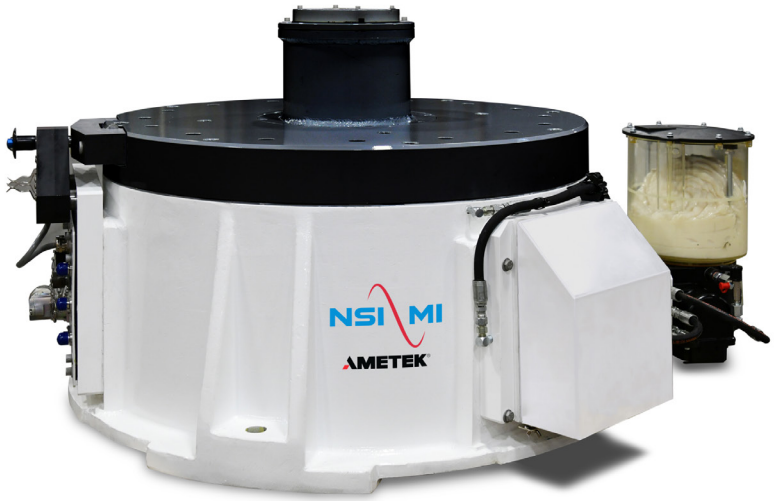
High Power Rotators

MEC-HPR



FEATURES

- **Bending moments greater than 3,000,000 Nm (2,210,000 ft-lb)**
- **Payloads greater than 50,000 kg (110,200 lb)**
- **Speed up to 120 deg/sec (20 rpm)**
- **Designed to meet military and federal standards for outdoor use in extreme weather conditions**
- **Standard and customizable configurations**
- **Delivers an unmatched combination of high-speed & high-torque**

DESCRIPTION

NSI-MI Technologies' High Power Rotators are built to handle heavy loads, high speeds, and endure harsh outdoor environments. They feature high structural and drive safety factors and are equipped with EMI gaskets to minimize electromagnetic interference, making them suitable for high RF power applications. Standard features such as stow pins, temperature control, customizable colors, and an automatic lubrication system ensure reliable performance for critical operations. The large thru-hole accommodates rotary unions, slip rings, rotary joints, and fiber optics, to allow for continuous, uninterrupted rotation. Each rotator comes equipped with an API-enabled position controller.

IDEAL FOR

- **Transportable radar**
- **Mobile communication**
- **Ground communication**
- **Pointing & tracking**
- **General purpose positioning**
- **Scientific and R&D**
- **Factory automation**
- **Antenna testing**

SPECIFICATIONS

Parameters	Units	MEC-HPR-45	MEC-HPR-55	MEC-HPR-60	MEC-HPR-220	MEC-HPR-3000
Bending Moment, Static	Nm (ft-lb)	45,759 (33,750)	40,675 (30,000)	60,000 (44,254)	223,710 (165,000)	3,118,381 (2,300,000)
Bending Moment, Operation	Nm (ft-lb)	30,506 (22,500)	27,116 (20,000)	40,000 (29,503)	74,570 (55,000)	881,282 (650,000)
Vertical Load	kg (lb)	9,072 (20,000)	4,536 (10,000)	3,402 (7,500)	34,019 (75,000)	54,431 (120,000)
Delivered Torque (Continuous Duty)	Nm (ft-lb)	163 (120)	2,034 (1,500)	758 (559)	4,067 (3,000)	47,454 (35,000)
Maximum Speed	deg/sec	60	75	120	36	36
Position Readout Accuracy (Absolute)	deg	±0.05 (PF1) ±0.005 (PF4)	±0.03 (PF1) ±0.005 (PF4)	±0.05 (PF1)	±0.02 (PF1)	±0.02 (PF1)
Backlash	deg	0.1	0.08	0.1	Zero-Backlash	Zero-Backlash
Physical						
Thru Hole Diameter[1]	mm (in.)	127 (5.0)	108 (4.3)	267 (10.5)	305 (12.0)	940 x 940 (37.0 x 37.0)
Turntable Diameter	mm (in.)	610 (24.0)	765 (30.1)	835 (32.9)	1,201 (47.3)	2,318 (91.3)
Base Diameter	mm (in.)	730 (28.8)	902 (35.5)	1,010 (39.8)	1,422 (56.0)	3,048 (120.0)
Height	mm (in.)	368 (14.5)	426 (16.8)	1,016 (40.0)	990 (39.0)	1,509 (59.4)
Net Weight	kg (lb)	318 (700)	293 (645)	1,089 (2,400)	1,950 (4,300)	11,793 (26,000)
Environmental						
Operating Conditions		Direct Outdoor Exposure				
Temperature Range	Operating	°C (°F)	-25 to +43 (-13 to +110)			
	Storage	°C (°F)	-25 to +63 (-13 to +145)			
Relative Humidity	Operating	%	100			
	Storage	%	100			
Altitude	Operating	m (ft)	2,438 (8,000)			
	Storage	m (ft)	2,438 (8,000)			
Factory Installed Options[2]						
Position Feedback Options	PF	PF1, PF4	PF1, PF4	PF1	PF1	PF1
RF Path Options	RJ	RJ26, RJ40, RJ50				
Stow-Pin Option	SP	SP1				
Lubrication System	ALS	ALS1				
Riser	RS	RS1				
Temperature control system	HT	HT1				

