

RCS Actuators

MAR 10, 50, 90



NEMA 4



NEMA 7

NEMA 4 Enclosure

Approvals

MAR Models Only

Canadian Standards Association
CSA NRTL/C—Enclosure 4

NEMA 7 Enclosure

Approvals

MAR Models Only

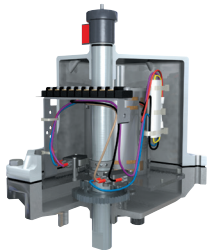
Canadian Standards Association

CSA NRTL/C—Class I, Divisions 1 & 2,
Groups C & D

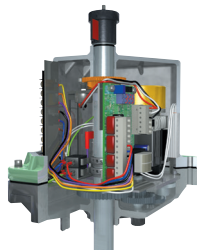
CSA NRTL/C—Class II, Divisions 1 & 2,
Groups E, F & G

CSA NRTL/C—Approved to UL
standard No. 429,
Electrically Operated Valves

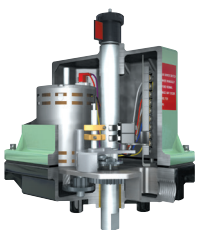
CSA NRTL/C—Approved to UL Standard
No. 1203, Electrical Equipment
for use in Explosion - proof and
Dust - Ignition - proof Hazardous
(Classified) Locations



Open/Close



Modulating



Multi-Turn

Models

MAR10, 50, 90 – A.C. Supply
DCR10, 50, 90 – D.C. Supply

Typical Application

For on/off and modulating control of:

- Part turn ball, butterfly or plug valves
- Rotary dampers
- Rotating equipment
- Multi-turn valve types

Temperature Range

Standard: -40°F to +150°F

-40°C to +65°C

Optional: -60°F to +120°F

-50°C to +48°C

(Note: With Heaters Installed)

Optional: Compliance to NFPA 130, capable
of operation after exposure to ambient
temperature of 482°F (250°C) for a minimum
of 1 hour

Voltage

115 VAC, 1 Phase, 50/60 Hz.

230 VAC, 1 Phase, 50/60 Hz.

24 VAC, 1 Phase, 50/60 Hz.

12 VDC / 24 VDC

Torque Range

120 to 1,000 inch pounds
(13.5 to 112 newton meters)

Speed Range

.5 to 60 seconds
for 90° revolution

7.5 and 30 RPM
for multi-turns

Standard Features

AC Voltages

- 2 – SPDT Switches,
- PTC Heater

DC Voltages

- 2 – SPDT (High Current)
Switches

115 and 230 VAC, 1 Phase, 50/60 Hz.

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle	Duty Cycle	Current Ratings 115 VAC		Current Ratings 230 VAC	
				Rating 115 Vac, 1Ph., 50/60 Hz.	Rating 230 Vac, 1Ph., 50/60 Hz.	N.L.A. [†]	L.R.A. ^{††}	N.L.A. [†]	L.R.A. ^{††}
MAR10-.5MT	30 (3.4)	Multi-Turn	30 RPM N/A	25% ²	25% ²	0.50	0.82	0.25	0.40
MAR10-2	120 (13.5)	Part Turn	2 second/90° (2.5 seconds/90°)	50% ¹	50% ¹	0.40	0.60	0.30	0.40
MAR10-2MT	120 (13.5)	Multi-Turn	7.5 RPM (6.2 RPM)	50% ²	50% ²	0.40	0.60	0.20	0.25
MAR10-10	350 (40)	Part Turn	10 seconds/90° (12 seconds/90°)	50% ¹	50% ¹	0.40	0.60	0.20	0.25
MAR10-30	425 (48)	Part Turn	30 seconds/90° (35 seconds/90°)	50% ²	50% ²	0.30	0.50	0.20	0.25
MAR10-60	400 (45)	Part Turn	60 seconds/90° (70 seconds/90°)	50% ²	50% ²	0.35	0.55	0.20	0.25
MAR50-2	600 (67)	Part Turn	2 seconds/90° (2.5 seconds/90°)	40% ²	50% ¹	1.60	2.20	0.50	0.95
MAR50-2MT	600 (67)	Multi-Turn	7.5 RPM (6.2 RPM)	40% ²	50% ²	1.60	2.20	0.50	0.95
MAR50-.5MT	200 (22.5)	Multi-Turn	30 RPM N/A	25% ²		1.90	0.55		
MAR50-10	600 (67)	Part Turn	10 seconds/90° (12 seconds/90°)	50% ¹	50% ¹	0.50	0.80	0.30	0.50
MAR50-30	700 (79)	Part Turn	30 seconds/90° (35 seconds/90°)	50% ²	50% ²	0.35	0.55	0.20	0.25
MAR50-60	600 (67)	Part Turn	60 seconds/90° (70 seconds/90°)	50% ²	50% ²	0.30	1.50	0.20	0.25
MAR90-5	1,000 (112)	Part Turn	5 seconds/90° (6 seconds/90°)	50% ¹	50% ¹	0.55	1.55	0.25	0.25
MAR90-5MT	1,000 (112)	Multi-Turn	3 RPM (2.5 RPM)	50% ²	50% ²	0.55	0.55	0.25	0.85
MAR90-15	1,000 (112)	Part Turn	15 seconds/90° (17.5 seconds/90°)	75% ²	50% ²	0.50	0.60	0.20	0.35

