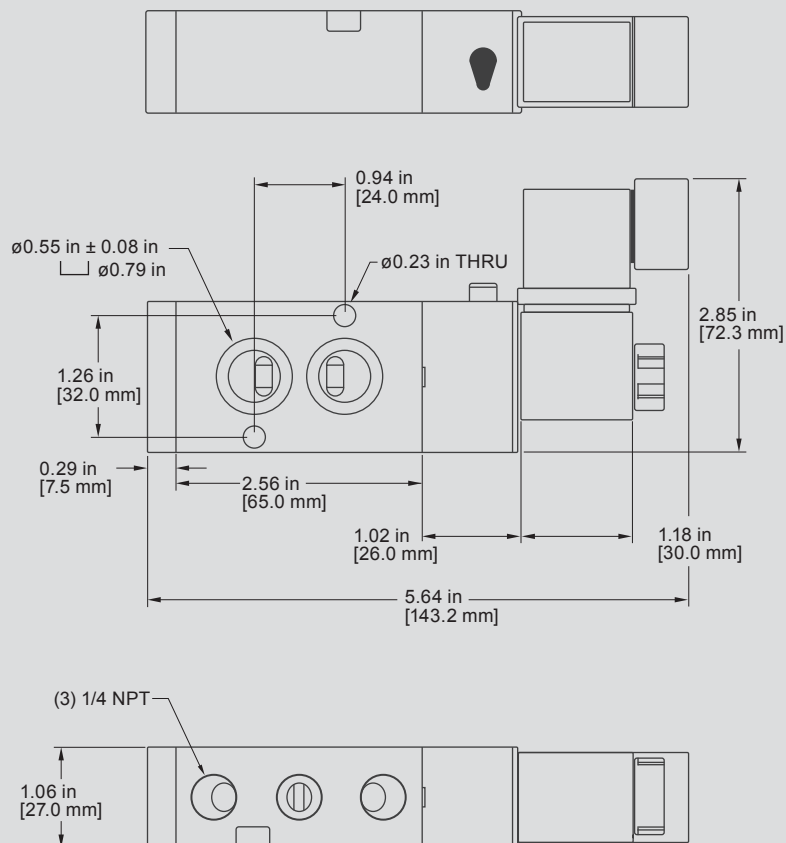
Shown with Metering Option



## Solenoid Series

UniTorq's direct Namur solenoid valve 5/2 or 3/2 NC operation gives you a high-cycle, high-flow, fast-response capability that's second to none. Intended to direct mount on all UniTorq rack and pinion actuators with a Namur valve mounting part. UL, CSA and CE certification is available.

Performance Data			
CV Rating	Body	Positions	Airports
1.4	Anodized aluminum SS available	5/2 or 3/2 NC	1/4" NPT
Working Temperature	Working Medium	Working Life	Frequency
23°-176°F	Less than 40 microns of filtered and dried air	1 million cycles	5 cycles per second





# SOLENOID LEGEND

SV1

NEMA4

110AC

## Number of Coils

- 1 - Single Coil
- 2 - Dual Coils: 2 Positions
- 3 - Dual Coils: 3 Positions (specifically for 90x90 actuators)

## Enclosure Rating

- Nema 4, 4x (UL CSA)
- Nema 7
- Class I, Div I, Groups A,B,C and D
- Class II, Div I, Groups E, F and G
- Class III