[1] Without the PF4 Encoder option
[2] Refer to page 3 for factory installed options definitions.

FACTORY INSTALLED OPTIONS

POSITION FEEDBACK OPTIONS

PF1: Off-Axis Absolute Encoder
Standard absolute feedback with encoder

PF4: High Accuracy, ±0.005 degrees native read-out accuracy for most positioners
Replaces standard absolute feedback with center-drive high accuracy absolute encoder

Notes: Options are available to further enhance the native accuracy using error correction techniques. See Enhanced Accuracy Options brochure for additional information.

RF PATH OPTIONS

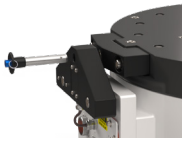
RJ Rotary Joint (Continuous Rotation)
Adds a single channel RF path inside the rotator to support continuous, unrestricted rotation of the axis. The factory installed kit contains an RF rotary joint and internal RF cabling.

RJ26: DC-26.5 GHz, 3.5 mm | **RJ40:** DC-40 GHz, K | **RJ50:** DC-50 GHz, 2.4 mm

THROUGH PATH OPTIONS

Each rotator is designed to support the integration of customer-furnished rotary unions, slip rings, rotary joints, and fiber optics. This flexible approach allows you to run all necessary electrical, RF, hydraulic, exhaust, or liquid cooling lines safely through the positioner to support continuous rotation for mission critical applications. Contact NSI-MI for available standard slip ring assemblies.

CONVENIENCE & PROTECTION OPTIONS



SP1 – Stow-Pin
Adds manual stow-pin and mating receptacle to protect the positioner's drive-train in susceptible environments such as high wind-gust exposure in outdoor environments and high-load pick-up mode applications. Includes electrical interlock circuit for disabling the servo system when stow-pin is inserted. Default position is zero (0) degrees. Alternate stow-pin angle locations are available upon request.

ALS1 – Lubrication system
The automatic lubrication system is designed to inject grease into the slewing ring bearing ports and ring gear points at regular intervals ensuring continuous and maintenance-free operation.

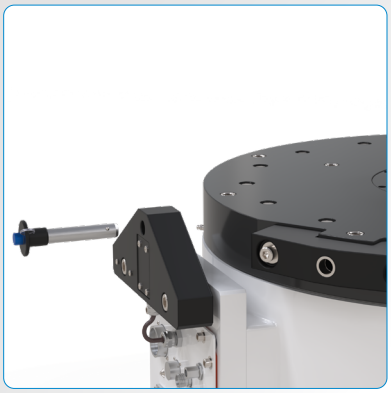
RS1 – Riser
Adds a structural riser below the positioner for applications requiring accurate centering from a platform, outdoor silo applications, and various customer requested heights. Risers are designed to withstand the full capacity of the mated positioner and are tailored to your required height. Available features include access hatches, custom color, internal shelving, and external and internal ladders.

HT1 – Temperature control system
A heater module equipped with a built-in thermostat and fan heats the internal volume of the positioner when ambient temperatures drop below freezing. Additionally, a thermostatically controlled fan evacuates warm air from the positioner if the internal temperature exceeds a programmable threshold.

