

# MPower Motors

## Fourth Generation Galvo Motors



### Key Specifications

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- Small size for more compact designs
- High speed for greater throughput
- Improved accuracy for higher quality
- High efficiency for lower power consumption
- Superior thermal performance for reduced drift
- Fully RoHS Compliant

General Scanning invented the optical scanner over thirty years ago. Since that time, we have been improving and refining our designs. Now, we have achieved another breakthrough in galvo motor design that will enable higher performance and greater throughput for your applications. We call it the MPower Galvo Motor design strategy and base it on our fourth generation design.

A scanner is not simply a motorized mirror, it is a complex system whose performance can only be optimized when all of the inertial elements, the galvo motor, the mount and the mirror, are designed and tested as an integrated working unit.

With the MPower Galvo Motor strategy, there is no need to search for the best combination of mirror, mount and motor, because we've done all the testing and analysis for you.

The integrated Mirror, Mount and Motor design of the MPower Motors, coupled with General Scanning's innovative servo drivers, will bring higher levels of performance to your optical scanning applications.

## Technical Specifications:

Dynamic Specifications		MPM-20A	MPM-30A
Optimal mirror size	mm, clear aperture	14 - 25	20 – 30+
Max Scan Angle	degrees, optical	±40	±40
Non-linearity (max)	% over ±20° optical	0.2	0.2
Offset Drift (Avg. / [Std Dev])	μ Radians/°C	0/[10]	0/[10]
Gain Drift <sup>1</sup> (Avg. / [Std Dev])	PPM/°C	0/[35]	0/[35]
Small Step Time <sup>2,3</sup> (typical)	μ Second	750	TBD
Operating Temperature	°C	0 - 50	0 - 50
Output Shaft Diameter	mm [Inch]	Tapered Mount <sup>4</sup>	Tapered Mount <sup>4</sup>

Motor Specifications		MPM-20A	MPM-30A
Torque Constant	Nm/A	0.041	0.065
Coil Resistance (@ 60°C)	Ohms	2.85	1.65
Coil Inductance (@1 KHz)	mHy	0.90	1.00
Rotor Inertia <sup>5</sup>	g*cm <sup>2</sup>	4.76	16.84
Thermal Impedance (Coil to Case)	°C/W	0.60	0.45

- Gain Drift characteristics are typical, compensated by General Scanning's servo.  
Contact General Scanning to discuss compensation requirements if you plan to use your own servo driver.
- Dynamic specifications dependent on mirror inertia, command waveform, servo technology, and tuning
- Settle to within 1% of position. Mirrors used: 20mm & 30mm Y Be slab respectively
- General Scanning's patented tapered-mount provides low inertia, high dynamic stiffness, adjustable orientation and field-replaceability
- Includes Nitinol rings, (0.24 and 1.00 respectively)

**Note:** MPower Galvo Motors are fully RoHS compliant

## Possible Configurations

### Innovative Mirrors

- 15-30+ mm Clear Apertures
- Various Industrial Coatings

### Flexible Mounts

- Patented Taper Design
- Flexible Orientation/Replacement

### Improved Galvo Motors

- Family of Galvo Motors to Support Mirrors of up to 50mm Clear Aperture
- Patented Optical Position Detector Used by All Sizes



### Advanced Servo Electronics

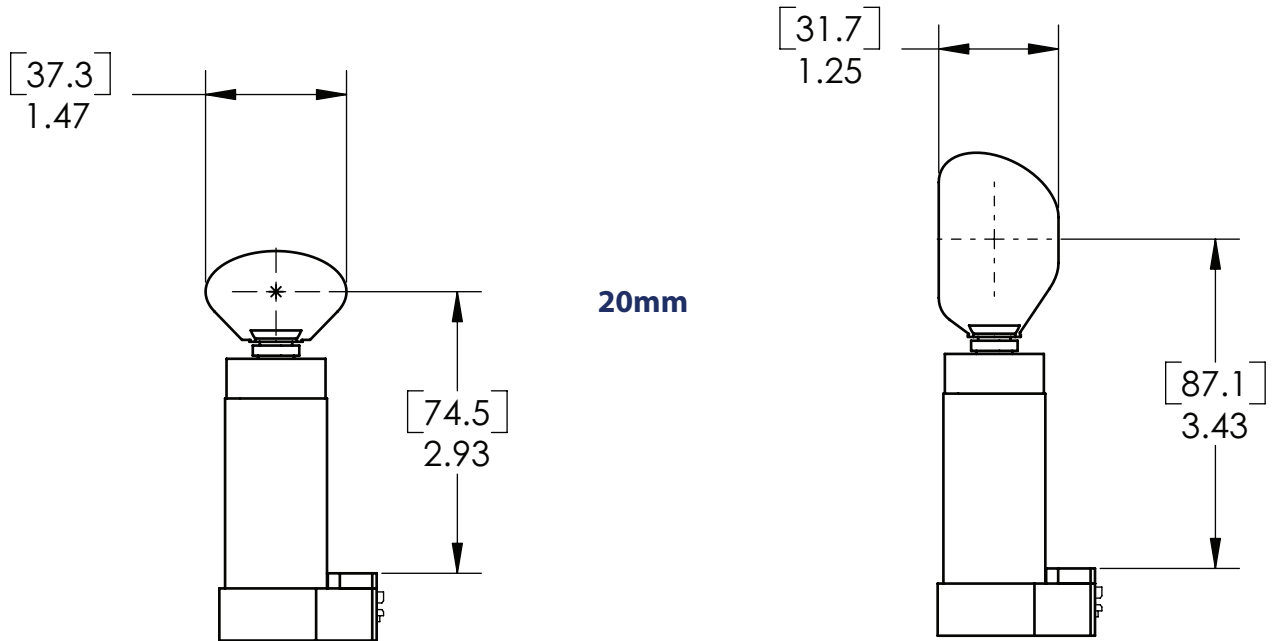
- Single & Dual Axis Options
- Analog and Digital Servo Technology Available