[†](N.L.A.) - No Load Ampere

^{††}(L.R.A.) - Locked Rotor Ampere

¹ - Open/Close Service

² - Open/Close or Modulating Service

Duty Cycle

The percentage of time the electric motor is energized vs. the time it is at rest, in reversing duty and with the actuator running at its rated load - maximum published torque.

Standard Modulating Duty Rating

- 12 motor starts (corrections) per minute.
- At the rated duty cycle for that model.
- With the speed of operation a minimum of 15 seconds for 90° or slower.
- With positioning accuracy of (+/-) 1% of total span.

Isolation Relays

To operate multiple actuators in parallel from a single signal requires isolating relays in the field wiring. Consult factory.

NOTE: Multi-turn models are available with the following numbers of turns: 1, 4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is shipped.

24 VAC

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle Rating 24 VDC	Current Ratings 24 VAC	
					N.L.A.*	L.R.A.*
MAR10-2	120 (13.5)	Part Turn	2 seconds/90°	25% ¹	2.80	3.50
MAR10-2MT	120 (13.5)	Multi-Turn	7.5 RPM	25% ¹	2.80	3.50
MAR10-10	350 (40)	Part Turn	10 seconds/90°	25% ¹	1.90	2.70
MAR10-30	425 (48)	Part Turn	30 seconds/90°	25% ¹	1.70	2.40
MAR10-60	400 (45)	Part Turn	60 seconds/90°	25% ¹	1.80	2.50
MAR50-10	600 (67)	Part Turn	10 seconds/90°	25% ¹	3.80	4.70
MAR50-30	700 (79)	Part Turn	30 seconds/90°	25% ¹	1.90	2.70
MAR90-15	1,000 (112)	Part Turn	15 seconds/90°	25% ¹	2.40	4.00