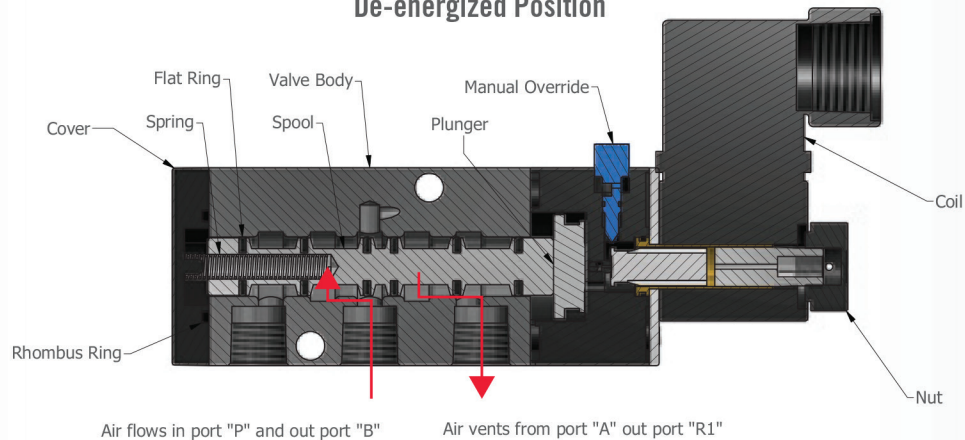
## Voltage

- 110/120VAC
- 220/240VAC
- 12VDC/24VAC
- 24VDC Standard (6.9 Watt)
- 24VDC Low Power (2 Watt)

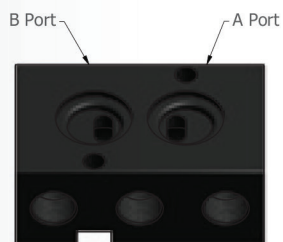
## Options

- SS - Stainless Steel
- NX1 - Quick Exhaust Valve for Spring Return
- R - Rebreather
- ANI
- SC - Speed Control

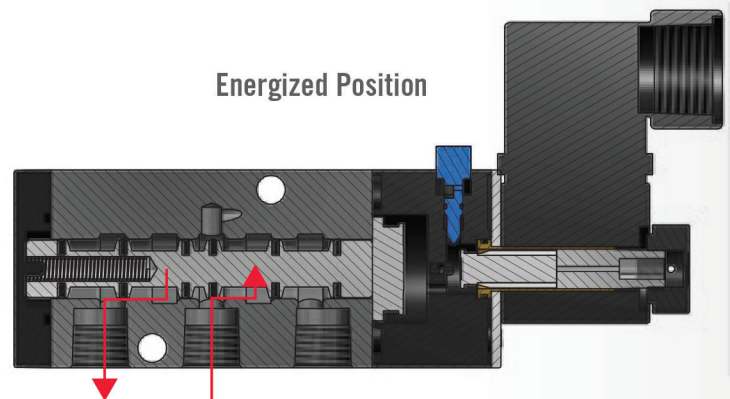
## De-energized Position



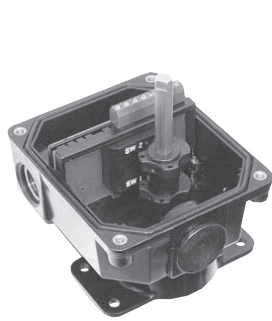
## Solenoid Body



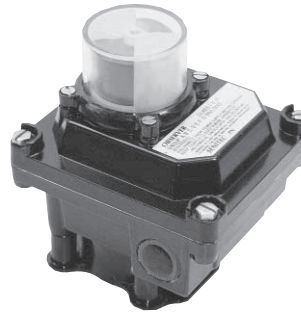
## Energized Position



# AAEAA21110 Limit Switch



NEMA 4



NEMA 7

## No Other Limit Switch Has This Much Experience With Valve Position and Control Indication.



### Easy "Set and Forget" Cam Design

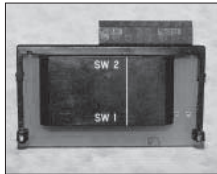
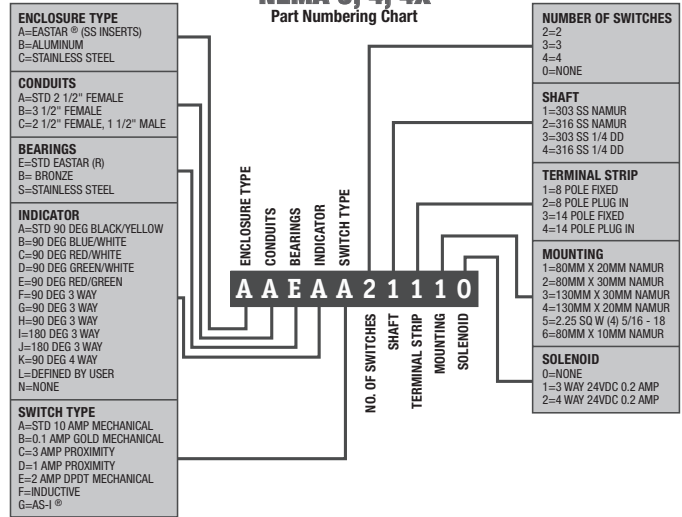
This patented setting system uses no mechanical devices (springs or screws) for adjustment. Senitec utilizes a unique internal leaf spring design, which precisely positions and **LOCKS** on to a splined shaft, which prevents calibration and life cycle inaccuracies. When needed, the cam system is easily adjusted using no tools.