**MPM-20A**

X Scanner

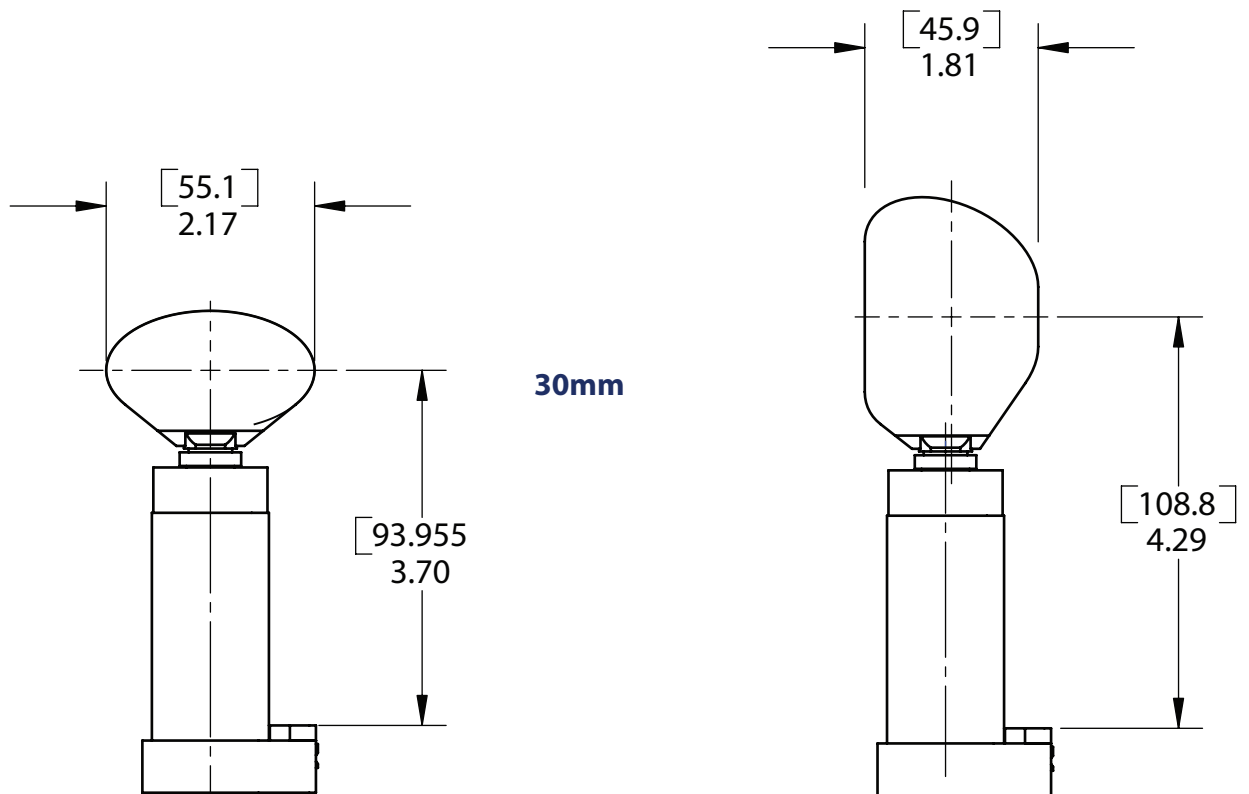
Y Scanner



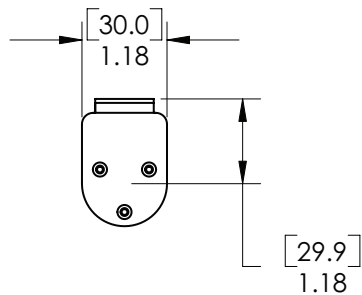
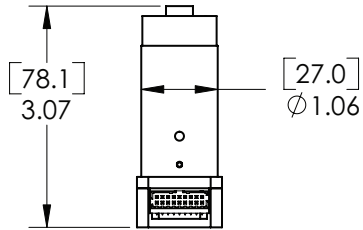
**MPM-30A**

X Scanner

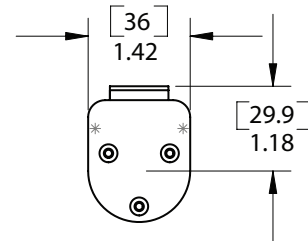
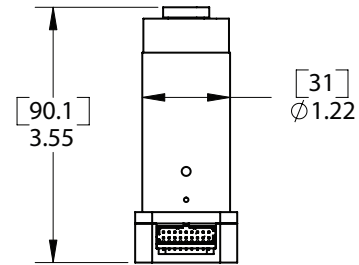
Y Scanner



## MPM-20A

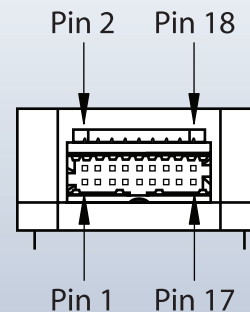


## MPM-30A



## Connector Pinout

Signal	Pin #
I+	1
I-	2
COM	3
Shield	4
ACG+	5
ACG-	6
	7
	8
	9
	10
M0+	11
M0-	12
M0+	13
M0-	14
M1+	15
M1-	16
M1+	17
M1-	18



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