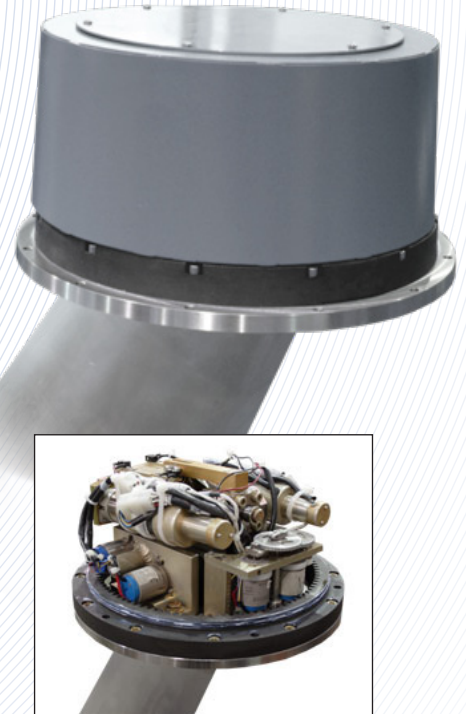


## MI-840 Family of RCS Rotators

MI-840 RCS Rotators are highly engineered azimuth-over-elevation positioning systems with a very compact size and extreme torque density. They are used in conjunction with our MI-830 Family of RCS Pylons to support various targets for the purpose of Radar Cross Section testing.

- Low profile positioning
- Accurate azimuth and elevation axes
- Load capacity up to 50,000 lbs
- Interchangeable tip design matches rotator needs with MI standard or custom pylons



### Description

RCS rotators are among the most highly engineered products in the industry. Their low profile allows them to be contained almost completely within a test article. In their very small envelopes, rotators deliver remarkably high torque, making use of heat treated steels and innovative mechanical drive technologies. Conventional connections in the mechanical drives are eschewed in favor of those that provide superior integrity and safety. Structural components and connections are rigorously analyzed with FEA and classical methods to ensure that safety factors exceed MI Technologies' rigid safety standards.

MI-840 Rotators have target load capacities of 500 lbs (227 kg) through 50,000 lbs (22,680 kg). See accompanying chart for available standard models. Custom rotators for specific applications may be designed to customer specification. MI-830 Pylons with corresponding capacities are available for all rotators.

Compatibility between smaller rotators and pylons of up to 3,000 lbs (1,361 kg) capacity is achieved by virtue of a structural element called a rotator tip. These refined interfaces serve to adapt smaller rotators to pylons of various geometries. A continuous smooth surface is maintained at the junction of the rotator tip and its mating pylon. Removal and installation of these smaller rotators is facilitated by an access panel located at the base of the pylon. The fasteners that attach the rotator and its tip are brought to the base of the pylon where the access panel will not interrupt the polished surface where it matters most – within the electromagnetic test zone. Larger rotators, those above 3,000 lb capacity, are attached to their pylons by various other means. In all cases, the rotator tip may be configured as required for customer's needs. All electrical, RF, and fiber optic services are contained within the pylon.

### Application

The MI-840 Family of RCS Rotators are typically used in a compact range or far-field measurement system to measure the radar signature of a device (target). These rotators sit atop a variety of RCS pylons and create a positioning system that combines high weight bearing, accurate positioning and low RF reflectivity. This positioning system is synchronized with the RF instrumentation to provide the RCS measurement data. Data analysis of the range measurements using the MI-3048 RCS Analysis Software completes the RCS measurement results.