12 AND 24 VDC

Model	Output Torque Inch Pounds (N.m)	Type	No Load Speed of Operation	Duty Cycle Rating 12 VDC	Duty Cycle Rating 24 VDC	Current Ratings 12 VAC		Current Ratings 24 VAC	
						N.L.A. [†]	L.R.A. ^{††}	N.L.A. [†]	L.R.A. ^{††}
DCR10-2	250 (28)	Part Turn	.6 seconds/90°	50% ¹	50% ¹	1.00	12.50	0.75	6.80
DCR10-2MT	250 (28)	Multi-Turn	25 RPM	50% ²	50% ²	1.00	12.50	0.75	6.80
DCR10-10	400 (45)	Part Turn	6.4 seconds/90°	50% ¹	50% ¹	0.19	3.90	0.08	2.10
DCR50-2	600 (67)	Part Turn	.7 seconds/90°	50% ¹	50% ¹	1.00	22.00	0.75	12.00
DCR50-2MT	600 (67)	Multi-Turn	21 RPM	50% ²	50% ²	1.00	22.00	0.75	12.00
DCR50-10	600 (67)	Part Turn	5.6 seconds/90°	50% ¹	50% ¹	0.90	5.80	0.50	2.40
DCR50-30	700 (79)	Part Turn	21 seconds/90°	50% ²	50% ²	0.15	2.65	0.06	1.15
DCR50-60	750 (84)	Part Turn	42 seconds/90°	50% ²	50% ²	0.15	2.65	0.06	1.15
DCR90-5	900 (101)	Part Turn	2.2 seconds/90°	50% ¹	50% ¹	1.00	12.50	0.75	6.80
DCR90-5MT	900 (101)	Multi-Turn	7 RPM	50% ²	50% ²	1.00	12.50	0.75	6.80
DCR90-15	900 (101)	Part Turn	5.6 seconds/90°	50% ²	50% ²	0.90	5.80	0.50	2.40

[†](N.L.A.) - No Load Ampere

^{††}(L.R.A.) - Locked Rotor Ampere

¹ - Open/Close Service

² - Open/Close or Modulating Service

Limit Switches (MAR Models)

Standard: Two-single pole, double throw type (SPDT) with an option for 2 or 4 additional.

Ratings: UL and CSA listed.
15 amp & 1/2 H.P. at 125 or 250 VAC;
1/2 amp at 125 VDC;
1/4 amp at 250 VDC;
5 amp at 120 VAC

Optional: All double pole, double throw type (DPDT).

Ratings: UL and CSA listed.
10 amp at 125/250 VAC (form ZZ);
1/2 H.P. at 125 VDC; 3/4 H.P. at 250 VAC

Limit Switches (DCR Models)

Ratings: UL and CSA listed.
MIL-PRF-8805 Qualified Listing
25 amp at 277 VAC; 1 H.P. at 125 VAC;
2 H.P. at 250 VAC

Isolation Relays

To operate multiple actuators in parallel from a single signal requires isolating relay sign the field wiring, Consult factory.

NOTE: Multi-turn models are available with the following number of turns: 1.4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is placed.

Industrial Products Group

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RCS Actuators

MAR 100, 250



NEMA 4 Enclosure

Approvals

MAR Models Only
Canadian Standards Association
CSA NRTL/C—Enclosure 4



NEMA 4/6/7 Enclosure

Approvals

MAR Models Only
Canadian Standards Association
CSA NRTL/C—Enclosure 4 and 6
CSA NRTL/C—Class I, Divisions 1 and 2, Groups C and D
CSA NRTL/C—Class II, Divisions 1 and 2, Groups E, F and GCSA NRTL/C—Approved to UL standard No. 429, Electrically Operated Valves
CSA NRTL/C—Approved to UL Standard No. 1203, Electrical Equipment for use in Explosion—proof and Dust—Ignition—proof Hazardous (Classified) Locations

Models

A.C. Voltages	D.C. Voltages
MAR100	DCR100
MAR120	DCR160
MAR160	DCR250
MAR250	DCR800
MAR800	

Voltage

115 VAC, 1 Phase, 50/60 Hz.
230 VAC, 1 Phase, 50/60 Hz.
24 VAC, 1 Phase, 50/60 Hz.
220 VAC, 3 Phase, 60 Hz.
440 VAC, 3 Phase, 60 Hz.
12 VDC
24 VDC

Typical Application

For on/off and modulating control of:

- Part turn ball, butterfly or plug valves
- Multi-turn valve types
- Rotary dampers
- Rotating equipment

Torque Range

1,500 to 10,000 inch pounds
(13.5 to 112 newton meters)

Speed Range

1.25 to 60 seconds for 90° revolution
6.6 and 12 RPM for multi-turns

Temperature Range

Standard: -40°F to +150°F
 -40°C to +65°C
Optional: -60°F to +150°F
 -50°C to +65°C

(Note: With Heaters Installed)

Optional: Compliance to NFPA 130, capable of operation after exposure to ambient temperature of 482°F (250°C) for a minimum of 1 hour or a maximum of 3 hours.

