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GE Oil & Gas

Andco* Actuators

Precise positioning and reliable automation for controlled motion



imagination at work

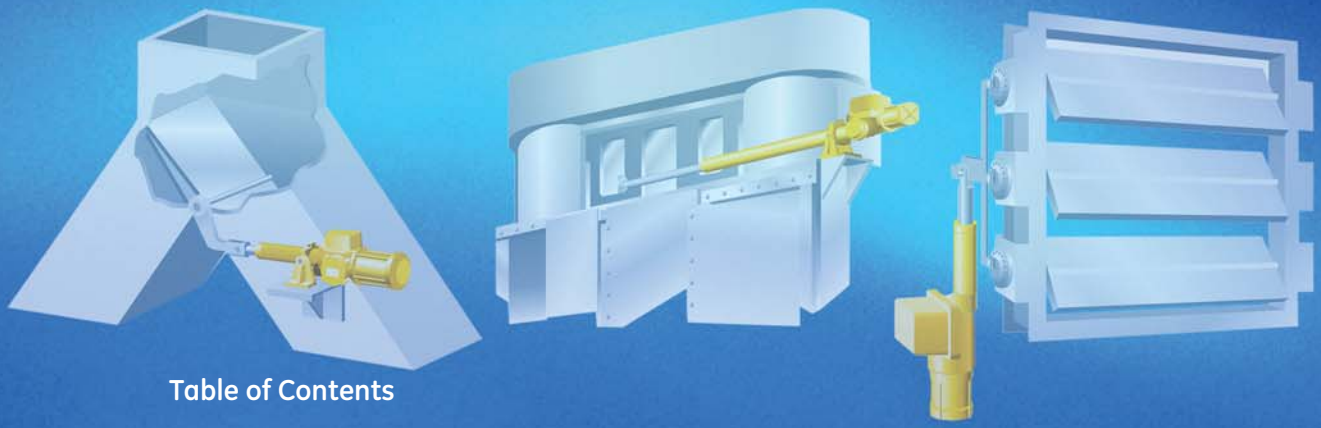


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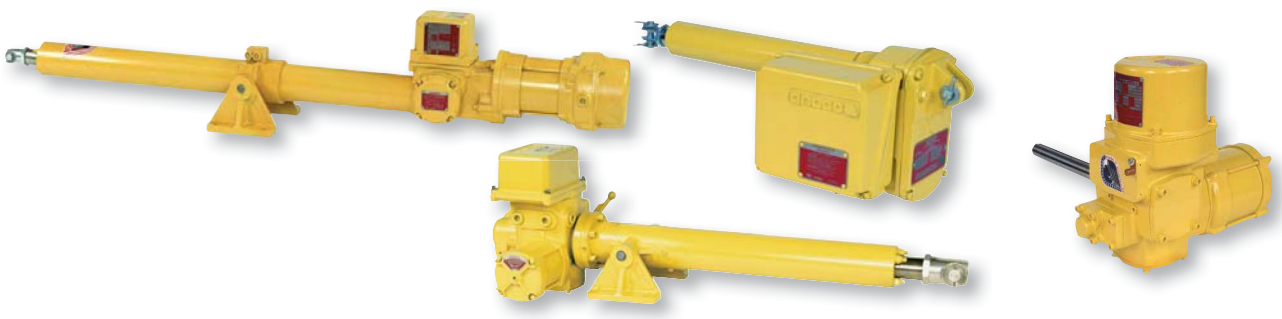
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GE's Andco* electric linear and rotary actuators offer a superior technology choice when reliable, precise, controlled motion is required. Whether moving industrial doors, providing accurate positioning feedback for antennas, or modulating and controlling louver dampers, customers can rely on Andco actuator solutions.

The Andco actuator portfolio includes weatherproof and dustproof options, offering customers durability and performance in severe industrial environments, including hot and cold temperature extremes. Andco actuators are a superior solution for a range of functions including positioning, lifting/lowering, pushing/pulling, and opening/closing.

Andco actuator technology offers low maintenance packages with internal adjustable limit switches for on/off control and light indication, internal torque switch for overload protection, optional internal position/ process controls for positioning, motor braking and motor control. Our actuator solutions deliver ease of installation, maintain constant output force and velocity, and consume power only during movement.



Eagle* Linear Actuators

The Andco Eagle Linear Actuator is a completely self-contained electro-mechanical device. Its compact design is equivalent in size to hydraulic or pneumatic cylinders. Designed and fabricated for easy installation and dependable long-life operation, these actuators are driven by a high starting torque motor with thermal overload protection, non-rotating extension rod, non-backdriving acme screw and all metal gearing.



Features

- Non-rotating drive rod
- Non-backdriving
- All metal gearing
- Compact with electromechanical repeatability
- Simple to mount; easy to wire
- Comparable cost to pneumatic or hydraulic systems
- Equivalent in size to hydraulic or pneumatic cylinders
- Operating range -40°F to +150°F

Standard Equipment

- Thermal switch in motor winding
- Two independently adjustable, gear driven position limit switches with all metal gearing
- Nickel-plated drive rod
- Clevis and pin on drive rod end
- Nema 4 Weatherproof and/or Nema 4 Dust-Ignition proof enclosure (Class II, Division 1, Groups E, F and G)
- Anti-friction bearings on all drive components
- All metal gearing
- Cast aluminum construction
- Clevis mount on the motor end
- Permanently lubricated for maintenance-free operation
- Heavy duty industrial motor; 115 VAC, 60 Hz, single phase,TENV, permanent split capacitor, high starting torque, low inertia

Temperature Range
Ambient -40°F to +150°F -40°C to +65°C
Motor Data
115 VAC, 1 Phase, 2.6A[1] 230 VAC, 1 Phase, 1.12A[1] 230 VAC,3 Phase, .52A[1] 460 VAC, 3 Phase, .26A[1] 575 VAC, 3 Phase, .2A[1] Class B Insulation NEMA "D" design
Approvals
CSA available on select models

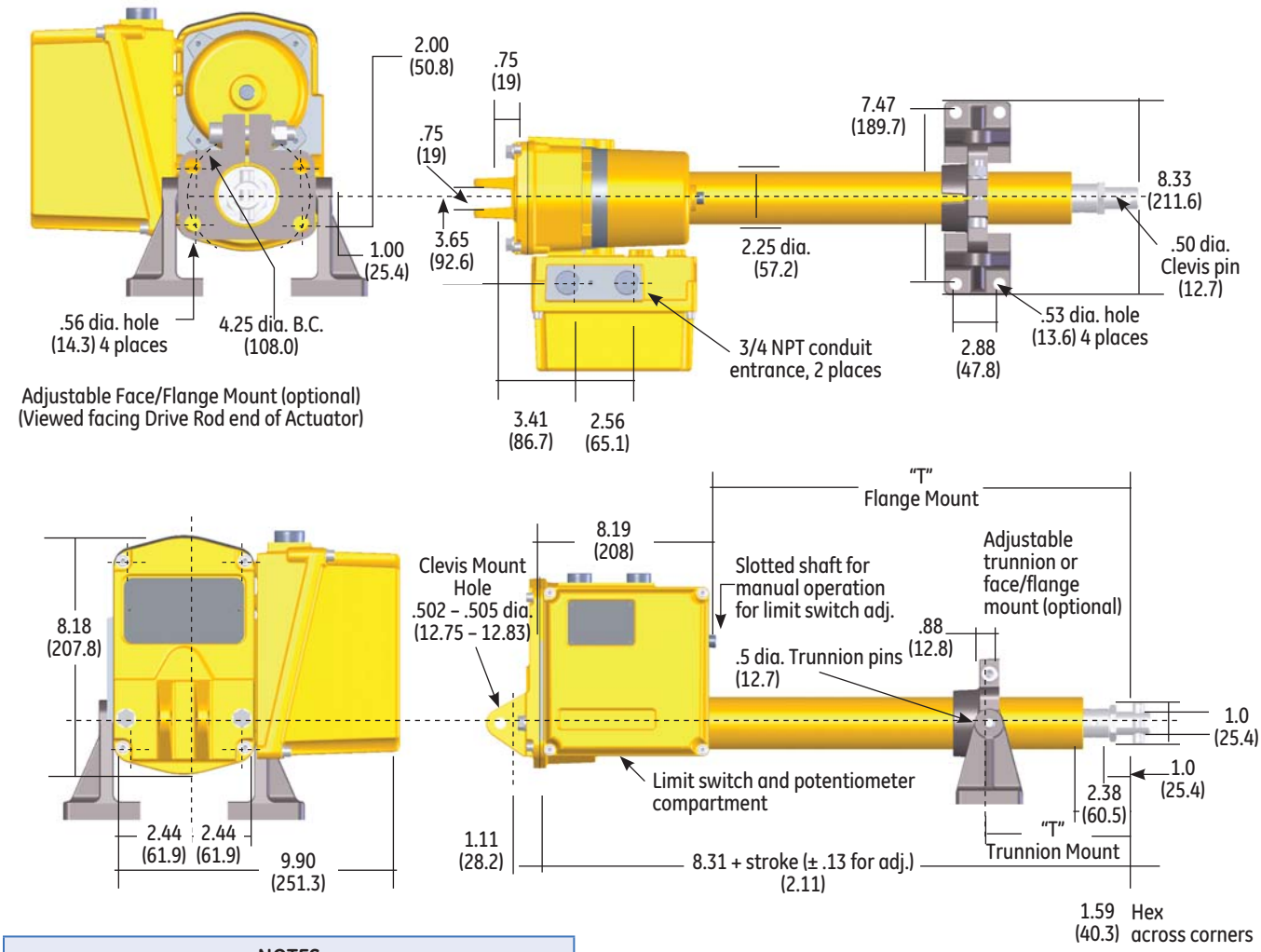
[1] Full load current (Amps).

Optional Equipment

- 230 VAC, 460 VAC and 575 VAC, 60 Hz, 3 phase motor
- Potentiometer (all metal gear driven)
- Integral position process control board for modulating applications
- 4-20mA position transmitter
- Adjustable trunnion mount and trunnion brackets
- Adjustable face/flange mount
- Manual override



Dimensions



NOTES

1. Unbracketed dimensions are in inches
2. Bracketed dimensions are in millimeters
3. Dimensions shown with actuator fully retracted
4. Dimensions are for reference only. Please contact GE for engineering drawings.

Eagle Electrical Cylinder Performance

3100 Series				
Velocity (in/sec)	Breakway Force (lbs)	Running Force (lbs at 5% duty)	Weight Range (lbs)	Stroke (in)
0.2 0.4 0.8 2.0	2000 1500 750 500	1000 750 340 200	35-75	6,12 8, 24 30 & 36

Adjustable Trunnion or Face/Flange

"T" Adjustable Dimension		
Stroke	Inches	Millimeters
6	2.38 - 2.88	(60.45 - 73.15)
12	2.38 - 8.00	(60.45 - 203.20)
18	2.38 - 14.00	60.45 - 355.60)
24	5.38 - 20.00	(60.45 - 508.00)
30	11.38 - 26.00	(12.85 -660.40)
36	17.38 - 32.00	(365.25 - 812.80)

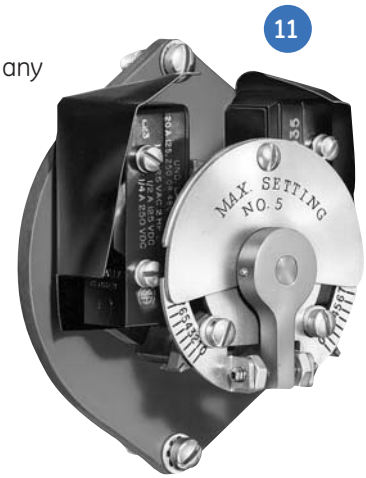
7000 Series Linear Actuators

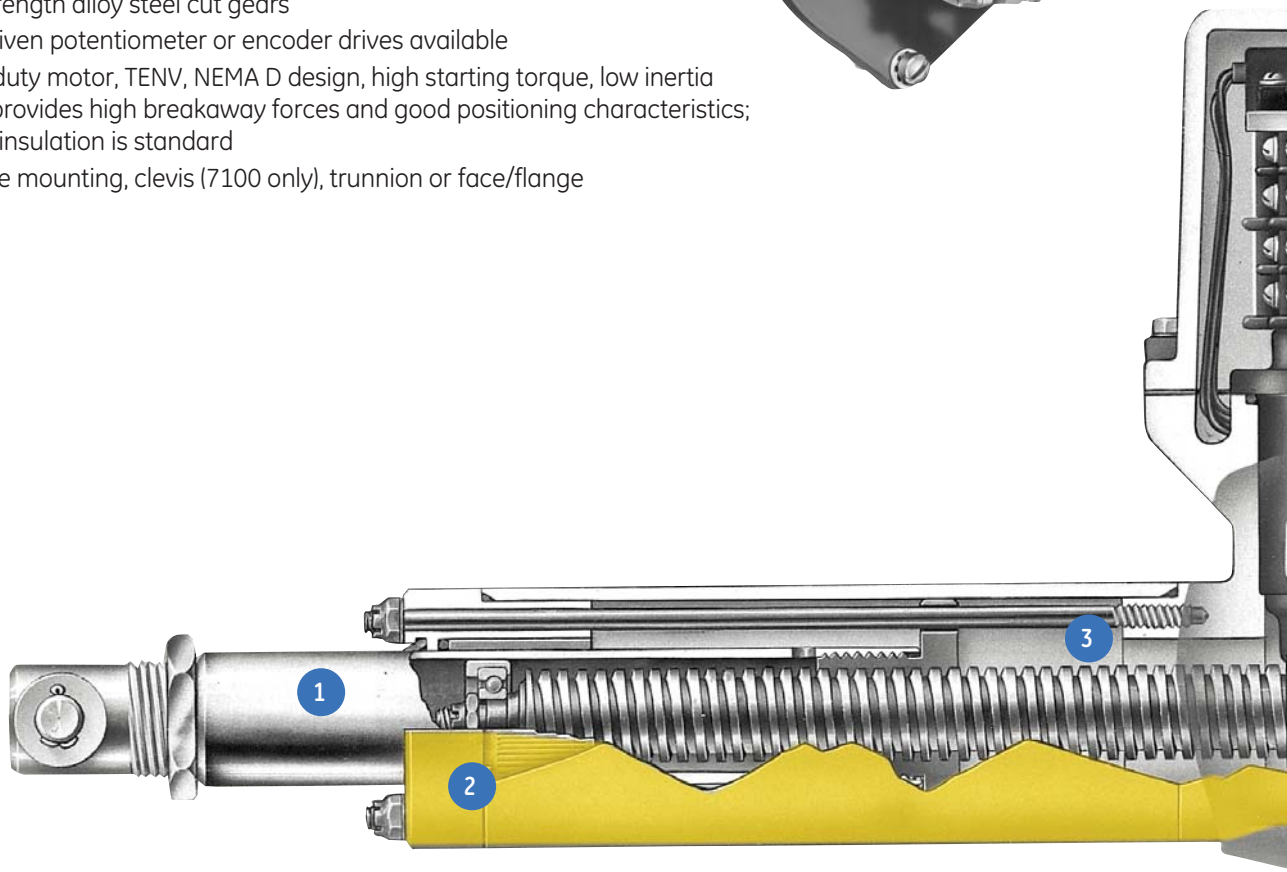
The Andco 7000 Series linear actuator is a completely self-contained, electro-mechanical device. Designed and fabricated for dependable, long-life operation, these actuators are used for positioning, automation of material handling, or flow control equipment.