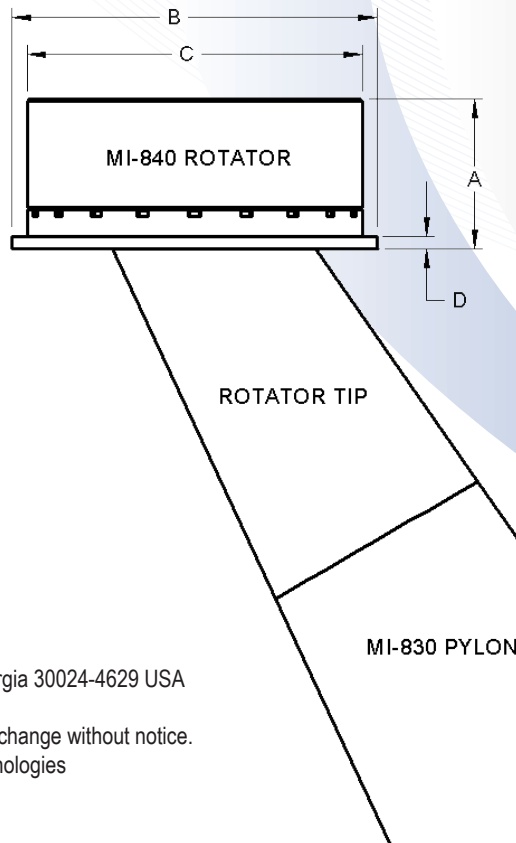
# Specifications

MI Rotators	MI-840-0.5K	MI-840-1.5K	MI-840-3.0K	MI-840-5.0K	MI-840-8K	MI-840-15K	MI-840-20K	MI-840-30K	MI-840-50K
Target Weight	500 lbs (227 kg)	1,500 lbs (682 kg)	3,000 lbs (1,364 kg)	5,000 lbs (2,268 kg)	8,000 lbs (3,629 kg)	15,000 lbs (6,820 kg)	20,000 lbs (9,072 kg)	30,000 lbs (13,640 kg)	50,000 lbs (22,680 kg)
EI Delivered Torque	500 ft-lbs (678 N-m)	1,500 ft-lbs (2,034 N-m)	2,000 ft-lbs (2,712 N-m)	5,500 ft-lbs (7,457 Nm)	10,000 ft-lbs (13,558 N-m)	19,500 ft-lbs (26,438 N-m)	50,000 ft-lbs (67,791 N-m)	65,250 ft-lbs (88,467 N-m)	307,500 ft-lb (416,914 N-m)
Az Delivered Torque	200 ft-lbs (271 N-m)	350 ft-lbs (474 N-m)	350 ft-lbs (976 N-m)	800 ft-lbs (1,085 N-m)	2,000 ft-lbs (2,711 N-m)	5,000 ft-lbs (6,779 N-m)	10,000 ft-lbs (13,558 N-m)	20,833 ft-lbs (28,246 N-m)	31,031 ft-lb (42,072 N-m)
Elevation Travel	-45°, +5°	-45°, +5°	-45°, +5°	-40°, +5°	-35°, +5°	-30°, +5°	-30°, +5°	-30°, +5°	-30°, +5°
Azimuth Travel	360 degrees, continuous								
Accuracy, Elevation	±0.05° <i>Note 1</i>	±0.035° <i>Note 1</i>	±0.035° <i>Note 1</i>	±0.15° <i>Note 1</i>	±0.15° <i>Note 1</i>	±0.15° <i>Note 1</i>	±0.15° <i>Note 1</i>	±0.15° <i>Note 1</i>	±0.15° <i>Note 1</i>
EI Position Feedback Type	Dual Synchro	Incremental Encoder	Incremental Encoder	Single Synchro	Single Synchro	Single Synchro	Single Synchro	Single Synchro	Single Synchro
Accuracy, Azimuth	±0.05° <i>Note 1</i>	±0.035° <i>Note 1</i>	±0.035° <i>Note 1</i>	±0.05° <i>Note 1</i>	±0.05° <i>Note 1</i>	±0.05° <i>Note 1</i>	±0.05° <i>Note 1</i>	±0.05° <i>Note 1</i>	±0.03° <i>Note 1</i>
Az Position Feedback Type	Dual Synchro	Incremental Encoder	Incremental Encoder	Dual Synchro	Dual Synchro	Incremental Encoder	Dual Synchro	Dual Synchro	Dual Synchro
Max Rotation Speed, Azimuth	42 deg/min	36 deg/min	36 deg/min	60 deg/min	60 deg/min	60 deg/min	60 deg/min	60 deg/min	36 deg/min
Max Rotation Speed, Elevation	6.5 deg/min	4.2 deg/min	4.2 deg/min	6 deg/min	6 deg/min	6 deg/min	6 deg/min	6 deg/min	6 deg/min
Height (A)	5 in (12.7 cm)	6.2 in (15.7 cm)	6.2 in (15.7 cm)	8 in (20.3 cm)	10 in (25.4 cm)	12 in (30.5 cm)	16.5 in (41.9 cm)	20 in (50.8 cm)	40.1 in (101.9 cm)
Flange Diameter (B)	10 in (25.4 cm)	15 in (38.1 cm)	15 in (38.1 cm)	17.5 in (44.5 cm)	21 in (53.3 cm)	26 in (66.0 cm)	36 in (91.4 cm)	44 in (112 cm)	84 in (213.4 cm)
Body Diameter (C)	9 in (22.9 cm)	13.8 in (35.1 cm)	13.8 in (35.1 cm)	16 in (40.6 cm)	18 in (55.7 cm)	22 in (55.9 cm)	32 in (81.3 cm)	40 in (102 cm)	78 in (198.1 cm)
Flange Thickness (D)	1 in (2.5 cm)	.53 in (1.3 cm)	.53 in (1.3 cm)	.63 in (1.6 cm)	.75 in (1.9 cm)	.75 in (1.9 cm)	.75 in (1.9 cm)	.75 in (1.9 cm)	2 in (5.1 cm)

*Note 1 - Higher accuracies available with error correction*

## Related Products

- MI-710 Family of Integrated Position Controllers
- MI-830 Family of RCS Pylons



1125 Satellite Blvd, Suite 100 | Suwanee, Georgia 30024-4629 USA  
 PH: +1-678-475-8300 | FX: +1-678-542-2601  
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