### Switches

All switch configurations, mechanical, inductive, SPDT, DPDT, SPDT hermetically sealed proximity sensors, solenoid valves and analog feedback. Mechanical Switches 10 amp SPDT as standard, enclosed on a PCB board with no exposed wiring. Also available are .100 amp and gold plated SPDT switches for low power and intrinsically safe applications.

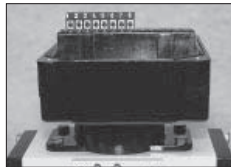


## NEMA 3, 4, 4X Part Numbering Chart



### Introducing the "PrE2" Proximity Sensor

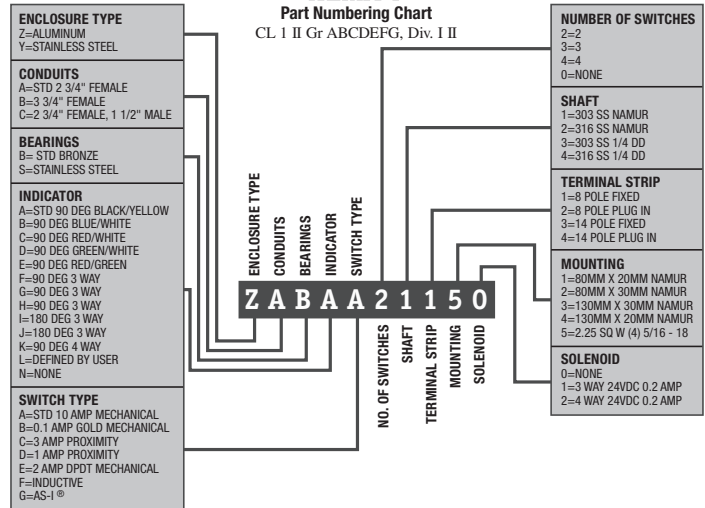
Encased in a Sentar housing and epoxy Acralite hermetically sealed, the "PrE2" proximity sensor provides the industry's foremost protection from moisture, shock and corrosive environments and electronic spikes that damage and shorten the life cycle capability of traditional PIDs. When accuracy, performance and reliability are critical, the Senitec "PrE2" provides the answer.



### Easy Wire Termination

Space for the most difficult installations.

## NEMA 7 Part Numbering Chart





Dual Display Monitor with Beacon® and TouchSet® Cams

## AccuTrak® 2000

### General Purpose/Explosionproof

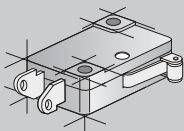
#### High Visibility Position Monitoring

The AccuTrak 2000 is designed to enable the process engineer to add as much feedback from a control valve as the situation requires. The NEMA 4, 4x, 7, 9 rated aluminum enclosure is equipped with two mechanical switches and a Beacon high visibility monitor for instant recognition of valve position up to distances of 150 feet. A unique self-locking, spring-loaded TouchSet cam mechanism allows for instantaneous hand setting of limit switches requiring only five seconds each. A pre-wired numbered and color coded terminal block provides ease and convenience of wiring. Optional analog transmitters provide full

range monitoring of valve position throughout a 0-100% range. Point to point limit switch signalling combined with continuous on-site visual monitoring and optional analog output are all available in one compact UL/CSA enclosure.



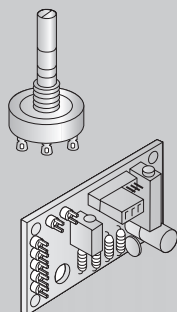
#### Standard Sensor Options



#### Micro-Switch V3

AMPS	SPDT (V3)		DPDT (Licon)	
	VAC	VDC	AMPS	VAC
15	125		10	125
15	250		10	250
10		24		
.50		125		
.25		250		

#### 0-100% Position Transmission



#### Resistive Output Signal

Standard Output Signal	1000 ohms
Power Rating at 70°C	1 watt
Elements	Conductive Plastic
Rotational Life (no load)	100,000 cycles