7000 Series actuators are driven by a high starting torque, low inertia motor connected to a drive screw through a set of gears. When the motor rotates the drive screw, the mating nut and attached extension rod move axially.

Upon completion of stroke, the gear driven position limit switch interrupts power to the motor. If movement of the extension rod is prevented in either direction at any point in actuator travel due to an external mechanical overload, a thrust switch will interrupt power to the motor.

1. High strength ground and plated extension rod
2. Front end cap with bearing support, rod wiper and grease seal
3. Four tie-rod construction with guided drive nut
4. Thrust limit disc springs and spring limit sleeve to prevent total spring deflection
5. Anti-friction bearings
6. High strength alloy steel cut gears
7. Gear driven potentiometer or encoder drives available
8. Heavy duty motor, TENV, NEMA D design, high starting torque, low inertia motor provides high breakaway forces and good positioning characteristics; Class F insulation is standard
9. Versatile mounting, clevis (7100 only), trunnion or face/flange





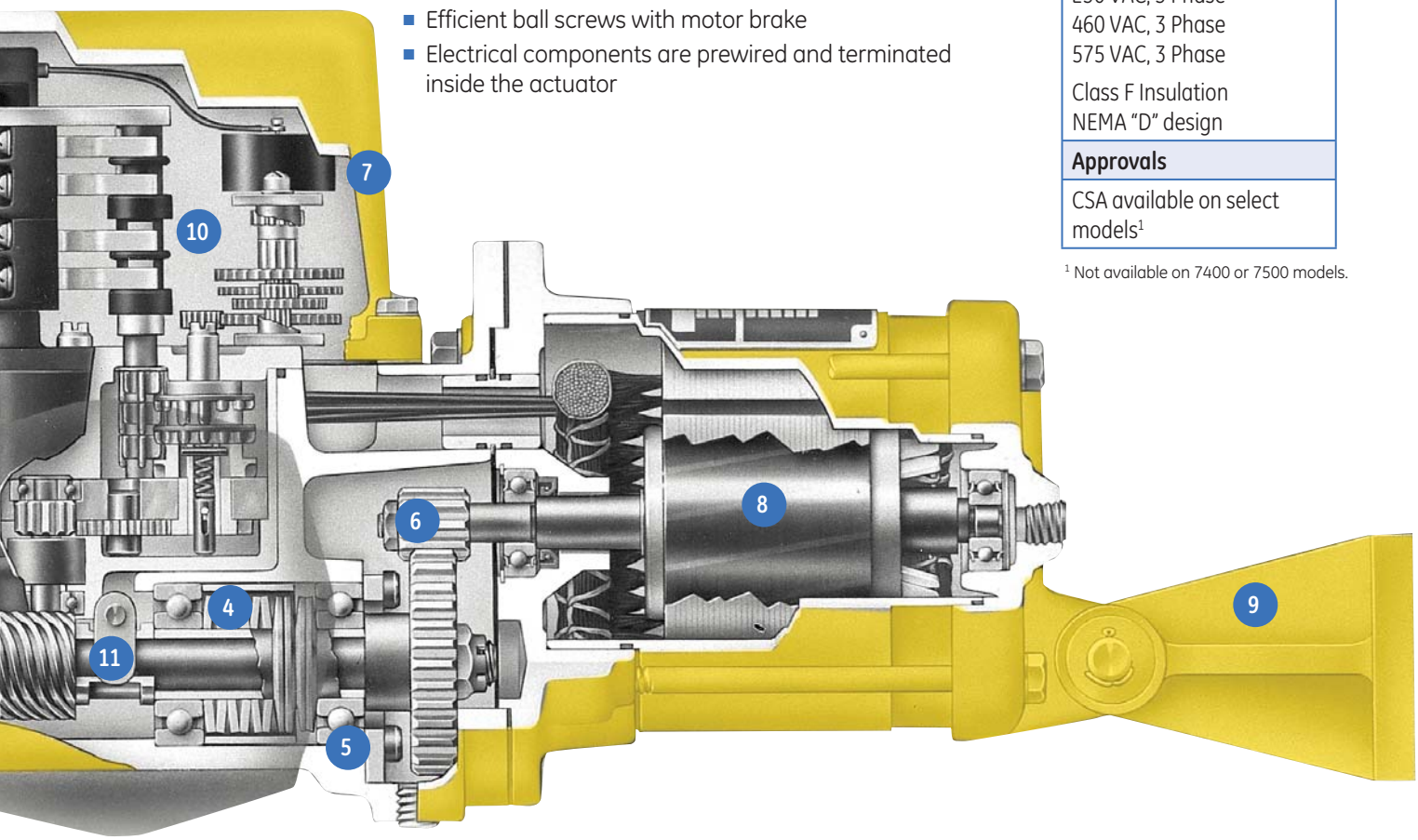
10. A two position gear driven position limit switch for end-of-travel actuator shutoff and a set of contacts for light indication are included as standard. Each position is independently adjustable and can be set anywhere within the full actuator travel. The heavy duty rotary drum, double break switch with wiping contacts feature a patented mechanism that ensures internal gear engagement after adjustment.
11. An adjustable thrust switch for each direction of travel is provided as standard. The switch assembly will automatically shut off the actuator if the set force is exceeded. The switch protects driven equipment from damage due to excessive forces and can also be used as a mechanism for positive seating.

Other Features

- Weatherproof or Dust-Ignition Proof Enclosure (Class II, Divisions 1, Groups E, F, and G)
- Plated external hardware
- Permanently lubricated
- Non-backdriving acme screw
- Efficient ball screws with motor brake
- Electrical components are prewired and terminated inside the actuator

Temperature Range	
Ambient	-30°F to +120°F -34°C to +48°C
Motor Data	
115 VAC, 1 Phase 230 VAC, 3 Phase 460 VAC, 3 Phase 575 VAC, 3 Phase Class F Insulation NEMA "D" design	
Approvals	
CSA available on select models[1]	

[1] Not available on 7400 or 7500 models.



7000 Series Linear Actuators

7000 Series Acme Screw Linear Actuators

Model	Velocity (in/sec)	Breakaway Thrust Rating (lbs)	Running Thrust Rating (lbs)			Stroke Range (ins)	Approximate Weight Range (lbs)
			5% Duty	10% Duty	25% Duty		
7102S (1-Phase)	0.8	975	450	330	130	6-24	50-80
	1.1	750	325	240	95		
	2.0	410	175	135	50		
	2.8	290	125	90	35		
7105T	1.1	2,100	650	240	95	6-24	45-80
	2.0	1,225	350	135	50		
	2.8	875	250	90	35		
7202S (1-Phase)	1.1	750	330	330	260	6-36	55-100
	1.5	460	240	240	180		
	2.8	300	130	130	100		
	4.0	215	90	90	70		
7205T	1.5	1,700	480	460	–	6-36	50-100
	2.8	900	260	255	–		
	4.0	650	185	180	–		
7210T	1.5	2,100	1,000	–	–	6-36	50-100
	2.8	1,815	510	–	–		
	4.0	1300	370	–	–		
7310T	1.4	2,530	1,100	1,050	525	6-60	85-185
	2.1	1,750	700	700	350		
	3.2	1,130	455	455	225		
7317T	2.1	4,220	1,300	1,300	–	6-60	100-200
	3.2	2,750	850	520	–		
7324T	2.0	5,900	1,750	–	–	6-60	100-200
	3.2	3,800	1,250	–	–		
74-7330T	2.8	5,200	2,850	–	–	6-60	120-240
	3.6	4,000	2,200	–	–		

7000 Series Acme Screw Linear Actuators with Gearbox Assembly

Model	Velocity (in/sec)	Breakaway Thrust Rating (lbs)	Running Thrust Rating (lbs)			Stroke Range (ins)	Approximate Weight Range (lbs)
			5% Duty	10% Duty	25% Duty		
7202S (1-Phase)	0.2	2,100	1,100	1,100	1,100	6-36	65-110
7205T	0.5	2,100	1,100	1,100	1,100	6-36	65-110
7302S (1-Phase)	0.2	4,560	1,845	1,845	1,845	6-60	95-190
	0.4	2,130	920	920	920		
	0.7	1,130	490	490	490		
7305T	0.4	6,200	1,795	1,795	1,795	6-48	90-160
7324T	1.1	7,000	3,075	–	–	6-48	115-205
74-7330T	1.5	7,000	5,100	–	–	6-60	130-250

7000 Series Linear Actuators

7000 Series Ball Screw Linear Actuators

Model	Velocity (in/sec)	Breakaway Thrust Rating (lbs)	Running Thrust Rating (lbs)				Stroke Range (ins)	Approximate Weight Range (lbs)
			5% Duty	20% Duty	40% Duty	60% Duty		
7302S (1-Phase)	1.4	1,990	670	670	670	670	6-48	110-190
	2.1	1,370	460	460	460	460		
	3.2	890	300	300	300	300		
	4.2	690	230	230	230	230		
	6.4	450	150	150	150	150		
	12.2	240	80	80	80	80		
7301T	1.4	7,000	2,680	2,680	2,680	2,680	6-48	110-190
	2.1	5,780	1,850	1,850	1,850	1,850		
	4.2	2,900	920	920	920	920		
	6.4	1,875	600	600	600	600		
	12.2	940	320	320	320	320		
7317T	2.1	7,000	3,230	2,700	2,150	1,800	6-48	110-210
	4.2	7,000	1,610	1,610	1,610	1,610		
	6.4	4,550	1,050	1,050	1,050	1,050		
	12.2	2,400	550	550	550	550		
7324T	4.2	7,000	3,400	2,300	–	–	6-48	120-260
	6.4	6,600	2,200	1,500	–	–		
	12.2	3,400	1,150	790	–	–		

7400 Series Ball Screw Linear Actuators

Model	Velocity (in/sec)	Breakaway Thrust Rating (lbs)	Running Thrust Rating (lbs)			Stroke Range (ins)	Approximate Weight Range (lbs)
			5% Duty	10% Duty	25% Duty		
7430T	4.2	12,000	5,100	4,900	4,700	12-60	135-350
7450T	5.5	16,000	7,000	6,100	4,900	12-60	125-375

7500 Series Ball Screw Linear Actuators

Model	Velocity (in/sec)	Breakaway Thrust Rating (lbs)	Running Thrust Rating (lbs)			Stroke Range (ins)	Approximate Weight Range (lbs)
			5% Duty	10% Duty	25% Duty		
7530T	2.0	24,000	12,000	11,000	10,000	12-60	275-575
7550T	2.0	42,000	20,000	16,000	12,500	12-60	275-625

NOTES

1. The suffix S in the model number indicates a 115 VAC, 60 Hz single phase motor. 220 VAC, 60 Hz single phase is optional.
2. The suffix T in the model number indicates a 230 or 460 VAC, 60 Hz three phase. 380 VAC, 50 Hz and 575 VAC, 60 Hz are optional.
3. Strokes are available in 6 inch increments up to 36 inches and 12 inch increments up to 60 inches.
4. All stroke lengths can be adjusted downward with the position limit switch.
5. The information contained herein is in effect at the time of printing and the company reserves the right to make changes.