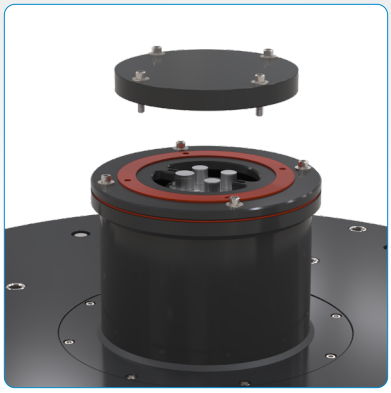
MEC-HPR-55

Positioner equipped with: Position Feedback - PF1, RF Path - RFP26, Stow-Pin - SP1, Lubrication System - ALS1, Temperature control system - HT1

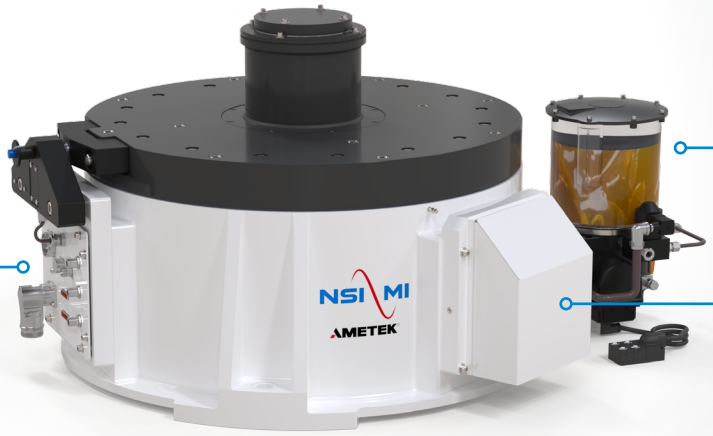
Stow Pin



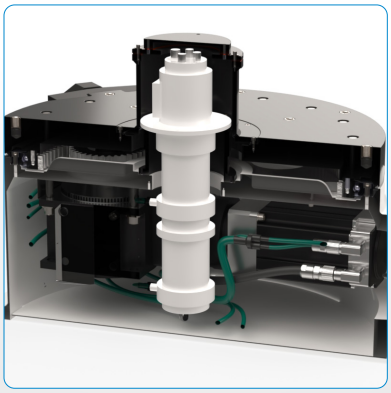
Thru-Contacts



Lubrication System



Connector Panel



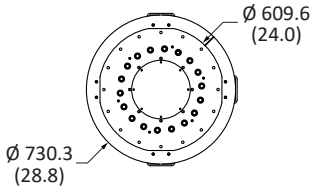
Thru-Contacts electrical path

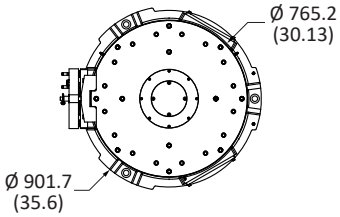
Cooling Fan with Rain Shroud

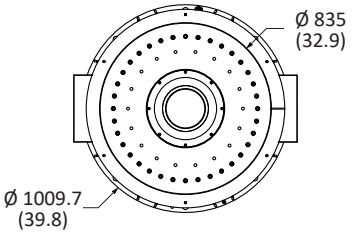
MEC-HPR POSITIONER DIMENSIONS

MEC-HPR-45	MEC-HPR-55	MEC-HPR-60

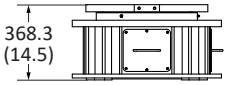
Top View

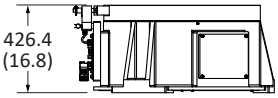


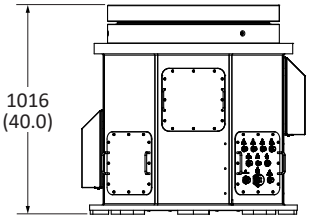




Front View

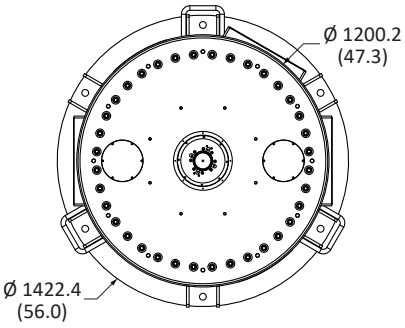


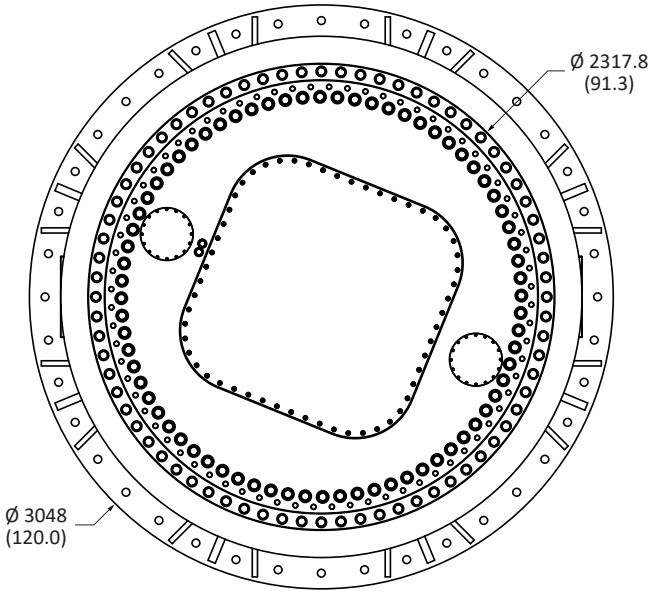




MEC-HPR-220	MEC-HPR-3000

Top View





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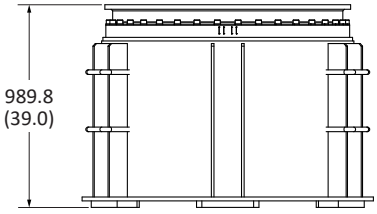
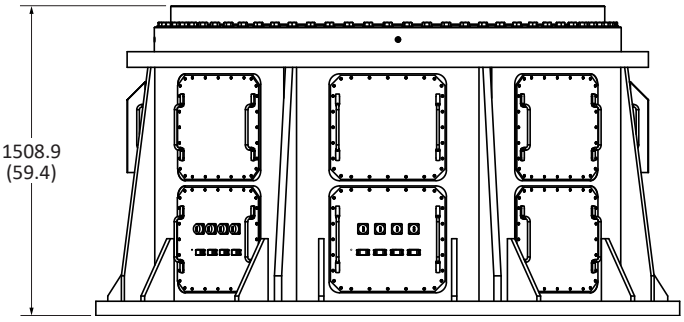
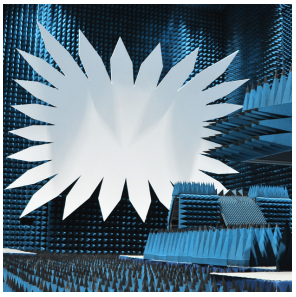
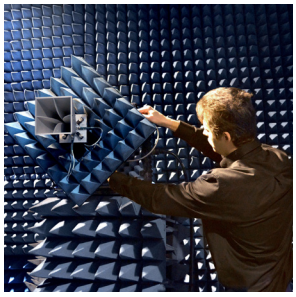
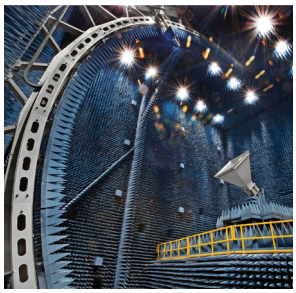


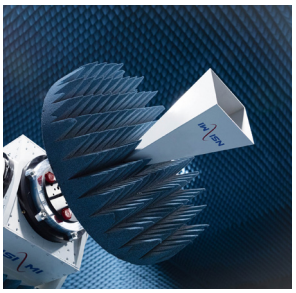


All dimensions are in mm (in.)









Test with Confidence

LOCATIONS

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NSI-MI Technologies introduced the world to microwave antenna measurement systems and is the preferred global supplier of antenna, radar cross section, and radome measurement solutions. Today, our innovative products, systems, and services lead the industry in setting new standards for tomorrow's performance. From world-class in-house testing facilities to delivering industry-leading turnkey systems, we provide the highest quality measurement products on the market.

Our full range of standard products and custom-designed systems are backed by our longstanding commitment to precision-engineered accuracy, reliability, and lasting performance. We provide the right solution for every RF measurement need and our worldwide network of service professionals are always available to offer support.

For more information on ordering NSI-MI Technologies' products, applications or services please contact your nearest NSI-MI office. Our complete sales team information is available at: www.nsi-mi.com/contact-us

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