Standard Features

AC (Single and Three Phase) Voltages
4- SPDT Switches, PTC Heater
DC Voltages
2- SPDT (High Current) Switches



115 and 230 VAC, 1 Phase, 50/60 Hz.

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle	Duty Cycle	Current Ratings 115 VAC		Current Ratings 230 VAC	
				Rating 115 Vac, 1Ph., 50/60 Hz.	Rating 230 Vac, 1Ph., 50/60 Hz.	N.L.A.*	L.R.A.*	N.L.A.*	L.R.A.*
MAR100-16	1500 (169)	Part Turn	16 seconds/90° (19 seconds/90°)	100% (2)	50% (2)	0.55	1.55	0.25	0.85
MAR100-30	1800 (203)	Part Turn	30 seconds/90° (35 seconds/90°)	100% (2)	50% (2)	0.50	0.60	0.30	0.35
MAR100-60	2500 (282)	Part Turn	60 seconds/90° (70 seconds/90°)	100% (2)	50% (2)	0.35	0.55	0.20	0.35
MAR120-1.25	1500 (169)	Part Turn	1.25 seconds/90° (2 seconds/90°)	25% (1)	25% (1)	3.30	7.40	1.30	3.60
MAR120-1.25 MT	1500 (169)	Multi-Turn	12 RPM (10 RPM)	25% (2)	25% (2)	3.30	7.40	1.30	3.60
MAR160-8	1920 (217)	Part Turn	8 seconds/90° (9 seconds/90°)	50% (1)	50% (1)	0.75	1.65	0.70	1.05
MAR160-16	2000 (226)	Part Turn	16 seconds/90° (19 seconds/90°)	75% (2)	50% (2)	0.60	1.60	0.35	0.90
MAR160-30	2500 (282)	Part Turn	30 seconds/90° (35 seconds/90°)	75% (2)	50% (2)	0.65	0.70	0.45	0.50
MAR160-60	2800 (316)	Part Turn	60 seconds/90° (70 seconds/90°)	100% (2)	50% (2)	0.50	0.60	0.30	0.35
MAR250-3	3500 (395)	Part Turn	3 seconds/90° (4 seconds/90°)	25% (1)	50% (1)	3.30	7.40	0.90	3.40
MAR250-3MT	3500 (395)	Multi-Turn	5 RPM (4 RPM)	25% (2)	50% (2)	3.30	7.40	0.90	3.40
MAR250-8	3000 (339)	Part Turn	8 seconds/90° (9 seconds/90°)	40% (1)	50% (1)	1.60	2.20	1.00	1.25
MAR250-16	4000 (452)	Part Turn	16 seconds/90° (19 seconds/90°)	50% (2)	50% (2)	1.10	1.80	0.70	1.05
MAR250-30	5000 (565)	Part Turn	30 seconds/90° (35 seconds/90°)	50% (2)	50% (2)	0.75	1.65	0.50	0.95
MAR250-60	5000 (565)	Part Turn	60 seconds/90° (70 seconds/90°)	75% (2)	50% (2)	0.65	0.70	0.30	0.35
MAR800-12	7500 (847)	Part Turn	12 seconds/90° (14 seconds/90°)	25% (1)	25% (1)	3.30	7.40	0.90	3.40
MAR800-30	10000 (1130)	Part Turn	30 seconds/90° (35 seconds/90°)	40% (2)	50% (2)	1.60	2.20	1.00	1.20
MAR800-60	10000 (1130)	Part Turn	60 seconds/90° (70 seconds/90°)	75% (2)	50% (2)	0.55	1.55	0.50	0.95
MAR1600-70	21000 (2373)	Part Turn	70 seconds/90° (82 seconds/90°)	25% (2)	50% (2)	3.30	7.40	0.90	3.40
MAR4000-170	48000 (5424)	Part Turn	170 seconds/90° (200 seconds/90°)	25% (2)	50% (2)	3.30	7.40	0.90	3.40

*(N.L.A.) - No Load Ampere (L.R.A.) - Locked Rotor Ampere (1) - Open/Close Service (2) - Open/Close or Modulating Service

Duty Cycle

The percentage of time the electric motor is energized vs. the time it is at rest, in reversing duty and with the actuator running at its rated load - maximum published torque.