7000 Series Linear Actuators

7000 Series Acme Screw Linear Actuators

Model	6" Stroke		12" Stroke		18" Stroke		24" Stroke		30" Stroke		36" Stroke		48" Stroke		60" Stroke	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
7102S	26.32	18.14	32.32	24.14	38.32	30.14	44.32	36.14	–	–	–	–	–	–	–	–
7105T	25.32	18.14	31.32	24.14	37.32	30.14	43.32	36.14	–	–	–	–	–	–	–	–
7202S	26.17	18.58	32.17	24.58	38.17	30.58	44.17	36.58	50.17	42.58	56.17	48.58	–	–	–	–
7205T	25.17	18.58	31.17	24.58	37.17	30.58	43.17	36.58	49.17	42.58	55.17	48.58	–	–	–	–
7210T	26.17	18.58	32.17	24.58	38.17	30.58	44.17	36.58	50.17	42.58	56.17	48.58	–	–	–	
7310T	32.45	24.88	38.45	30.88	44.45	36.88	50.45	42.88	56.45	48.88	62.45	54.88	74.45	66.88	86.45	78.88
7317T	32.88	24.88	38.88	30.88	44.88	36.88	50.88	42.88	56.88	48.88	62.88	54.88	74.88	66.88	86.88	78.88
7324T	33.82	24.88	39.82	30.88	45.82	36.88	51.82	42.88	57.82	48.88	63.82	54.88	75.82	66.88	87.82	78.88
74-7330T	39.30	29.36	45.30	35.36	51.30	41.36	57.30	47.36	63.30	53.36	69.30	59.36	81.30	71.36	93.30	83.36

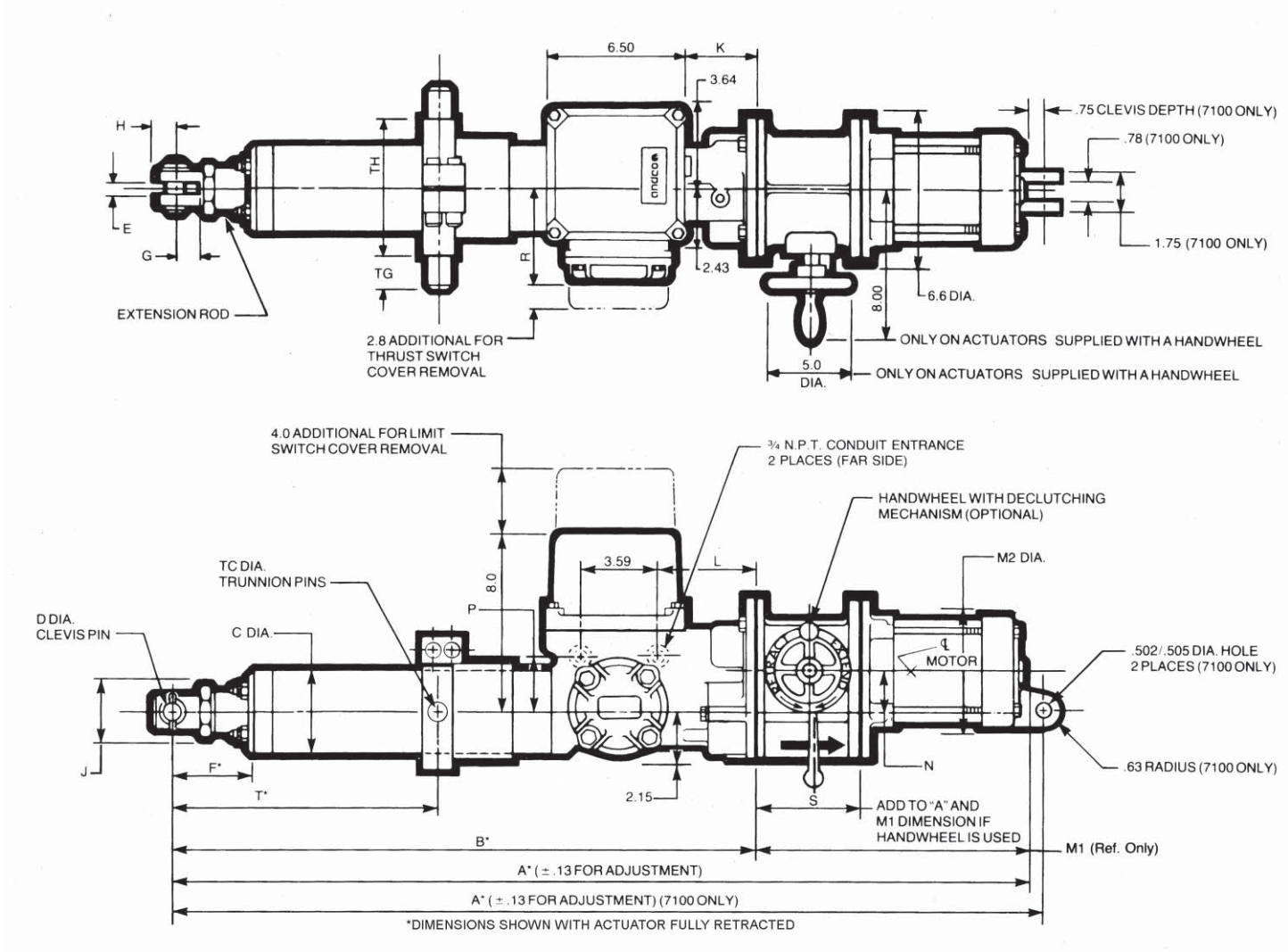
Model	C	D	E	F	G	H	J	K	L	M1	M2	N	P	R	S
7102S	2.50	.375	.38	2.53	1.00	.38	1.63	0.94	2.32	8.18	6.00	1.60	2.65	3.60	4.68
7105T										7.18					
7202S	2.75	.500	.50	2.40	1.00	.50	1.63	0.94	2.32	7.59	6.00	1.60	2.65	3.60	4.68
7205T										6.59					
7210T										7.59					
7310T	3.88	.750	.63	4.32	1.13	.75	2.25	3.29	4.72	7.57	6.00	2.00	2.82	4.19	5.18
7317T										8.00	6.86				
7324T										8.94	6.86				
74-7330T	4.38	1.25	1.26	6.13	2.00	1.25	3.25	3.29	4.72	9.94	6.86	2.00	2.82	4.19	5.18

7000 Series Screw Linear Actuators with Gearbox Assembly

Model	6" Stroke		12" Stroke		18" Stroke		24" Stroke		30" Stroke		36" Stroke		48" Stroke		60" Stroke	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
7102S	30.88	18.58	36.88	24.58	42.88	30.58	48.88	36.58	54.88	42.58	60.88	48.58	–	–	–	–
7205T	29.88	18.58	35.88	24.58	41.88	30.58	47.88	36.58	53.88	42.58	59.88	48.58	–	–	–	–
7302S	37.63	24.88	43.63	30.88	49.63	36.88	55.63	42.88	61.63	48.88	67.63	54.88	79.63	66.88	91.63	78.88
7305T	36.63	24.88	42.63	30.88	48.63	36.88	54.63	42.88	60.63	48.88	66.63	54.88	78.63	66.88	90.63	78.88
74-7330T	53.20	29.36	59.20	35.36	65.20	41.36	71.20	47.36	77.20	53.36	83.20	59.36	95.20	71.36	107.20	83.36

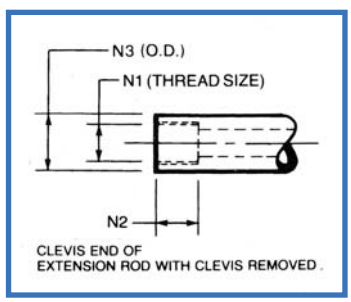
7000 Series Linear Actuators

7000 Series Acme Screw Linear Actuators



Model	C	D	E	F	G	H	J	K	L	M1	M2	N	P	R	S
7102S	2.75	.50	.50	2.50	1.00	.50	1.63	.94	2.32	12.30	6.00	1.60	2.65	3.60	4.68
7205T										11.30					
7302S	3.88	.75	.63	4.32	1.13	.75	2.25	3.29	4.72	12.75	6.00	2.00	2.82	4.19	5.18
7305T										11.75					
74-7330T	4.38	1.25	1.26	6.13	2.00	1.25	3.25	3.29	4.72			2.00	2.82	4.19	5.50

Series	N1	N2	N3
7100	1" - 20UN	1.00	1.187
7200	1-1/4" - 20UN	1.12	1.433
7300	1-5/8" - 16UN	1.18	1.860
74-7300	1-1/8" - 16UN	2.06	2.350



NOTES

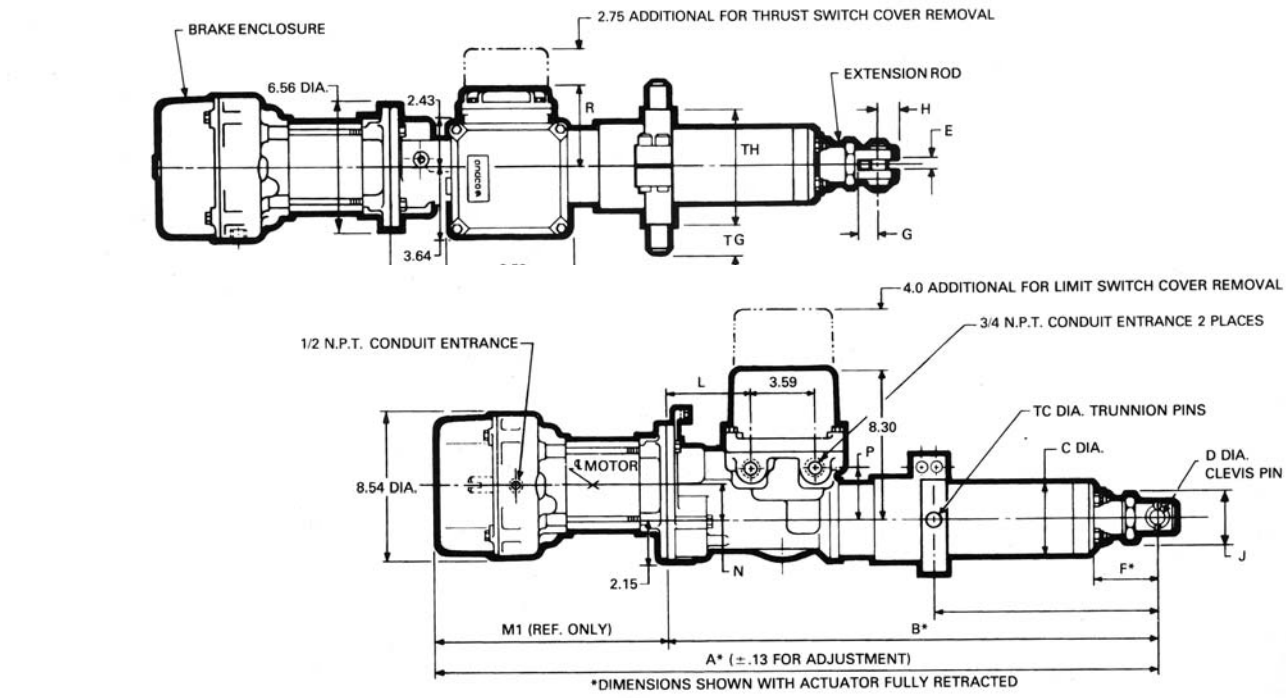
For trunnion, clevis, and face flange mount dimensions see pages 14 and 15. Dimensions are for reference only. Contact GE for engineering drawings.

7000 Series Linear Actuators

7000 Series Ball Screw Linear Actuators

Model	6" Stroke		12" Stroke		18" Stroke		24" Stroke		30" Stroke		36" Stroke		48" Stroke		60" Stroke	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
7302S	40.50	27.70	46.50	33.70	52.50	39.70	58.50	45.70	64.50	51.70	70.50	57.70	82.50	69.70	–	–
7301T	40.50	27.70	46.50	33.70	52.50	39.70	58.50	45.70	64.50	51.70	70.50	57.70	82.50	69.70	–	–
7317T	40.83	27.70	46.83	33.70	52.83	39.70	58.83	45.70	64.83	51.70	70.83	57.70	82.83	69.70	–	–
7324T	41.70	27.70	47.70	33.70	53.70	39.70	59.70	45.70	65.70	51.70	71.70	57.70	83.70	69.70	–	–
7430T	–	–	65.10	50.10	71.10	56.10	77.10	62.10	–	–	89.10	74.10	101.10	86.10	113.10	98.10
7450T	–	–	68.50	50.10	74.50	56.10	80.50	62.10	–	–	92.50	74.10	104.50	86.10	116.50	98.10
7530T	–	–	82.40	58.60	88.40	64.60	94.40	70.60	–	–	106.40	74.10	118.40	86.10	130.40	98.10
7550T	–	–	82.40	58.60	87.80	64.60	93.80	70.60	–	–	105.80	74.10	117.80	86.10	129.80	98.10

Model	C	D	E	F	G	H	J	K	L	M1	N	P	R	TC	TG	TH
7302S										12.80						
7310T	3.88	0.750	0.63	4.00	1.13	0.75	2.25	3.29	4.72	12.80	2.00	2.82	4.19	0.875	1.19	6.50
7317T										13.13						
7324T										14.00						
7430T	4.38	1.250	1.26	6.13	2.00	1.25	3.25	3.29	4.72	15.00	2.00	2.82	4.19	1.000	1.50	7.50
7450T										18.40						
7530T	6.50	1.500	1.54	5.75	2.38	1.75	4.56	3.29	4.72	23.80	2.00	2.82	4.19	1.750	2.50	10.00
7550T										23.20						



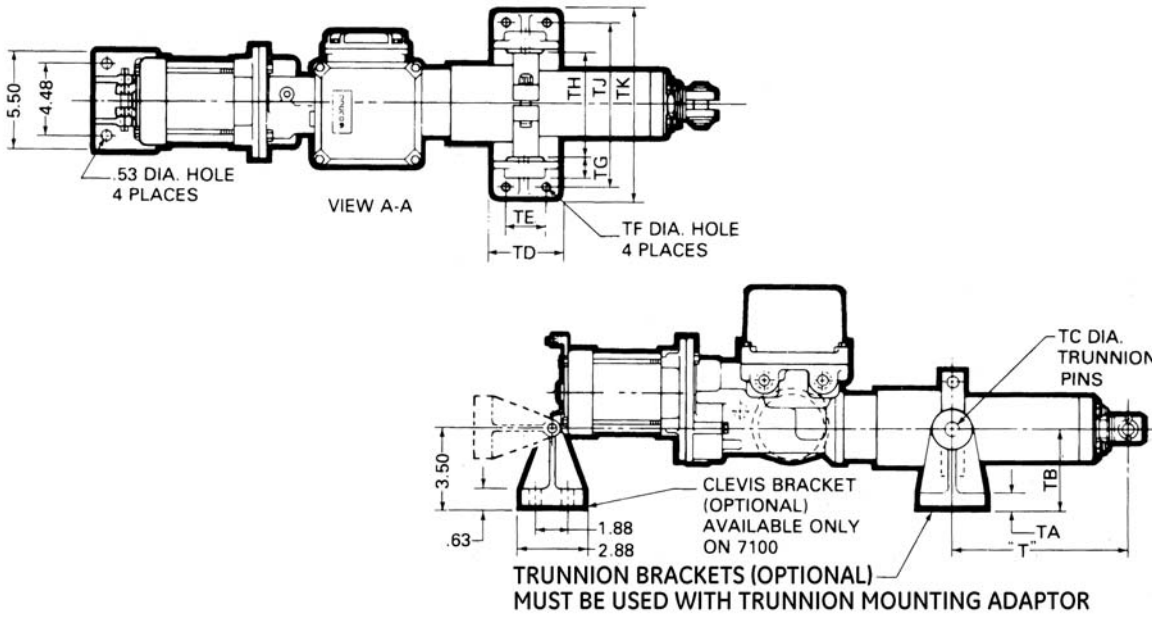
Series	N1	N2	N3
7200	1-1/4" - 20UN	1.12	1.43
7300	1-5/8" - 16 UN	1.18	1.86
7400	1-1/8" - 16UN	2.06	2.35
7500	2-1/2" - 16UN	2.75	3.00

NOTES

For trunnion, clevis, and face flange mount dimensions see pages 14 and 15. Dimensions are for reference only. Contact GE for engineering drawings.