#### Current Output Signal

Standard Output Signal	4-20 mA DC, 2 wire
Power Requirements	5-38 VDC
Max. Load Resistance at 24 VDC	950 ohms
Operating Temperature	-24°C to 85°C

BULLETIN NO. AR-13.00

# AccuTrak® 2000

## AREA CLASSIFICATIONS

**NEMA 4, 4x, 7, 9**  
**Class I, Groups C, D**  
**Class II, Groups E, F, G,**  
**Divisions 1 & 2**

## ENCLOSURE

Conduit NEMA 4: (1) 1/2" NPT  
 Entries NEMA 4, 4x, 7, 9: (2) 3/4" NPT  
 Terminal 8 contacts standard  
 Strip 16 contacts available

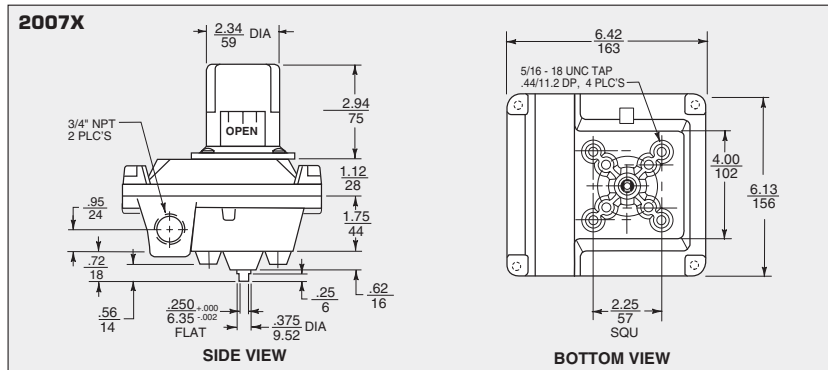
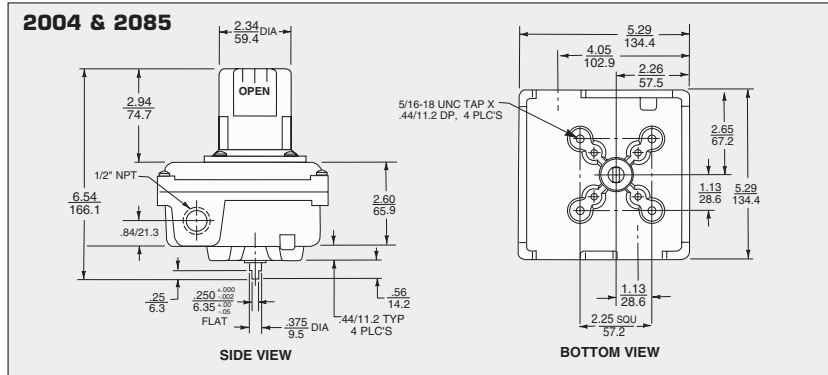
## MATERIALS OF CONSTRUCTION

Housing Die Cast Aluminum  
 Cover Die Cast Aluminum  
 Coating Polyurethane  
 Shaft Stainless Steel  
 Fasteners Stainless Steel  
 Beacon Copolyester