Standard Modulating Duty Rating

- 12 motor starts (corrections) per minute.
- At the rated duty cycle for that model.
- With the speed of operation a minimum of 15 seconds for 90° or slower.
- With positioning accuracy of (+/-) 1% of total span.

Isolation Relays

To operate multiple actuators in parallel from a single signal requires isolating relays in the field wiring. Consult factory.

NOTE: Multi-turn models are available with the following number of turns: 1.4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is placed.

12 AND 24 VDC

Model	Output Torque Inch Pounds (N.m)	Type	No Load Speed of Operation	Duty Cycle Rating 12 VDC	Duty Cycle Rating 24 VDC	Current Ratings 12 VAC		Current Ratings 24 VDC	
						N.L.A.*	L.R.A.*	N.L.A.*	L.R.A.*
DCR100-30	2000 (225)	Part Turn	11.5 seconds/90°	50% (2)	50% (2)	0.90	5.80	0.50	2.40
DCR160-16	2200 (248)	Part Turn	5.5 seconds/90°	50% (1)	50% (1)	1.00	12.50	0.75	6.80
DCR160-60	3600 (406)	Part Turn	22 seconds/90°	50% (2)	50% (2)	0.90	5.80	0.50	2.40
DCR250-8	3000 (339)	Part Turn	3.2 seconds/90°	50% (1)	50% (1)	1.00	22.00	0.75	12.30
DCR250-16	4000 (452)	Part Turn	5.7 seconds/90°	50% (1)	50% (1)	1.00	22.00	0.75	12.30
DCR250-30	5000 (565)	Part Turn	11.2 seconds/90°	50% (2)	50% (2)	1.00	12.50	0.75	6.80
DCR800-30	10000 (1130)	Part Turn	13.3 seconds/90°	50% (2)	50% (2)	1.00	22.00	0.75	12.30
DCR800-60	10000 (1130)	Part Turn	23 seconds/90°	50% (2)	50% (2)	1.00	12.50	0.75	6.80

24 VAC

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle Rating 24 VDC	Current Ratings 24 VAC	
					N.L.A.*	L.R.A.*
MAR100-16	1500 (169)	Part Turn	16 seconds/90° (19 seconds/90°)	50% (2)	5.60	6.00
MAR100-30	1800 (203)	Part Turn	30 seconds/90° (35 seconds/90°)	75% (2)	2.40	4.50
MAR100-60	2500 (282)	Part Turn	60 seconds/90° (70 seconds/90°)	100% (2)	1.80	3.80
MAR160-30	2500 (282)	Part Turn	30 seconds/90° (35 seconds/90°)	75% (2)	4.50	5.00
MAR160-60	2800 (316)	Part Turn	60 seconds/90° (70 seconds/90°)	75% (2)	2.40	4.50
MAR250-60	5000 (565)	Part Turn	60 seconds/90° (70 seconds/90°)	50% (2)	4.50	5.00

*(N.L.A.) - No Load Ampere (L.R.A.) - Locked Rotor Ampere (1) - Open/Close Service (2) - Open/Close or Modulating Service

Limit Switches (MAR Models)

Standard: Four - single pole, double throw type (SPDT) with an option for 2 additional

Ratings: UL and CSA listed.
15 amp & 1/2 H.P. at 125 or 250 VAC
1/2 amp at 125 VDC;
1/4 amp at 250 VDC
Lamp Load: 5 amp at 120 VAC

Optional: All double pole, double throw type (DPDT)

Ratings: UL and CSA listed.
10 amp at 125/250 VAC (form ZZ);
1/2 H.P. at 125 VDC; 3/4 H.P. at 250 VAC

Limit Switches (DCR Models)

Ratings: UL and CSA listed.
MIL-PRF-8805 Qualified Listing
25 amp at 277 VAC; 1 H.P. at 125 VAC;
2 H.P. at 250 VAC

Isolation Relays

To operate multiple actuators in parallel from a single signal requires isolating relays in the field wiring, Consult factory.