7000 Series Linear Actuators

Trunnion and Clevis Mounting



"T" (Shown with actuator fully retracted)

Series	6" Stroke		12" Stroke		18" Stroke		24" Stroke		30" Stroke		36" Stroke		48" Stroke		60" Stroke	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
7100-A	6.63	7.63	11.63	13.63	16.63	19.63	19.63	25.63	–	–	–	–	–	–	–	–
7200-A	6.63	7.63	11.63	13.63	16.63	19.63	19.63	25.63	25.63	31.63	31.63	37.63	–	–	–	–
7300-A	10.00	11.50	13.50	17.50	17.00	23.50	21.00	29.50	26.00	35.50	32.00	42.50	38.00	53.50	44.00	65.50
74-7300-A	12.00	14.25	17.00	20.25	20.00	26.25	23.00	32.25	26.00	38.25	32.00	44.25	38.00	56.25	44.00	68.25
7300-B	13.00	14.00	18.00	20.00	21.00	26.00	24.00	32.00	28.00	38.00	32.00	44.00	40.00	56.00	–	–
7400-B	–	–	33.62	33.62	39.62	39.62	45.62	45.62	–	–	57.62	57.62	69.62	69.62	81.62	81.62
7500-B	–	–	36.44	36.44	42.44	42.44	48.44	48.44	–	–	60.44	60.44	77.44	77.44	84.44	84.44

Trunnion and Clevis Mounting

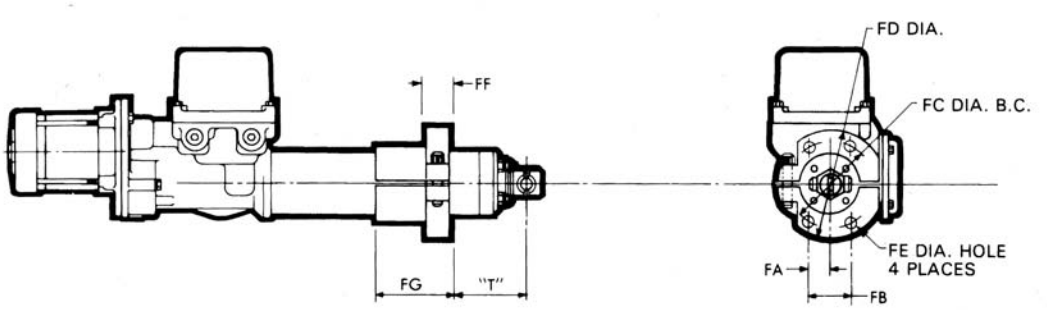
Series	TA	TB	TC	TD	TE	TF	TG	TH	TJ	TK
7100-A	0.63	3.50	0.50	4.00	1.88	0.53	0.75	4.75	7.47	9.25
7200-A	0.63	3.50	0.50	4.00	1.88	0.53	0.75	4.75	7.47	9.25
7300-A	0.75	4.66	0.87	7.56	5.50	0.66	1.19	6.50	9.50	11.25
74-7300-A	0.75	4.66	1.00	7.56	5.50	0.66	1.43	7.50	10.50	12.25
7300-B	0.75	4.66	0.87	7.56	5.50	0.66	1.19	6.50	9.50	11.25
7400-B	0.75	4.66	1.00	7.56	5.50	0.66	1.50	7.50	10.50	12.25
7500-B	1.50	6.00	1.75	8.50	6.00	1.06	2.50	10.00	14.50	17.00

NOTES

1. An adjustable trunnion mount is standard on 7200, 7300, and 74-7300 Series actuators (optional on 7100).
   For 7400 Series ball screw actuators with an adjustable trunnion mount use "T" dimension from the 7400 flange mount table.
   Fixed location trunnion pins are standard on 7400 and 7500 Series actuators.
2. Trunnion brackets are optional on all models.
3. Actuators supplied with adjustable trunnion mounting are set at the maximum dimension unless otherwise specified.
4. Dimensions are for reference only. Contact GE for engineering drawings.

7000 Series Linear Actuators

Face/Flange Mounting



Face/Flange Mounting

Series	FA	FB	FC	FD	FE	FF	FG
7100-A	1.00	2.00	4.25	5.50	0.56	1.00	4.00
7200-A	1.00	2.00	4.25	5.50	0.56	1.00	4.00
7300-A	1.50	3.00	5.75	7.00	0.69	1.38	4.00
74-7300-A	2.25	4.50	6.50	8.00	0.81	1.00	5.00
7300-B	1.50	3.00	5.75	7.00	0.69	1.38	4.00
7400-B	2.30	4.60	6.50	8.00	0.81	1.00	5.00

"T" (Shown with Actuator Fully Retracted)

Series	6" Stroke		12" Stroke		18" Stroke		24" Stroke		30" Stroke		36" Stroke		48" Stroke		60" Stroke	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
7100-A	3.32	6.75	3.32	12.75	6.63	18.75	12.63	24.75	–	–	–	–	–	–	–	–
7200-A	3.32	6.75	3.32	12.75	6.63	18.75	12.63	24.75	18.63	30.75	24.63	36.75	–	–	–	–
7300-A	10.00	11.00	16.00	17.00	22.00	23.00	28.00	29.00	34.00	35.00	40.00	41.00	52.00	53.00	64.00	65.00
74 -7300-A	11.00	13.25	17.00	19.25	23.00	25.25	29.00	31.25	35.00	37.25	41.00	43.25	53.00	55.25	65.00	67.25
7300-B	12.00	13.50	18.00	19.50	24.00	25.58	30.00	31.50	36.00	37.58	42.00	43.50	54.00	55.50	–	–
7400-B	–	–	20.00	24.00	25.00	30.00	30.00	36.00	–		38.00	43.00	40.00	46.00	43.00	50.00

NOTES

1. Face/flange actuator may be rotated 90° from arrangement shown.
2. Face/flange location is set at maximum dimension unless otherwise specified.
3. Dimensions are for reference only. Contact GE for engineering drawings.

8000 Series Linear Actuators

Electric Linear Actuators



Standard Equipment

The Andco 8000 Series linear actuator is a completely self-contained, electro-mechanical device, designed and fabricated for dependable long life operation. The Andco 8000 Series is weatherproof or dust-ignition proof (Class II, Division 1, Groups E, F and G).

The 8000 Series is driven by a high-starting torque motor connected to a drive screw through gearing. When the motor rotates the drive screw, the mating drive nut and attached extension rod move axially. The gear-driven position limit switch interrupts power to the motor upon completion of stroke.

If during actuator travel some external obstacle prevents the extension rod from moving, the thrust limit switch will interrupt power to the motor.

The 8400 and 8500 Series actuators contain an additional spring assembly to protect the actuator drive components from shock loads. When compressed, the inherent spring load will provide automatic compensation for wear, temperature change, or material compression.

Temperature Range	
Ambient	-30°F to +120°F -34°C to +48°C
Motor Data	
115 VAC, 1 Phase 230 VAC, 3 Phase 460 VAC, 3 Phase 575 VAC, 3 Phase Class F Insulation NEMA “D” design	

8000 Series Linear Actuators

8200 Series Acme Screw Linear Actuators

Actuator Thrust Rating (lbs)					Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8202S		Model 8205T			
	Breakaway	Running	Breakaway	Running		
0.06	4000	2000	–	–	0 - 36	60 -120
0.12	2500	1800	–	–		
0.18	1700	1200	4000	2000		
0.36	1100	700	3275	1800		

8300 Series Acme Screw Linear Actuators

Actuator Thrust Rating (lbs)							Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8302S		Model 8305T		Model 8310T			
	Breakaway	Running	Breakaway	Running	Breakaway	Running		
0.23	1375	975	4100	2450	7000	3000	0 - 60	90 - 200
0.50	–	–	3000	1425	5700	2625		
0.80	–	–	1750	900	3300	1650		

8400 Series Acme Screw Linear Actuators

Actuator Thrust Rating (lbs)					Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8417T		Model 8424T			
	Breakaway	Running	Breakaway	Running		
0.3	10,275	5075	13,500	10,000	0 - 60	120 - 250
0.6	6,600	3000	9,300	5,900		

8300 Series Ball Screw Linear Actuators[1]

Actuator Thrust Rating (lbs)							Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8302S		Model 8305T		Model 8310T			
	Breakaway	Running	Breakaway	Running	Breakaway	Running		
0.9	1125	650	3400	1600	6400	2900	0 - 48	110 - 200
1.6	–	–	2000	1000	3750	1875		

8400 Series Ball Screw Linear Actuators[1]

Actuator Thrust Rating (lbs)							Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8410T		Model 8417T		Model 8424T			
	Breakaway	Running	Breakaway	Running	Breakaway	Running		
0.23	16,000	11,000	–	–	–	–	0 - 60	125 - 275
0.5	12,000	5,500	16,000	9,200	–	–		
1.0	–	–	13,300	5,400	16,000	10,700		

[1] Actuator has motor brake as standard.

8000 Series Linear Actuators

8500 Series Ball Screw Linear Actuators

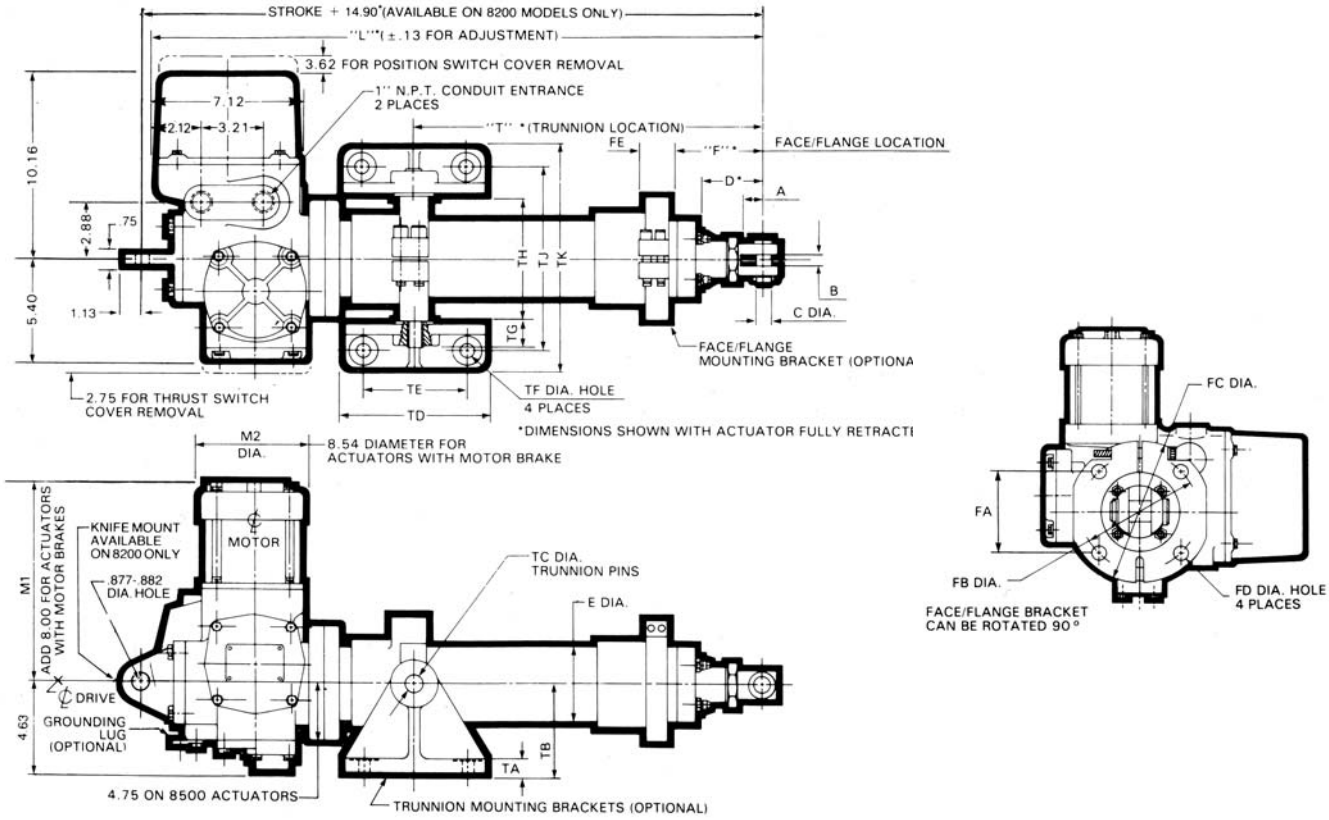
Actuator Thrust Rating (lbs)					Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8517T		Model 8524T			
	Breakaway	Running	Breakaway	Running		
0.50	20,600	9,200	27,000	18,300	0 - 60	225 - 575
1.0	–	–	18,600	10,700		
1.9	–	–	9,300	5,350		

8500 Series Ball Screw Linear Actuators with Gearbox

Actuator Thrust Rating (lbs)							Stroke Range (in)	Approx. Weight Range (lbs)
Velocity in/sec	Model 8510T		Model 8517T		Model 8524T			
	Breakaway	Running	Breakaway	Running	Breakaway	Running		
0.09	51,000	25,100	80,000	41,000	–	–	0 - 60	275 - 625
0.15	–	–	51,000	24,500	70,000	50,000		
0.3	–	–	25,800	12,300	35,000	25,000		

[1] Actuator has motor brake as standard.

