



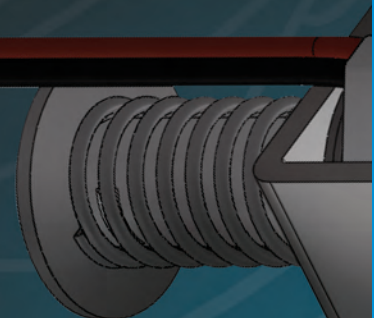
# EM-PRODUCTS

STANDARD, SPECIALTY AND CUSTOM  
ELECTROMECHANICAL  
AND ELECTROMAGNETIC DEVICES

**Designed for industrial and commercial applications**



**MAGNET-SCHULTZ OF AMERICA**  
SPECIALISTS IN ELECTROMAGNETIC DEVICES





HARNESS THE *power*  
OF COLLABORATIVE INNOVATION



Turning our knowledge into customer value



# EM-PRODUCTS

## STANDARD, SPECIALTY AND CUSTOM SOLENOIDS, ELECTROMECHANICAL AND ELECTROMAGNETIC DEVICES, VALUE-ADDED ASSEMBLIES

A leading manufacturer of Electromagnetic Devices—serving Electromechanical and Electrohydraulic applications—Magnet-Schultz of America (MSA) provides advanced engineering, innovative design and lean manufacturing capabilities for a diverse list of customers and industries.

Through collaborative innovation, every MSA product is available to our customers as a completely unique, custom solution. Performance characteristics and design specifications including size/shape, mounting style, magnetic force and power consumption are all tailored to precisely meet customer requirements.

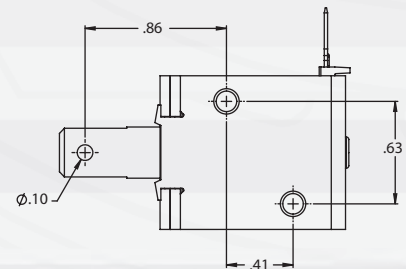
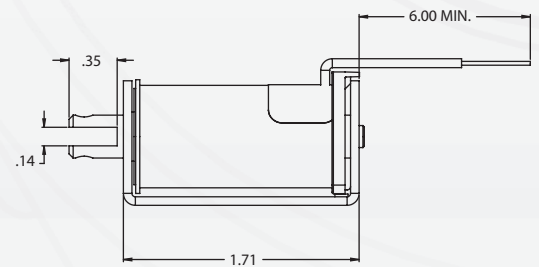
Our sophisticated Solenoid designs and optional complete sub-assemblies, provide smaller-size, higher-force, longer-life solutions that enable our customers' end products to outperform their competition.

MSA's experienced design team and skilled support services, coupled with our lean manufacturing and vertical integration provide the flexibility needed to respond to ever changing technical and commercial requirements, while meeting customer expectations relative to performance, cost, delivery and quality.

### Partnering with MSA Ensures:

- Innovative ideas and cost effective designs
- Superior, consistent quality and reliability
- Timely projects that are completed to specification
- Globally competitive value

To learn more about our company history, capabilities and custom product offerings, contact Magnet-Schultz of America today.



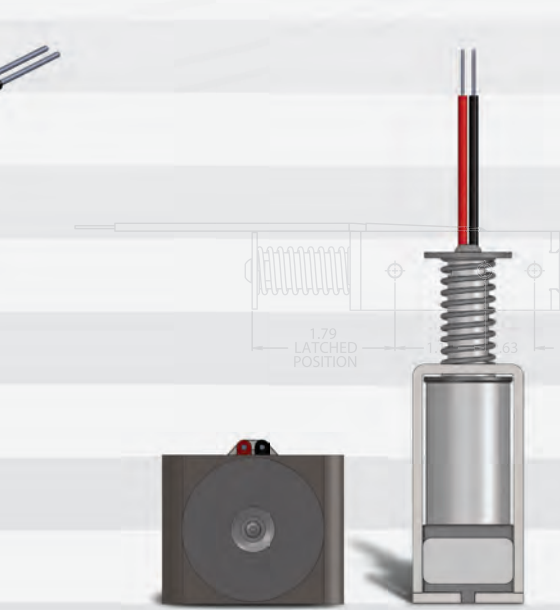


ELECTROMECHANICAL SOLENOIDS

MSA's three standard Solenoid product groups include eleven different C-Frame, nineteen different D-Frame and ten different Tubular sizes, providing a broad range of force and stroke capabilities (see specifications below). To precisely meet the requirements of customer applications and budgets, we frequently modify these standard designs, including adaptations to the plunger, mounting characteristics and/or method of electrical connection. Often, force characteristics are greatly enhanced by changing the coil winding, duty cycle, and/or input power.

- C-Frame Solenoids**—provide the greatest economic value, while operating at the most basic magnetic performance level.
- D-Frame Solenoids**—offer moderate design complexity and price points, mid-range magnetic efficiency and performance.
- Tubular Solenoids**—more complex designs, providing the highest magnetic efficiency and performance, in smaller package sizes.
- Fully Custom Solenoids**—MSA routinely designs and manufactures fully custom Electromechanical Solenoids, for those applications that require a package size or performance level that cannot be satisfied by our standard designs.