Heater

PTC (Positive Temperature Coefficient)
Heater standard in an AC Voltage Models

220 and 440 VAC, 3 Phase, 60 Hz.

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle Rating 220 Vac, 3Ph., 60 Hz.	Duty Cycle Rating 440 Vac, 3Ph., 60 Hz.	Current Ratings 220 VAC		Current Ratings 440 VAC	
						N.L.A.*	L.R.A.*	N.L.A.*	L.R.A.*
MAR100-16	1500 (169)	Part Turn	16 seconds/90° (19 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR120-1.25	1500 (169)	Part Turn	1.25 seconds/90° (2 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR120-1.25 MT	1500 (169)	Multi-Turn	12 RPM (10 RPM)	25%	25%	1.60	3.50	0.82	1.80
MAR160-8	1920 (217)	Part Turn	8 seconds/90° (9 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR160-16	2000 (226)	Part Turn	16 seconds/90° (19 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR250-3	3500 (316)	Part Turn	3 seconds/90° (4 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR250-3MT	3500 (316)	Multi-Turn	5 RPM 4RPM	25%	25%	1.60	3.50	0.82	1.80
MAR250-16	4000 (452)	Part Turn	16 seconds/90° (19 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR250-30	5000 (565)	Part Turn	30 seconds/90° (60 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR250-60	5000 (565)	Part Turn	60 seconds/90° (70 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR800-12	7500 (847)	Part Turn	12 seconds/90° (14 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR800-30	10000 (1130)	Part Turn	30 seconds/90° (35 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR800-60	10000 (1130)	Part Turn	60 seconds/90° (70 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR1600-70	21000 (2373)	Part Turn	70 seconds/90° (80 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR4000-170	48000 (5424)	Part Turn	170 seconds/90° (200 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80

NOTE: Multi-turn models are available with the following number of turns: 1.4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is placed.

* (N.L.A.) - No Load Ampere (L.R.A.) - Locked Rotor Ampere (1) - Open/Close Service (2) - Open/Close or Modulating Service

Duty Cycle

The percentage of time the electric motor is energized vs. the time it is at rest, in reversing duty and with the actuator running at it's rated load - maximum published torque.

NOTE: Multi-turn models are available with the following number of turns: 1.4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is placed.

Standard Modulating Duty Rating

- 12 motor starts (corrections) per minute.
- At the rated duty cycle for that model.
- With the speed of operation a minimum of 15 seconds for 90° or slower.
- With positioning accuracy of (+/-) 1% of total span.

Industrial Products Group

RCS Actuators

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RCS Actuators

MAR 1600, 4000



NEMA 4/6/7 Enclosure

Approvals

A.C. Models Only

Canadian Standards Association

CSA NRTL/C—Enclosure 4 and 6

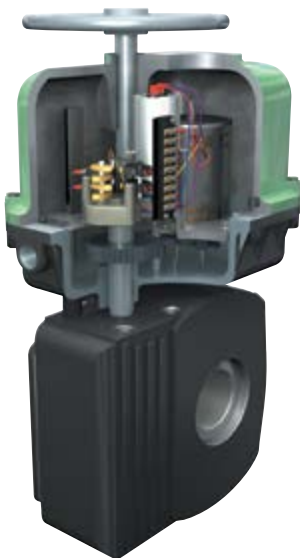
CSA NRTL/C—Class I, Divisions 1 and 2,
Groups C and D

CSA NRTL/C—Class II, Divisions 1 and 2,
Groups E, F and G

CSA NRTL/C—Approved to UL standard
No. 429, Electrically
Operated Valves

CSA NRTL/C—Approved to UL
Standard No. 1203, Electrical Equipment for use
in Explosion - proof

And Dust - Ignition - proof
Hazardous (Classified) Locations



Models

MAR1600, MAR4000

Typical Application

For on/off and modulating control of:

- Part turn ball, butterfly or plug valves
- Multi-turn valve types
- Rotary dampers
- Rotating equipment

Temperature Range

Standard: -40°F to +150°F
-40°C to +65°C

Optional: -60°F to +150°F
-50°C to +65°C

Optional: Compliance to NFPA 130, capable
of operation after exposure to ambient
temperature of 482°F (250°C) for a minimum
of 1 hour or a maximum of 3 hours.