Standard Models 8200, 8300, 8400 and 8500 Series Ball Screw Linear Actuators



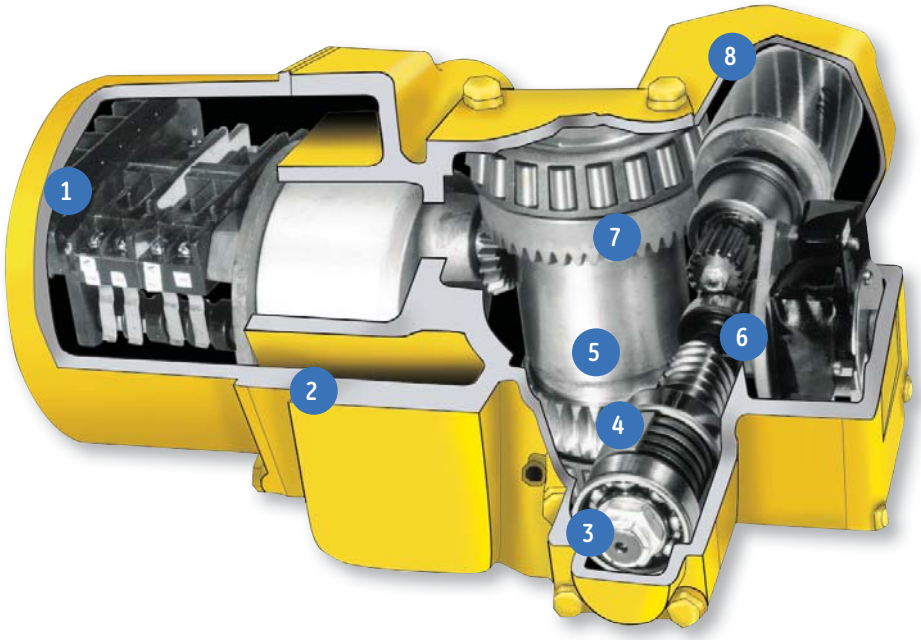
NOTES
1. Models 8202S and 8302S are 115 VAC, 60 Hz, single phase. All other models are 230/460 VAC, 60HZ, 3 phase.
2. All units are furnished with two adjustable thrust limit switches and a two position, one contact per position gear-driven position limit switch as standard equipment.
3. Strokes are available in 6 inch increments up to 36 inches and 12 inch increments up to 60 inches.
4. Running forces are based on 5% duty cycle.
5. Do not use actuators above their rated duty cycles without consulting factory.
6. Dimensions are for reference only. Contact GE for engineering drawings.

8000 Series Posi Tork Actuators

Model	Drive Type	A	B	C	D	E	M1	M2	FA	FB	FC	FD	FE	TA	TB	TC	TD	TE	TF	TG	TH	TJ	TK	Stroke	"L"	"F"		"T"	
																										Min	Max	Min	Max
8202S	Acme Screw	1.00	0.50	.500	2.50	2.75	11.06	6.00	2.00	4.25	5.50	0.56	1.00	0.75	4.66	0.50	7.56	5.50	0.66	0.75	4.75	7.75	9.50	6	20.1	5.50	6.50	5.50	6.50
8202T							8.50																	12	26.1	10.50	12.50	10.50	12.50
8205T							10.06																	18	32.1	15.50	18.50	15.50	18.50
																								24	38.1	18.00	22.00	18.00	22.00
																								30	44.1	20.00	25.00	20.00	25.00
																								36	50.1	22.00	28.00	22.00	28.00
8302S	Acme Screw	1.13	0.63	.750	4.32	3.88	11.06	6.00	3.00	5.75	7.00	0.69	1.38	0.75	4.66	.875	7.56	5.50	0.66	1.19	6.50	9.50	11.25	6	24.2	9.50	10.50	9.50	10.50
8305T							10.06																	12	30.2	14.50	16.50	14.50	16.50
8310T							11.06																	18	36.2	19.00	22.00	19.00	22.00
																								24	42.2	21.00	25.00	21.00	25.00
																								30	48.2	23.00	28.00	23.00	28.00
																								36	54.2	25.00	31.00	25.00	31.00
																								48	66.2	29.00	37.00	29.00	37.00
																								60	78.2	33.00	43.00	33.00	43.00
8302S	Ball Screw	1.13	0.63	.750	4.00	3.88	11.06	6.00	3.00	5.75	7.00	0.69	1.38	0.75	4.66	.875	7.56	5.50	0.66	1.19	6.50	9.50	11.25	6	27.0	12.00	13.00	12.00	13.00
8305T							10.06																	12	33.0	17.00	19.00	17.00	19.00
8310T							11.06																	18	39.0	22.00	25.00	22.00	25.00
																								24	45.0	25.00	29.00	25.00	29.00
																								30	51.0	27.00	32.00	27.00	32.00
																								36	57.0	29.00	35.00	29.00	35.00
																								48	69.0	33.00	41.00	33.00	41.00
8417T	Acme Screw	2.00	1.26	1.250	6.13	4.38	12.58	6.86	4.60	6.50	8.00	0.81	1.00	0.75	4.66	1.000	7.56	5.50	0.66	1.43	7.50	10.50	12.25	6	36.1	12.00	13.00	22.12	22.12
8424T							13.52																	12	42.1	17.00	19.00	28.12	28.12
																								18	48.1	22.00	25.00	34.12	34.12
																								24	54.1	24.00	28.00	40.12	40.12
																								30	60.1	26.00	31.00	26.00	31.00
																								36	66.1	28.00	34.00	28.00	34.00
																								48	78.1	32.00	40.00	32.00	40.00
																								60	90.1	36.00	46.00	36.00	46.00
8410T	Ball Screw	2.00	1.26	1.250	6.13	4.38	11.06	6.00	4.60	6.50	8.00	0.81	1.00	0.75	4.66	1.000	7.56	5.50	0.66	1.43	7.50	10.50	12.25	6	41.6	15.00	16.00	27.62	27.62
8417T							12.58	6.86																12	47.6	20.00	22.00	33.62	33.62
8424T							13.52	6.86																18	53.6	25.00	28.00	39.62	39.62
																								24	59.6	28.00	32.00	45.62	45.62
																								30	65.6	30.00	35.00	30.00	35.00
																								36	71.6	32.00	38.00	32.00	38.00
																								48	83.6	36.00	44.00	36.00	44.00
																								60	95.6	40.00	50.00	40.00	50.00
8517T	Ball Screw	2.38	1.54	1.500	5.75	6.50	12.58	6.86	–	–	–	–	–	1.50	6.00	1.750	8.50	6.00	1.06	2.50	10.00	14.50	17.00	6	50.5	–	–	30.44	30.44
8524T							13.52	6.86																12	56.5	–	–	36.44	36.44
																								18	62.5	–	–	42.44	42.44
																								24	68.5	–	–	48.44	48.44
																								30	74.5	–	–	54.44	54.44
																								36	80.5	–	–	60.44	60.44
																								48	92.5	–	–	72.44	72.44
																								60	104.5	–	–	84.44	84.44
8510T	Ball Screw with Gear Box	2.38	1.54	1.500	5.75	6.50	11.06	6.00	–	–	–	–	–	1.50	6.00	1.750	8.50	6.00	1.06	2.50	10.00	14.50	17.00	6	56.5	–	–	30.44	30.44
8517T							12.58	6.86																12	62.5	–	–	36.44	36.44
8524T							13.52	6.86																18	68.5	–	–	42.44	42.44
																								24	74.5	–	–	48.44	48.44
																								30	80.5	–	–	54.44	54.44
																								36	86.5	–	–	60.44	60.44
																								48	98.5	–	–	72.44	72.44
																								60	110.5	–	–	84.44	84.44

QR & QRG Series Rotary Actuators

Electric Rotary Actuators



Temperature Range	
Ambient	-30°F to +120°F -34°C to +48°C
Motor Data	
115 VAC, 1 Phase 230 VAC, 3 Phase 460 VAC, 3 Phase 575 VAC, 3 Phase Class F Insulation NEMA "D" design	
Approvals	
CSA approval	

The QR Series Posi-Tork® rotary actuator is a completely self-contained, electro-mechanical device. Designed and fabricated for dependable, long-life operation, these actuators are used for positioning, and automation of material handling or flow control equipment. QR Series Posi-Tork actuators are driven by a high-starting torque, low inertia motor. The motor rotates the output drive sleeve through a worm gear set and single reduction spur gearing.

Upon completion of travel, the gear driven position limit switch interrupts power to the motor. If during actuator travel, some external obstacle prevents movement, the torque limit switch will interrupt power to the motor.

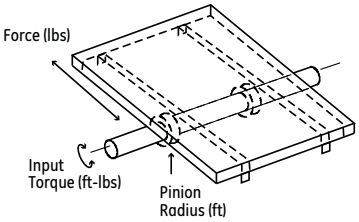
1. Adjustable Position Limit Switch. A two position gear driven limit switch for end of travel actuator shut-off is included as standard; each position is independently adjustable and can be set anywhere within the full actuator travel; the heavy duty rotary drum, double break switch with wiping contacts, features a patented mechanism that ensures internal gear engagement after adjustment.
2. Weatherproof or dust-ignition proof (Class II, Division 1, Groups E, F and G).
3. Anti-friction bearings throughout, including the output drive sleeve.
4. Torque limit disc springs and spring limit sleeve to prevent total spring deflection.
5. Non-backdriving high strength worm gear set.
6. Adjustable Torque Limit Switch. An adjustable torque switch for each direction of travel is provided as standard; the switch assembly will automatically shut-off the actuator if the set torque is exceeded; the switch protects driven equipment from damage due to excessive torque and can also be used as a mechanism for positive seating.
7. High strength alloy steel cut gears.
8. Heavy duty motor, TENV, NEMA D design, high-starting torque, low-inertia motor provides high breakaway torque and good positioning characteristics; Class F insulation is standard.

Other features:

- Plated external hardware
- Permanently lubricated
- Electrical components prewired and terminated inside actuator

QR & QRG Series Rotary Actuators

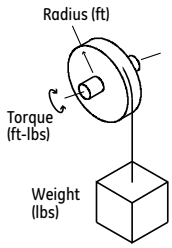
General Applications



Linear Velocity (In/Sec) = $\left(\frac{\text{Input RPM}}{60}\right) \times \left(\text{Pinion Dia.} \times 3.14\right)$

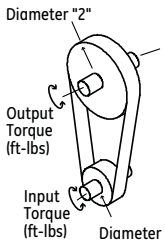
Force = $\frac{\text{Input Torque} \times (0.9 \text{ Efficiency})}{\text{Pinion Radius}}$

Input Torque = Force x (Pinion Radius/0.9 Efficiency)



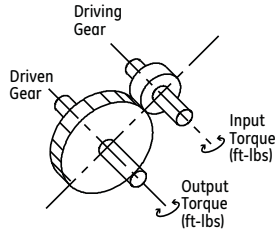
Torque (Running) = Radius x Weight

(Actuator selection must be based on running torque for constant load applications)



Output Torque = Input Torque x $\left(\frac{\text{Dia."2"}}{\text{Dia."1"}}\right)$

Output RPM = Input RPM x $\left(\frac{\text{Dia."1"}}{\text{Dia."2"}}\right)$



Output Torque = Input Torque x $\left(\frac{\text{N.G.}}{\text{N.P.}}\right)$

N.G. = No. of Teeth on Driven Gear

N.P. = No. of Teeth on Driving Pinion

The above formulas are intended as a guide. They neglect any effects of friction of bearings, belts, chains, or gears. For specific application assistance or for our application brochure, contact GE.

Rack and Pinion Force — Torque Conversions

Force (lbs)	Approximately Torque Required (ft - lbs)					
	2.0 Inch Diameter Pinion	2.5 Inch Diameter Pinion	3.0 Inch Diameter Pinion	3.5 Inch Diameter Pinion	4.0 Inch Diameter Pinion	4.5 Inch Diameter Pinion
50	5	6	7	8	10	11
100	10	12	14	16	19	21
250	23	29	35	41	47	53
500	46	58	70	81	93	105
1000	93	116	140	162	186	209
1500	139	174	208	243	278	313
2000	185	232	278	325	371	417
2500	—	290	348	405	463	521
3000	—	—	417	487	556	625
3500	—	—	—	568	649	730
4000	—	—	—	—	741	834
4500	—	—	—	—	834	—

Above torques are calculated assuming a 10% friction loss between the rack and pinion.

Linear Speeds for Rack and Pinion Gates

Actuator Output RPM	Gate Velocity (inches/second)					
	2.0 Inch Diameter Pinion	2.5 Inch Diameter Pinion	3.0 Inch Diameter Pinion	3.5 Inch Diameter Pinion	4.0 Inch Diameter Pinion	4.5 Inch Diameter Pinion
2.2	—	—	0.35	0.40	0.46	0.52
3.4	—	0.45	0.53	0.62	0.71	0.80
4.8	0.50	0.63	0.76	0.88	1.01	1.13
6.5	0.68	0.85	1.02	1.19	1.36	1.53
10.5	—	—	—	1.92	2.20	2.47
11	1.15	1.44	1.73	2.02	2.30	2.59
17	1.78	2.23	2.67	3.12	3.56	4.00
18	—	—	—	3.30	3.77	4.24
24	2.51	3.14	3.77	4.40	5.03	5.66
34	3.56	4.45	5.34	6.23	—	—
54	5.66	—	—	—	—	—

QR & QRG Series Rotary Actuators

Series QR2 Rotary Actuators (Maximum Bore 1-1/4" Diameter x 1/4" Keyway)

Output Speed (RPM)	Max Output Rev.	Actuator Output Torque Rating (ft - lbs)									
		Model QR2-25S		Model QR2-05T		Model QR2-10T		Model QR2-17T		Model QR2-24T	
		B.A	Run	B.A.	Run	B.A.	Run	B.A.	Run	B.A.	Run
11	80	80	38	—	—	—	—	—	—	—	—
17	80	55	26	—	—	—	—	—	—	—	—
24	80	40	19	110	48	225	67	—	—	—	—
34	80	30	15	80	36	160	62	225	62	—	—
54	80	17	10	50	24	95	44	—	—	—	—
58	80	—	—	—	—	—	—	160	50	225	50

B.A.— Breakaway Torque; Run — Running (Constant Load) Torque.