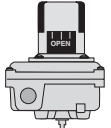




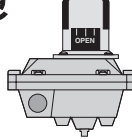






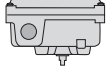
## APPROVALS / CERTIFICATION

**UL** (Underwriters Laboratories, Inc.)  
**CSA** (Canadian Standards Association)

## DIMENSIONS (inches / mm)



## ORDERING GUIDE

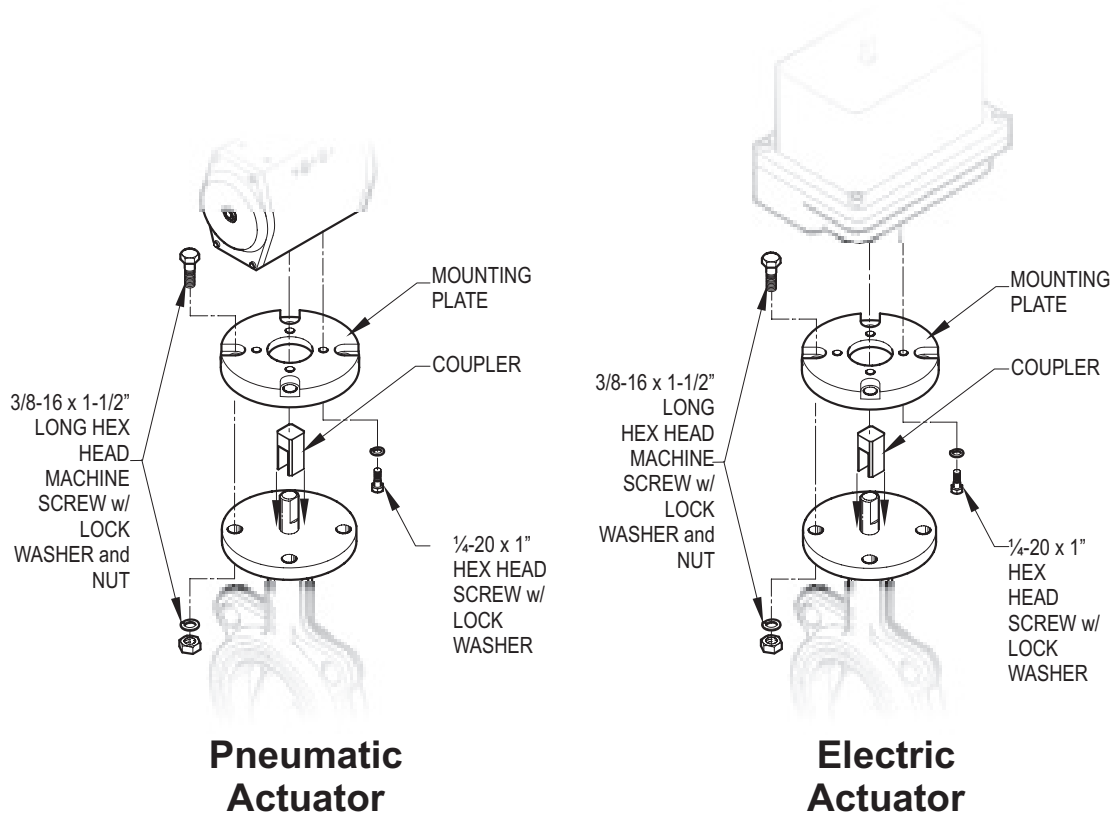
ENCLOSURE	BEACON™	3-WAY BEACON™	TRANSMITTERS
<b>2004</b> 2 SPDT Mechanical Switches NEMA 4, 4x 	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	90° Rotation 	1000 ohms <b>RS</b>
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	90° Rotation 	4-20 mA <b>CS</b>
<b>2007X</b> 2 SPDT Mechanical Switches NEMA 4, 4x, 7, 9 Class I, Grps. C & D Class II, Grps. E, F & G Divisions 1 & 2 	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	90° Rotation 	
	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	180° Rotation 	
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	180° Rotation 	
<b>2085</b> 2 SPDT Mechanical Switches NEMA 4, 4x  <p>No output shaft (cannot accept beacon)</p>			

**Ordering Example:** Dual Display Monitor (2 SPDT switches) with standard black and yellow Beacon, 1000 K potentiometer (NEMA-4 enclosure). **2004-BY-RS**

**Options Available:** 4 SPDT switches (2007X only), 2 DPDT switches, epoxy coatings, anodizing, gold alloy contacts, optional terminal strips, resistive outputs. (Consult Price Sheet)

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.

# Actuator Mounting Plate Kit



This kit is intended to provide a secure and stable mounting surface for the valve actuator. The mounting plate must be attached to the actuator first and then to the valve .

Use only fastening hardware and coupler provided.

1- Pneumatic actuators are normally shipped in the closed position. Electric actuators, on the other hand are shipped in the open position. Check to assure valve and actuator are in the same position. (NOTE: Actuators are normally mounted in line with flow. As shown in illustration.)

2- Attach the *mounting plate* to the actuator first using the 1/4-20 x 1.0" long hex head screws.

3- The *coupler* is required for an effective connection between the valve stem and actuator. It must be in place for the assembly to be complete.

4- Attach the *mounting plate / actuator* sub-assembly to the valve with the 3/8-16 x 1-1/2" long hex head screws as shown.

5- Cycle the final assembled unit to assure proper operation.

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com) .

Adaptr\_plate\_rev0.CDR