Voltage

115 VAC, 1 Phase, 50/60 Hz.

230 VAC, 1 Phase, 50/60 Hz.

220 VAC, 3 Phase, 60 Hz.

440 VAC, 3 Phase, 60 Hz.

Torque Range

21,000 and 48,000 inch pounds
(2,373 and 5,424 newton meters)

Speed Range

70 and 170 seconds for 90° revolution

Standard Features

AC (Single or Three Phase) Voltages
4 – SPDT Switches,
PTC Heater

DC Voltages
2 – SPDT (High Current)
Switches

115 and 230 VAC, 1 Phase, 50/60 Hz.

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle	Duty Cycle	Current Ratings 115 VAC		Current Ratings 230 VAC	
				Rating 115 Vac, 1Ph., 50/60 Hz.	Rating 230 Vac, 1Ph., 50/60 Hz.	N.L.A.*	L.R.A.*	N.L.A.*	L.R.A.*
MAR100-16	1500 (169)	Part Turn	16 seconds/90° (19 seconds/90°)	100% (2)	50% (2)	0.55	1.55	0.25	0.85
MAR100-30	1800 (203)	Part Turn	30 seconds/90° (35 seconds/90°)	100% (2)	50% (2)	0.50	0.60	0.30	0.35
MAR100-60	2500 (282)	Part Turn	60 seconds/90° (70 seconds/90°)	100% (2)	50% (2)	0.35	0.55	0.20	0.35
MAR120-1.25	1500 (169)	Part Turn	1.25 seconds/90° (2 seconds/90°)	25% (1)	25% (1)	3.30	7.40	1.30	3.60
MAR120-1.25 MT	1500 (169)	Multi-Turn	12 RPM (10 RPM)	25% (2)	25% (2)	3.30	7.40	1.30	3.60
MAR160-8	1920 (217)	Part Turn	8 seconds/90° (9 seconds/90°)	50% (1)	50% (1)	0.75	1.65	0.70	1.05
MAR160-16	2000 (226)	Part Turn	16 seconds/90° (19 seconds/90°)	75% (2)	50% (2)	0.60	1.60	0.35	0.90
MAR160-30	2500 (282)	Part Turn	30 seconds/90° (35 seconds/90°)	75% (2)	50% (2)	0.65	0.70	0.45	0.50
MAR160-60	2800 (316)	Part Turn	60 seconds/90° (70 seconds/90°)	100% (2)	50% (2)	0.50	0.60	0.30	0.35
MAR250-3	3500 (395)	Part Turn	3 seconds/90° (4 seconds/90°)	25% (1)	50% (1)	3.30	7.40	0.90	3.40
MAR250-3MT	3500 (395)	Multi-Turn	5 RPM (4 RPM)	25% (2)	50% (2)	3.30	7.40	0.90	3.40
MAR250-8	3000 (339)	Part Turn	8 seconds/90° (9 seconds/90°)	40% (1)	50% (1)	1.60	2.20	1.00	1.25
MAR250-16	4000 (452)	Part Turn	16 seconds/90° (19 seconds/90°)	50% (2)	50% (2)	1.10	1.80	0.70	1.05
MAR250-30	5000 (565)	Part Turn	30 seconds/90° (35 seconds/90°)	50% (2)	50% (2)	0.75	1.65	0.50	0.95
MAR250-60	5000 (565)	Part Turn	60 seconds/90° (70 seconds/90°)	75% (2)	50% (2)	0.65	0.70	0.30	0.35
MAR800-12	7500 (847)	Part Turn	12 seconds/90° (14 seconds/90°)	25% (1)	25% (1)	3.30	7.40	0.90	3.40
MAR800-30	10000 (1130)	Part Turn	30 seconds/90° (35 seconds/90°)	40% (2)	50% (2)	1.60	2.20	1.00	1.20
MAR800-60	10000 (1130)	Part Turn	60 seconds/90° (70 seconds/90°)	75% (2)	50% (2)	0.55	1.55	0.50	0.95
MAR1600-70	21000 (2373)	Part Turn	70 seconds/90° (82 seconds/90°)	25% (2)	50% (2)	3.30	7.40	0.90	3.40
MAR4000-170	48000 (5424)	Part Turn	170 seconds/90° (200 seconds/90°)	25% (2)	50% (2)	3.30	7.40	0.90	3.40