Series QRG2 Rotary Actuators (Maximum Bore 1-3/4" Diameter x 3/8" Keyway)

Output Speed (RPM)	Max Output Rev.	Actuator Output Torque Rating (ft - lbs)									
		Model QRG2-25S		Model QRG2-05T		Model QRG2-10T		Model QRG2-17T		Model QRG2-24T	
		B.A	Run	B.A.	Run	B.A.	Run	B.A.	Run	B.A.	Run
2.2	15	350	175	—	—	—	—	—	—	—	—
3.4	15	240	120	—	—	—	—	—	—	—	—
4.8	15	175	85	475	220	850	305	—	—	—	—
6.5	15	—	—	345	165	690	280	850	280	—	—
10.5	25	—	—	—	—	430	175	600	175	—	—
18.0	25	—	—	—	—	—	—	—	—	600	144

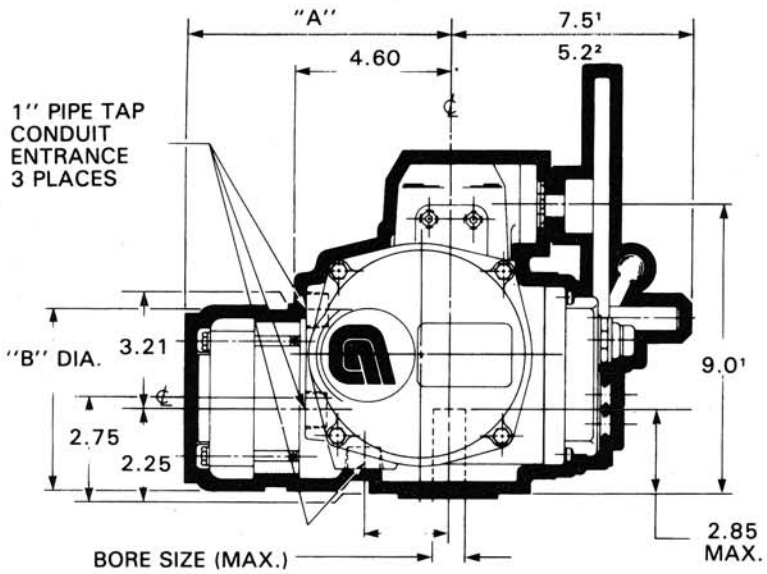
B.A.— Breakaway Torque; Run — Running (Constant Load) Torque.

NOTES

1. Actuator Weight Ranges (approximately):
   QR2 Series: 75-90 lbs.
   QRG2 Series: 95-115 lbs.
2. Actuator Models QR2-25S and QRG2-25S are 115 VAC, 60 Hz, 1 Phase.
   All other models are 230/460 or 575 VAC, 60 Hz, 3 Phase. For 50 Hz applications consult factory.
3. Running torque is listed at 25% maximum duty.

QR & QRG Series Rotary Actuators

QR2 Series Standard with Optional Handwheel

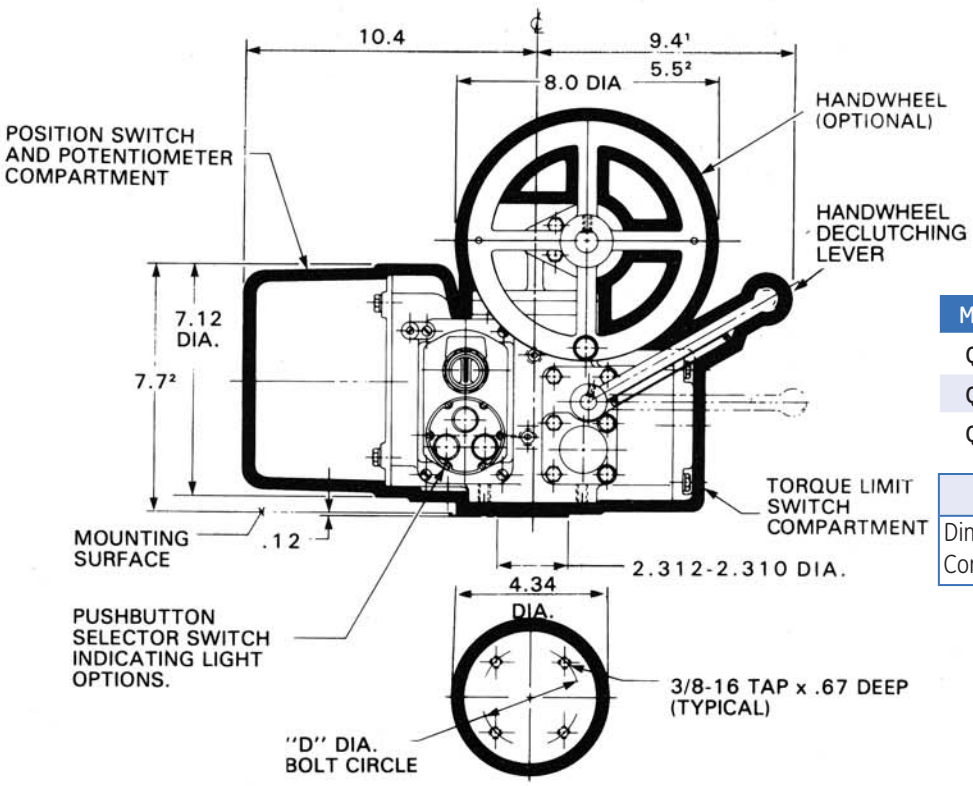


Model No.	"A"	"B"	"D"
QR2-25S	11.06	6.00	3.50
QR2-05T	10.06	6.00	3.50

QR 2 MODELS—1-1/4" DIA. x 1/4" KEYWAY

¹DIMENSIONS APPLY TO ACTUATORS WITH HANDWHEELS

²DIMENSIONS APPLY TO ACTUATORS WITHOUT HANDWHEELS

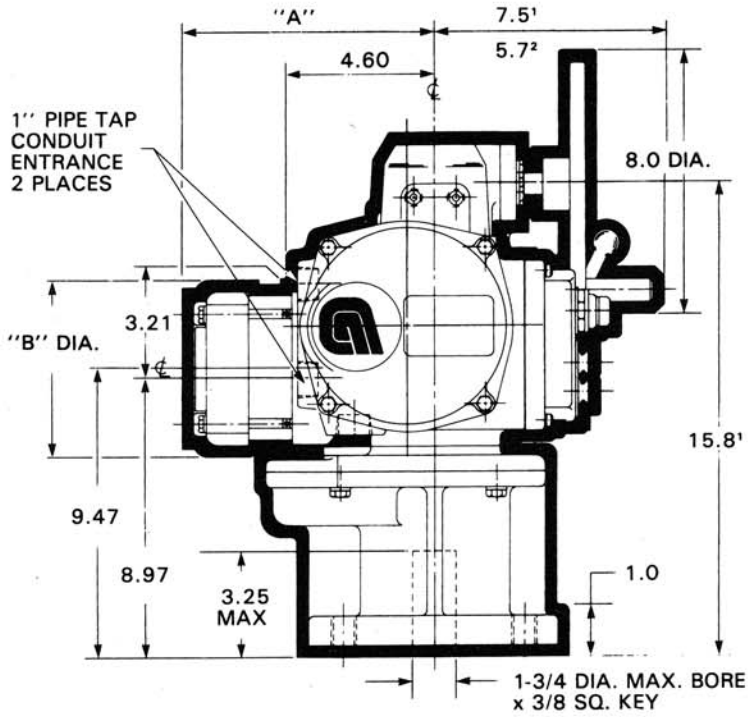


Model No.	"A"	"B"	"D"
QR2-10T	11.06	6.00	3.50
QR2-17T	12.70	6.86	3.50
QR2-24T	13.63	6.86	3.50

NOTES
Dimensions are for reference only. Contact GE for engineering drawings.

QR & QRG Series Rotary Actuators

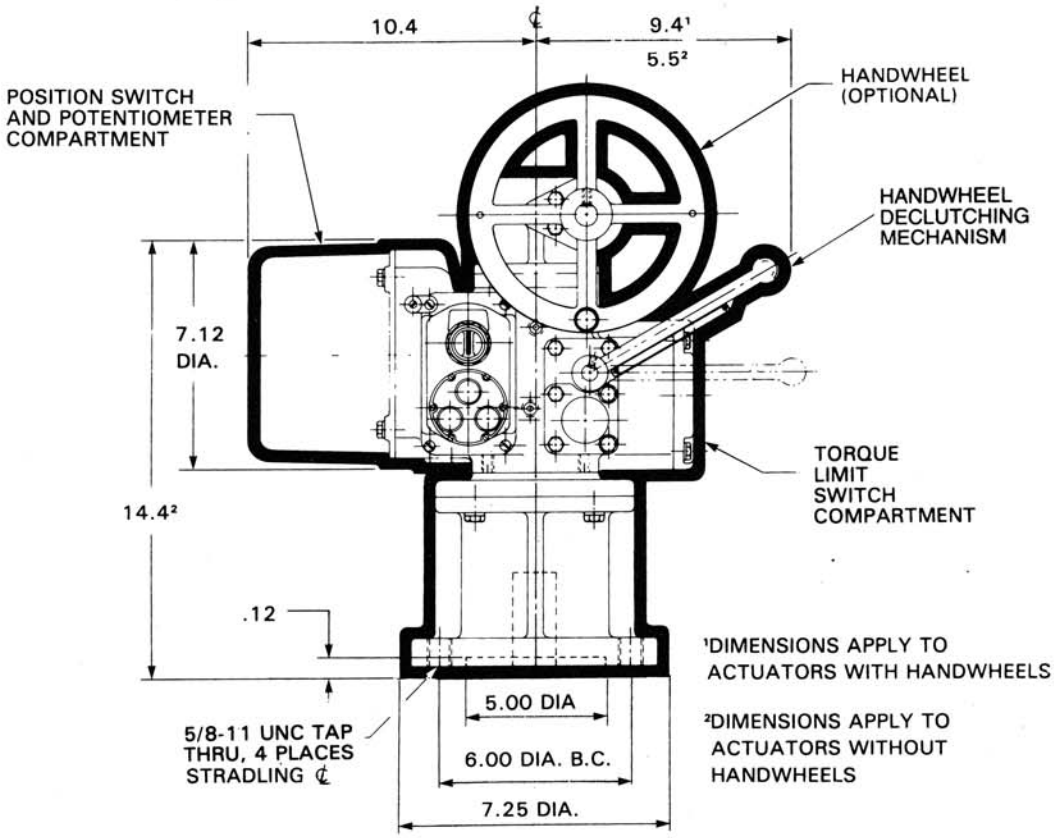
QRG2 Series Standard with Optional Handwheel



Model No.	"A"	"B"
QRG2-25S	11.06	6.00
QRG2-05T	10.06	6.00

Model No.	"A"	"B"
QRG2-10T	11.06	6.00
QRG2-17T	12.70	6.86
QRG2-24T	13.63	6.86

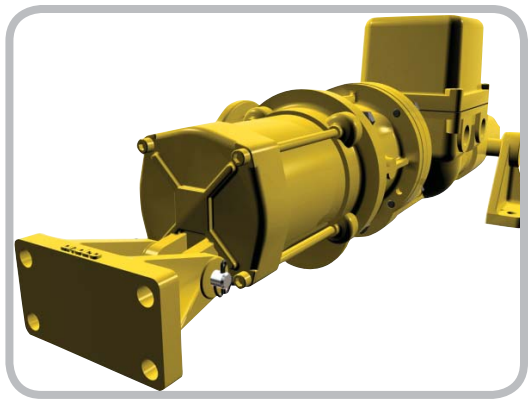
NOTES
Dimensions are for reference only. Contact GE for engineering drawings.



Standard Options

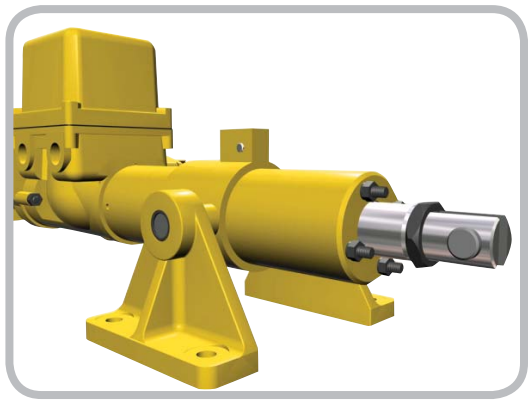
Clevis Mount

A cast iron clevis mount is standard on Eagle and 7100 Series actuators. The optional bracket will allow the actuator to pivot or can be used as a support on rigid mount applications.



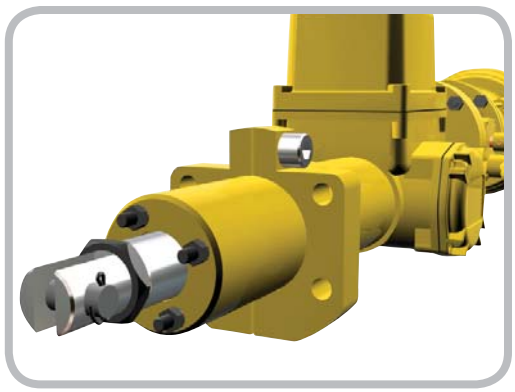
Adjustable Trunnion Mount and Trunnion Mounting Brackets

Adjustable, high strength, malleable cast iron trunnion mount with alloy steel, heat treated pins, is supplied as standard equipment on all 7200, 7300 and 74-7300 Series actuators. Adjustable trunnion mounting is optional on the Eagle, and 7100 Series actuators. The 7400 and 7500 Series actuators are supplied with alloy steel, heat treated and fixed location trunnion mount. Heavy duty cast and machine trunnion mounting brackets are available as an option on all 7000 Series actuators.



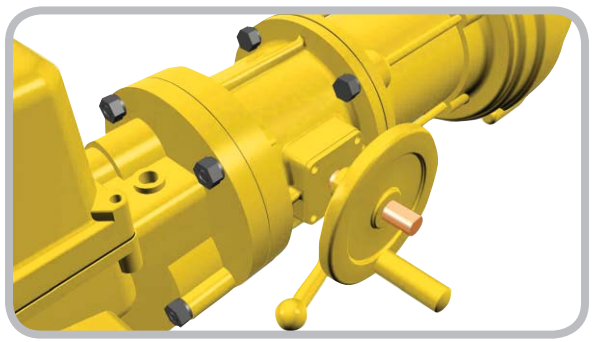
Adjustable Face/Flange Mount

An adjustable, high strength, malleable iron face/flange mount is available as an option on the Eagle Series, 7100, 7200, 7300, 74-7300, and 7400 Series actuators where rigid mounting is required.

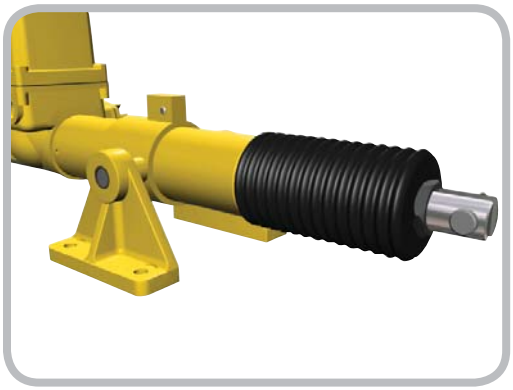


Manual Override

A handwheel assembly with declutching mechanism is available for manual operation of the 7000, 8000 Series and QR and QRG Series Rotary actuators. Whenever the handwheel is operated, a mechanical override is used to disengage the motor. The actuator can then be positioned manually without risk of injury in the event the motor resumes operation. The actuator will remain in manual operation until the motor is re-energized. A handwheel is not available on ball screw actuators. Manual override without declutching mechanism is available on the Eagle Series.



Standard Options



Extension Rod Cover

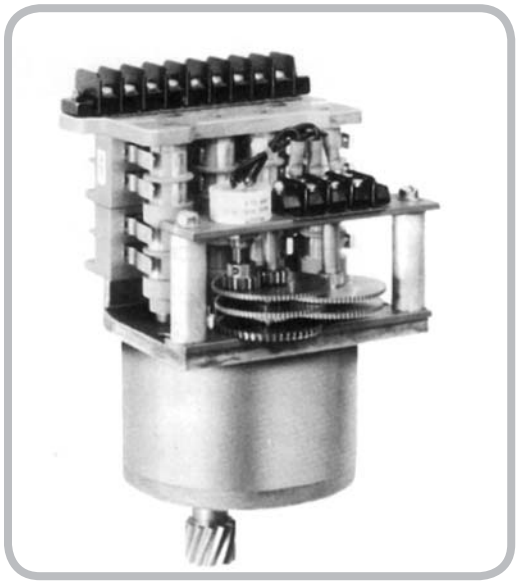
The standard plate drive rod resists abrasion and corrosion. Together with the seals in the end cap, the extension rod is a long-life component. For specific applications, such as those requiring protection of the extension rod from dust buildup or chemical splash, rod covers are recommended.



Adjustable Gear Driven Position Limit Switch

All actuators are supplied with two independently adjustable position limit switches for end-of-travel shutoff as standard.

Two additional switches are available for intermediate positioning on 7000 Series, 8000 Series and Rotary actuators.



Gear Driven Potentiometer

A heavy duty gear driven single or dual potentiometers can be supplied as an integral component of the position limit switch.

The potentiometer provides position feedback for remote indication or when a proportional feedback signal is needed for interfacing with automatic control equipment.

An actuator potentiometer is required when using GE controls.

Standard Options

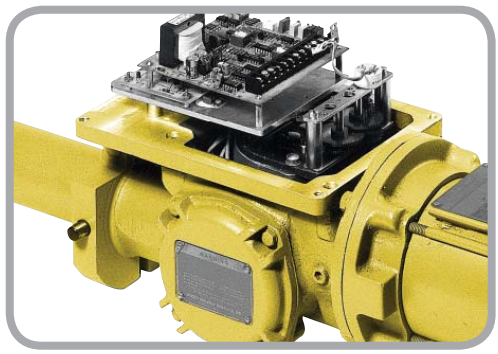
Electric Motor Brake

An electric brake option is available for all sizes of Andco 7000, 8000 and QR actuators (standard on all ball screw actuators). The brake is recommended where high vibration is present or for accurate positioning applications when inertial coast is not permitted. The predictable coast of the actuator varies with velocity for each model and with the opposing load the actuator is moving. Consult factory for specific applications.



Single Phase Electronic (Dynamic) Motor Braking

Automatically applies a D.C. motor voltage to the actuator motor upon shutoff of A.C. power. The brake is prewired and terminated in the actuator. Input voltage is 115 VAC, 60 Hz single phase. Not available on ball screw actuators.

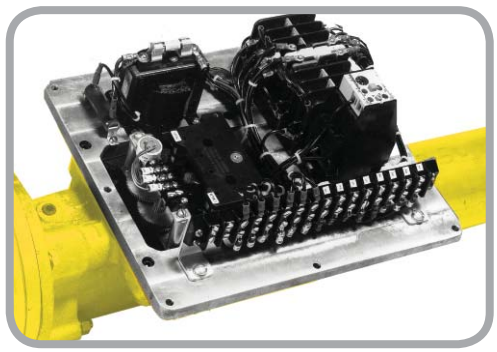


Single Phase Solid State Reversing Starter/ Programmable Controller Interface

Directly drives Andco 115 VAC, single phase motors. Accepts a contact closure as an input.

- Input power: 115 VAC, single phase
- Output power: 115 VAC, single phase (directional for reversing control)
- Contact closure switching characteristics: 15 VDC, 10ma.

Starter includes an electrical interlock. All starter components are prewired with connections terminated in the actuator. Single phase starter is also available with single phase electronic (dynamic) motor braking.



Three Phase Motor Control

All 7000 Series three phase actuators can be furnished with an integral motor control that includes:

- Reversing contractor
- Thermal overload
- Control transformer with fuse
- Compartment space heater
- Prewired with all connecting points terminated

Standard Options



Model 4100 Position Indicating Meter

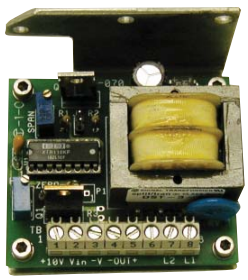
A percent-of-full-travel meter is supplied with a trim potentiometer resistor, terminal block and connectors. A potentiometer is required in the actuator for feedback.



Three Phase Motor Control

All 230 or 460 VAC, 60 Hz., 3 Phase actuators can be supplied with a factory wired, NEMA 4X, separately mounted motor control station.

Standard equipment includes: control transformer, control fuser, thermal overload relay, reversing contactor, multi-point terminal block sector switches and indication lights.



Positran™ Transmitter

This position transmitter outputs a 4-20mAdc signal proportional to actuator position. The signal can be used for the following functions:

- Drive a position indicating meter
- A feedback or control signal for other control devices

A potentiometer and compartment heater are required with the actuator.

Positran is a trademark of Positran Manufacturing, Inc,

Position/Process Control

Remote Model 5100

Solid-state, closed-loop, panel-mount controller for use with single phase, motor-driven actuators. Automatically directs actuator movement in response to a signal generated by a command potentiometer mounted to the controller face (Figure 1) or a 4-20 mAdc, 10-50 mAdc or 1-5 VDC control signal (Figure 2).

The Andco Model 5100 control is a solid state servo device capable of driving a 10 Amp inductive load. It is designed for position or process control of an electric motor driven actuator.

A mode selection switch allows control with either the command potentiometer mounted on the controller face or a 4-20 mAdc (STD) 10-50 mAdc or a 1-5 VDC control signal. The selected mode signal is compared with the signal from the actuator feedback potentiometer. If an imbalance exists, the controller automatically directs actuator movement in the appropriate direction until the two signals match.

For positioning accuracy, an electronic braking circuit is provided. This circuit applies dynamic braking to the motor, stopping the motor rotor with 20 milliseconds.

Upon loss of the process command signal, the controller can control the actuator to stay in the last position, move to full open, move to full closed or switch to the command potentiometer position (specify).

For protection during system imbalance, the maximum number of motor starts is automatically limited to 25 per minute.

The output board is a separate plug-in module, electrically isolated from the main control board. An active filter is incorporated to reject electrical noise, normally eliminating the use of the shielded cable.

Standard equipment includes:

- Position Indicator
- Motion Indicator
- Power On-Off Switch with Indicator
- Auto/Manual Switch with Indicator
- Command Potentiometer with 0-100% Dial
- Panel Mount Enclosure



Feedback Potentiometer

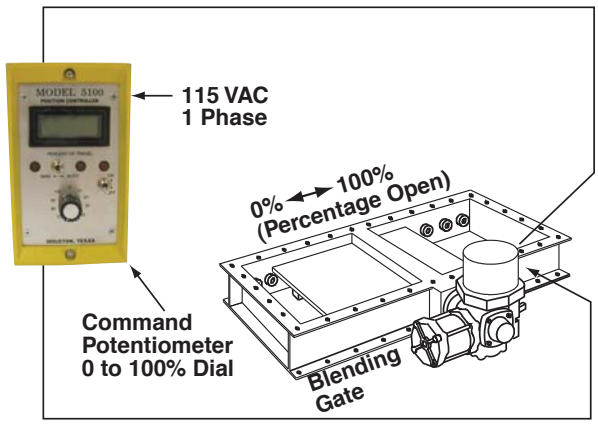


Figure 1

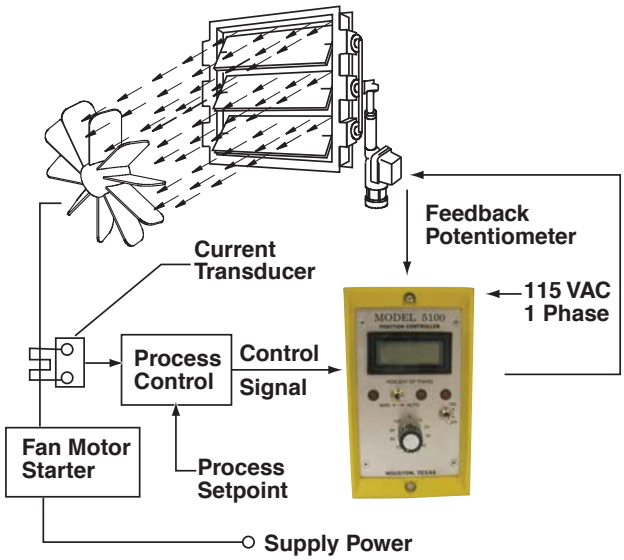
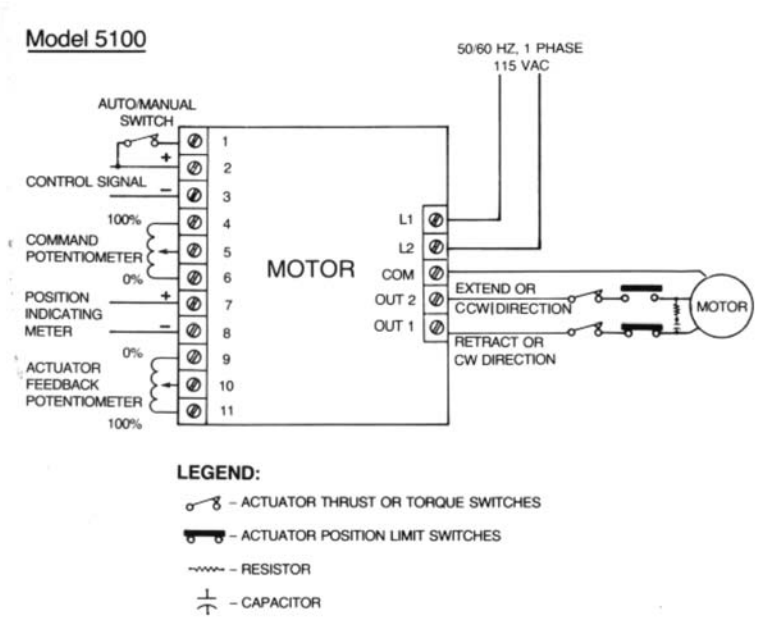


Figure 2

Position/Process Control

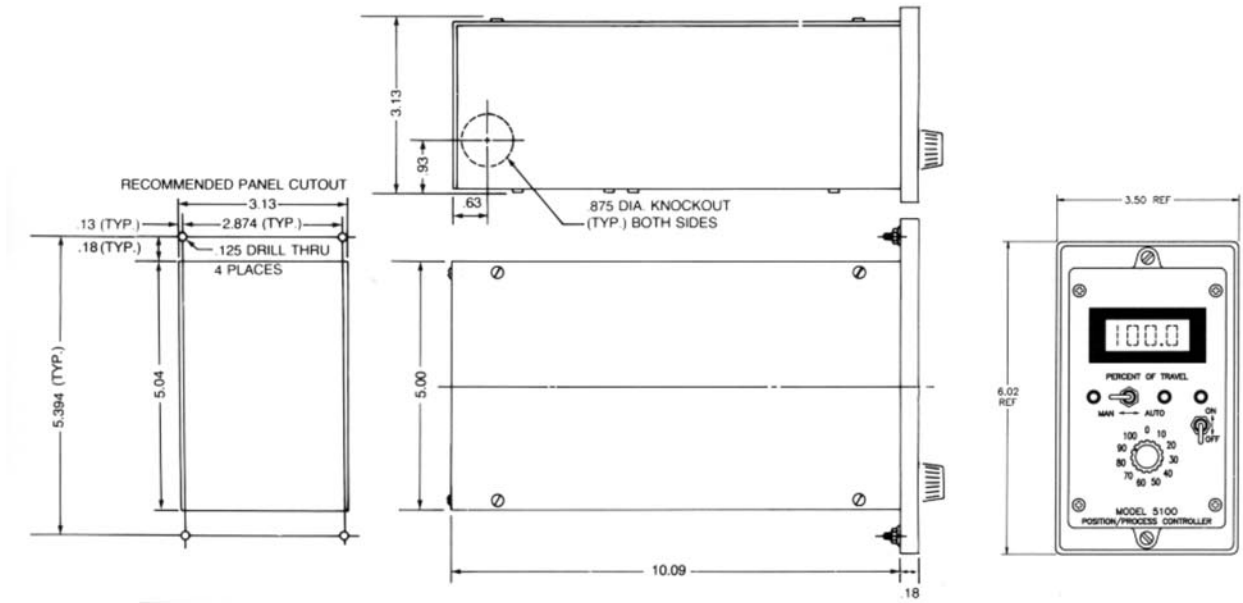
Remote Model 5100

Connection Diagram



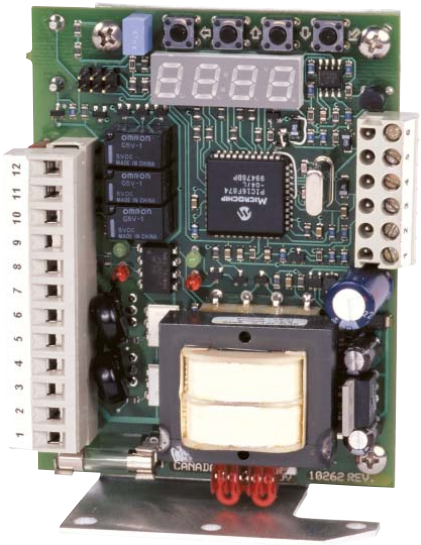
Notes	
Power, single phase	115 VAC 50/60 Hz
Manual Mode Input (command potentiometer)	0-1000 Ohms
Auto Mode Input (control signal)	4-20 mAdc 10-50 mAdc or 1-5 VDC
Feedback Input (actuator potentiometer)	0-1000 Ohms
Active Filter, 60 Hz Rejection	-24 dB
Temperature Range	0° to 150° F 0° to 65° C
Position Indicating Meter Range	0-100 percent of full travel
Output (two triacs)	10 Amp inductive load

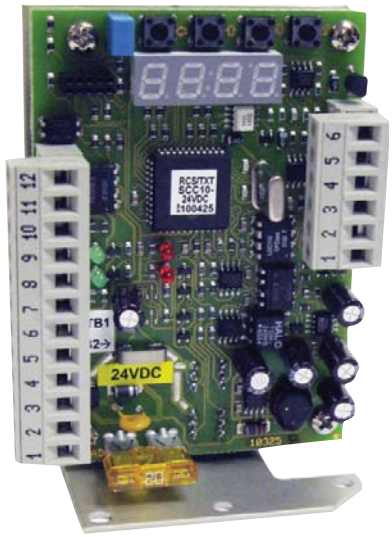
Outline Drawing



Electric Actuator Smart Controller (EASC)

Model: SCC10





Models
SCC10-115/230 VAC 115 or 230 Volt A.C. Actuators
SCC10-24 VAC 24 Volt A.C. Actuators

Model
SCC10-24 VDC 12 or 24 Volt D.C. Actuators

EASC (Micro-Processor Based Analog Controller)

The Electric Actuator Smart Controller (EASC Model SCC-10) card provides accurate positioning control of electric motor actuators using an analog input signal. Setup and calibration is greatly simplified using microprocessor based technology. There are no dip switches to set or trim pots to adjust. Setup is quick and easy using the EASC menu viewed on an LED display. No external meters are required, even for potentiometer setup. Once the initial menu settings are chosen, the EASC performs a self-calibration routine, applying the menu selections to actual actuator performance. Calibration values are then stored in permanent non-volatile memory.