*(N.L.A.) - No Load Ampere (L.R.A.) - Locked Rotor Ampere (1) - Open/Close Service (2) - Open/Close or Modulating Service

Duty Cycle

The percentage of time the electric motor is energized vs. the time it is at rest, in reversing duty and with the actuator running at its rated load - maximum published torque.

Standard Modulating Duty Rating

- 12 motor starts (corrections) per minute.
- At the rated duty cycle for that model.
- With the speed of operation a minimum of 15 seconds for 90° or slower.
- With positioning accuracy of (+/-) 1% of total span.

Isolation Relays

To operate multiple actuators in parallel from a single signal requires isolating relays in the field wiring. Consult factory.

NOTE: Multi-turn models are available with the following number of turns: 1.4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is placed.

220 and 440 VAC, 3 Phase, 60 Hz.

Model	Output Torque Inch Pounds (N.m)	Type	Speed of Operation 60 Hz. (50 Hz.)	Duty Cycle Rating 220 Vac, 3Ph., 60 Hz.	Duty Cycle Rating 440 Vac, 3Ph., 60 Hz.	Current Ratings 220 VAC		Current Ratings 440 VAC	
						N.L.A.*	L.R.A.*	N.L.A.*	L.R.A.*
MAR100-16	1500 (169)	Part Turn	16 seconds/90° (19 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR120-1.25	1500 (169)	Part Turn	1.25 seconds/90° (2 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR120-1.25 MT	1500 (169)	Multi-Turn	12 RPM (10 RPM)	25%	25%	1.60	3.50	0.82	1.80
MAR160-8	1920 (217)	Part Turn	8 seconds/90° (9 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR160-16	2000 (226)	Part Turn	16 seconds/90° (19 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR250-3	3500 (316)	Part Turn	3 seconds/90° (4 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR250-3MT	3500 (316)	Multi-Turn	5 RPM (4RPM)	25%	25%	1.60	3.50	0.82	1.80
MAR250-16	4000 (452)	Part Turn	16 seconds/90° (19 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR250-30	5000 (565)	Part Turn	30 seconds/90° (35 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR250-60	5000 (565)	Part Turn	60 seconds/90° (70 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR800-12	7500 (847)	Part Turn	12 seconds/90° (14 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR800-30	10000 (1130)	Part Turn	30 seconds/90° (35 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR800-60	10000 (1130)	Part Turn	60 seconds/90° (70 seconds/90°)	25%	25%	0.34	1.20	0.15	0.75
MAR1600-70	21000 (2373)	Part Turn	70 seconds/90° (80 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80
MAR4000-170	48000 (5424)	Part Turn	170 seconds/90° (200 seconds/90°)	25%	25%	1.60	3.50	0.82	1.80

*(N.L.A.) - No Load Ampere (L.R.A.) - Locked Rotor Ampere (1) - Open/Close Service (2) - Open/Close or Modulating Service

Duty Cycle

The percentage of time the electric motor is energized vs. the time it is at rest, in reversing duty and with the actuator running at its rated load - maximum published torque.

NOTE: Multi-turn models are available with the following number of turns: 1.4, 5, 8, 13, 18, 26 or 50. Must be specified when the order is placed.

Standard Modulating Duty Rating

- 12 motor starts (corrections) per minute.
- At the rated duty cycle for that model.
- With the speed of operation a minimum of 15 seconds for 90° or slower.
- With positioning accuracy of (+/-) 1% of total span.

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