Features

- Onboard LED display facilitates setup and calibration using the EASC Menu Setup.
- Menu selection of input/output ranges including 4-20 mAdc, 1-5 VDC, 2-10 VDC and 0-10 VDC, or virtually any custom range required.
- Automatic calibration; no resistors to add; no jumpers, trim pots or dip switches to adjust. Calibration is as simple as pressing a button.
- Three relay outputs: fault, full closed and full open. (A.C. Models Only.)
- Current sensing (over torque protection). — Optional on A.C. Models. Standard on D.C. Models.
- Menu selectable fail options.
- Intelligent positioning reduces motor cycling, increases motor life and extends the actuator duty.
- Auto-jog feature. Constantly corrects and refines the positioning accuracy.
- Quick disconnect terminal strips facilitate fast and easy actuator maintenance and troubleshooting.
- Always wires the same; no need to determine rotation direction during installation; rotation is selected using the EASC Menu.
- Robust power switching components, designed specifically for actuator motors, virtually eliminates field failures.

Electric Actuator Smart Controller (EASC)

Model SCC10

Specifications

Power Requirements
Model SCC10-115/230A: 115 or 230 VAC, 1 Phase, 50/60 Hz. (Jumper selectable)

Model SCC-24 VAC: 24 VAC, 50/60 Hz.

Model SCC-24 VDC: 10-28 VDC

Input Command Signal
Menu selectable factory defaults:

— 4 – 20 mADC
— 1 – 5 VDC
— 2 – 10 VDC
— 0 – 10 VDC

Infinite adjustment using EASC menu system

Signal Impedance
Input: 250Ω current, 200KΩ voltage
Output: maximum load 500Ω current, minimum 500KΩ voltage

Dimensions
3-1/2 x 1-5/8 x 4 in.

Output Command Signal
Menu selectable factory defaults:

— 4 – 20 mAdc
— 1 – 5 VDC
— 2 – 10 VDC
— 0 – 10 VDC

Infinite adjustment using EASC menu system

Power Output
Solid state, isolated from the input command and output position signals and rated at:

— 5 amps continuous at 115 VAC
— 5 amps continuous at 230 VAC
— 5 amps continuous at 24 VAC
— 10 amps continuous at 24 VDC

All ratings assume the EASC is mounted on the actuator base plate.

Sensitivity
Fully adjustable from 0.5% of total span, factory set to 1% of total span.

Dead Band
Automatically set during calibration. Factory default at 1% of total span. Additional settings available using the EASC Menu System.

Zero Adjustment
Automatically set during calibration.

Span Adjustment
Automatically set during calibration.

Split Range
Settable within the span range using at least 1.5VDC or 3mA of input.

Remote Control
Optional Modus RTU control of all controller functions over a RS-485 multi-drop network

Ambient Temperature
-40°F (with heater) to +150°F (-40°C to +65°C)

Action on Loss of Command Signal
Factory default:

— Fail in last position (no movement)

Additional settings available through EASC menu:

— Fail open (maximum signal value)
— Fail closed (minimum signal value)
— Fail to a preset position

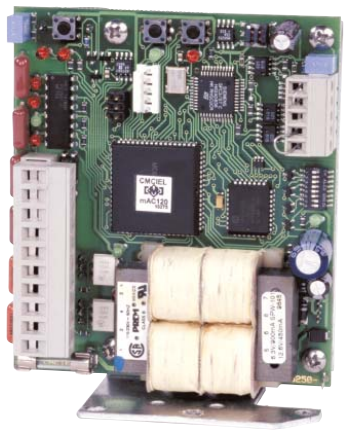
Relay Outputs - A.C. Models Only
Three dry contacts outputs:

— Fault indicating loss of power, fuse failed, command signal loss or failure to move to position in preset time.
— End of travel open
— End of travel closed
— Contact Ratings: 1A @ 30VDC, 0.5A @ 135VAC resistive

Profibus® DP Controller

Models DPC-100 and DPC-120





Application

Protocol: Profibus DP (Distributed Process)

For on/off positioning control of motorized valve, it also serves as the vital intelligence link between PLC's in the control room and the actuators in the field. Up to 126 actuated valves can be controlled on a single network. The automatic calibration feature requires no loop tuning. All operating parameters can be set from the communications center over the bus.

Model
DPC-100 12 or 24 Volt D.C. Actuators

Model
DPC-120 115 Volt A.C. Actuators

Features

- Two wire control reduces installation and start up time compared to multi-cable wiring
- Automatic calibration cuts down on start up time
- No deadband eliminates need for field adjustment.
- On line configuration of 36 operational parameters using generic Profibus software
- Low power consumption; does not require ventilation
- Electronic overload protection with built-in current monitoring
- LED indicators for input, outputs and communication channel
- Automatic calibration with local pushbutton or remote command
- Dynamic breaking eliminates overshooting
- Robust power switching components, designed specifically for actuator motors, virtually eliminates field failures

Specifications

Power Supply
DPC-100: 24/12 VDC
DPC-120: 120 VAC

Communication Interface
Profibus Standard

Protocol
Profibus DP (Distributed Process)

Feedback
Potentiometer 1000 Ohms/Optical Encoder

Position Input Accuracy
1.0% full scale standard, Maximum 0.1%

Temperature
-40°F to +158°F (-40°C to +70°C)

Relative Humidity
0 to 90% non-condensing

Dimensions
DPC-100: 4.0 x 1.5 x 2.5 in.
DPC-120: 4.25 x 1.75 x 3.75 in.

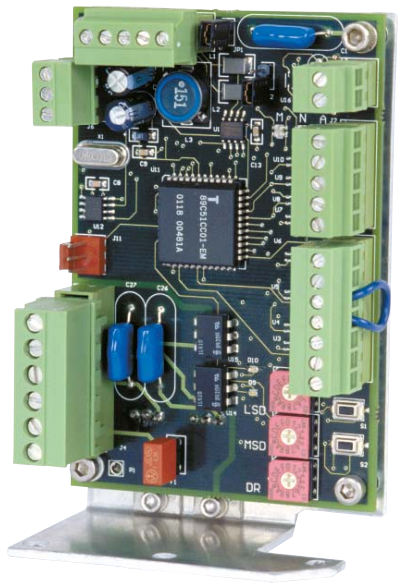
The DPC-100 & DPC-120 provide the following status and fault signals:

Valve full closed
Valve full open
Percentage of open
Valve seeking position
Motor running
Valve closing
Valve opening
Motor thermostat tripped
Incomplete travel
Valve opening or closing manually
Valve jammed/current limiting
Motor still energized after stop or end of travel
Controller self-test (detects problems)
Communication failure
Average running current load
Peak running current load
Idle current load

Profibus DP is a registered trademark of the Profibus Trade Organization.

DeviceNet™

Model DNET 115



Model
DNET115 115 Volt A.C. Actuators

Application

For on/off or positioning control of motorized valves. DeviceNet™ is a type of communication network that allows up to 63 field devices to be linked together with a single five-conductor cable. DeviceNet is a product of Allen-Bradley and is an open, non-proprietary, bus network. Typically, a DeviceNet system is used with the Allen-Bradley™ PLC5 and SLC series of programmable logic controllers. A standard DeviceNet Scanner interface is available for both types. Devices in the field are connected via a drop line to a 5 conductor trunk-line that is then routed to the scanner card.

Features

- Provides open/stop/close or positioning control with limit switch status feedback
- Provides instantaneous motor reversal protection
- Command and end-of-travel verification alarm
- Conforms to ODVA standards
- Easy-to-see LED indicators for all control outputs, status inputs and diagnostic alarm
- ESD functions for 'go open', 'stay put', or 'go closed'

Specifications

Hardware Specifications
Supply Power: 2W @ 24VDC
Operating Temperature: -4°F - 158°F (-20°C – 70°C)
Storage Temperature: -40°F - 176°F (-40°C – 80°C)
Humidity: 90% Non Condensing
Solid State Outputs: (2) Isolated 600VAC 15A
Digital Inputs: (8) Dry Contacts
Analog Inputs: (2) Channels (see below)
Processor: Temic 89C51CC01
RAM: 1K
Flash: 32K
EEPROM: 32K

Serious Interfaces
One CAN 2.0 port.

Network Communication Protocols
Module Supports DeviceNet™ Group 2 Slave.

Analog Inputs Specification
Resolution: 10bit
Accuracy: 1% of FS.
Linearity: 1% of FS.
Temperature Drift: 2% of FS.
Range: 0 to 5V or 0-20mA input for AI1 1-5K Potentiometer for the Position Feedback.

Technical Summary of DeviceNet™
Network Size: Up to 64 nodes (including scanner)
Network Length: Up to 1,640 ft. at 125 Kbps.
Data Packets: 0-8 bytes
Bus Topology: Trunkline/Dropline
Cable: 5-Conductor cable (2 for power, 2 for communication, and 1 for ground).
Thick Trunk Lines: Belden 3082A or 3083A
Thin Drop Lines: Belden 3084A or 3085A
Drop Lines: Max. drop length is 20 ft. with cumulative drop length of 512 ft.
Repeaters: Not currently, but expected in future revisions of specifications.

Input/Output Listing

Digital Input Status:

Bit 0	Communication Loss
Bit 1	Reserved
Bit 2	Loss of Position Signal
Bit 3	Motor Stall
Bit 4	Limit Calibration Incorrect
Bit 5	Thermostat Trip
Bit 6	Manual Operation
Bit 7-15	Reserved

Digital Output Command:

Bit 0	Open Command
Bit 1	Close Command
Bit 2	Stop Command
Bit 3	ESD Command
Bit 4-7	Future

Environmental
Temperature Range:
Storage: -40°F - 194°F (-40°C to +90°C)
Operating: -4°f - 176°F (-20°C to +80°C)
Humidity Range:
5% to 95% at 77° F (25°C) non-condensing
Vibration:
IEC 6B-2-6 1G @ 40-50 Hz., 0.012p-p @ 10-40 Hz.

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Modbus® Controller



Application

The Modbus is an application specific controller, designed for positioning electric actuators using rotary feedback. Typical devices include rotary and linear actuators. Feedback may be via a potentiometer or a quadrature optical encoder. Controller outputs can drive small electric motors or motor starters directly.

A Modbus-485 communication network allows up to 100 devices on a single channel. The Modbus is powered by 24VDC and provides four supervisory inputs, configurable as limit switches or force open/close signals.

Automatic calibration is provided which requires no loop tuning. All operating parameters can be set as registers in the Modbus communications map.

Features

- High resolution position input for up to 0.1% accuracy
- 4-120/240VAC inputs for open and closed limit switches and 2 general purpose inputs
- Simple 4-wire Modbus-485 communication network includes supervisory power
- Robust communication, up to 500m cable length
- Plugable terminal strips for easy field installation
- Direct mounting within the actuator
- Low power consumption; does not require ventilation
- Electronic overload protection with built-in current monitoring optional
- High power outputs can directly drive small motors
- LED indicators on inputs, outputs and communication channel
- Automatic calibration using local push button or remote command
- Multi-vendor PLC support through the standard Modbus communication module

Typical Applications

- Blending of bulk materials
- Petroleum products and other liquids flow control
- Level control for maintaining process supply

Specifications

Actuator

Voltage	120/240VAC 1Ø
Current	4A (2 minute 25% duty-cycle)
Fuse	GMA 4 replaceable

Supervisory

Voltage	10 to 25VDC
Current	30mA @ 24VDC

Auxiliary Inputs

Voltage	120/240VAC
Current	min 10mA / max 20mA

Communication

Standard	Modbus-RS485 differential
Distance	500m (1,640ft.)
Input Load	12K ohm, standard
Termination	120Ω balanced line

Position

Resolution	12 bit (1 part in 4096)
Accuracy	0.1% full scale
Potentiometer	1000Ω typical (500 to 10kΩ)
Quadrature Optical Encoder	1000 to 4096 pulses

Environment

Temperature	-40°F to +158°F (-40°C to +70°C)
Relative Humidity	0 to 95% non-condensing

Dimensions

Length	96mm (3.75 in)
Width	70mm (2.75 in)
Height	36mm (1.40 in)

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GE Oil & Gas
16240 Port Northwest Drive
Houston, Texas 77041-2645 USA
T: +1 832.590.2306
U.S. Toll Free T: 800.945.9898
F: +1 713.849.2879
Email: andcoactuators.inquiries@ge.com

Visit us online at: www.ge.com/energy

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