SOLENOID TYPE	SIZE RANGE	DIMENSIONS L x W x H	MAX STROKE mm/in	MAX STROKE FORCE N/OZ	COIL POWER (W)
C-Frame (U-Frame)	Smallest	12.7 x 11.4 x 10.8 (mm) .5 x .45 x .43 (in)	3.2 / .125	.07 / .24	1.25
	Largest	32.8 x 35 x 37.3 (mm) 1.29 x 1.38 x 1.47 (in)	12.7 / .5	.08 / 2.8	6
D-Frame (Box)	Smallest	28.5 x 19.1 x 19.1 (mm) 1.12 x .75 x .75 (in)	6.35 / .25	.42 / 1.5	4
	Largest	66.8 x 39.4 x 46 (mm) 2.63 x 1.55 x 1.81 (in)	25.4 / 1	2.7 / 9.7	15
Tubular (Cylindrical)	Smallest	25.4 (L) x 12.8 (D) (mm) 1 (L) x .5 (D) (in)	6.35 / .25	.11 / .39	2.5
	Largest	81.3 (L) x 38.1 (D) (mm) 3 (L) x 1.5 (D) (in)	25.4 / 1	5 / 18	15



MAGNETIC LATCHING (ML) PRODUCTS

Energy-saving applications demand magnetic-holding functionality without continuously applying electrical power. MSA provides two very different, fully custom magnetic latching products that employ an internal permanent magnet (to provide a continuous hold force), and a spring (or other return mechanism) to help return the device to the unlatched state.

Magnetic Latching Solenoids

ML Solenoids are capable of latching and unlatching by applying current to their coil. The internal permanent magnet saves energy by keeping the solenoid in the latched position, without current.

Magnetic Latching Mechanisms

By incorporating a very strong internal spring, inside a relatively small package, ML Mechanisms can provide a high impact force with only a small pulse of energy applied to their coil. To return the mechanism to the magnetically latched state, the spring/armature assembly must be manually compressed to a point where the permanent magnet can capture and hold the armature, until the next actuation is needed.

Learn more about MSA's customizable Electromechanical product families—visit [Magnet-SchultzAmerica.com](https://Magnet-SchultzAmerica.com), or contact us directly at 630.789.0600.



## VOICE COILS

This EM Product line blends the continuous power of permanent magnets with the intermittent actuation of an electromagnetic coil to achieve high speed, precise linear motion and extremely long operating life. All MSA's Voice Coils are fully custom, and come in two distinct design architectures:

- **Moving Armature:** no moving leads, eliminating lead wear concerns
- **Moving Coil:** faster response time and high acceleration

## ELECTROMAGNETS

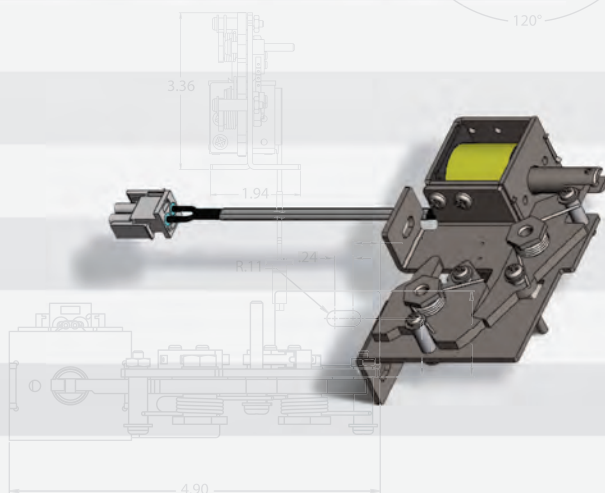
Our collaborative innovation process helps determine whether a standard, modified or completely custom Electromagnet will provide the desired performance and cost efficiencies required. Typical applications involve stabilization devices for medical imaging equipment, clutch/brake mechanisms, door locking and fire door release mechanisms.

ELECTROMAGNET STANDARD SIZE SPECIFICATIONS		
Diameter (mm/in)	Holding Force (N/LB)	Coil Power (W)
<b>20 / 0.8</b>	70 / 15.7	1.9
<b>25 / 1</b>	130 / 29.2	3.2
<b>30 / 1.2</b>	230 / 51.7	4.0
<b>40 / 1.6</b>	420 / 94.4	5.6
<b>50 / 2</b>	700 / 157.3	6.2
<b>65 / 2.6</b>	1,200 / 269.8	9.8
<b>80 / 3.1</b>	1,850 / 415.9	12.4
<b>100 / 4</b>	3,000 / 674.4	17

## VALUE-ADDED ASSEMBLIES

MSA is capable of incorporating electromagnetic functionality into more complex sub-assemblies. Based on the needs of the application, this approach can meet demanding form, fit and functional challenges within the customer's end product. These assemblies help eliminate potentially problematic work for the customer and achieve more cost-effective overall solutions.

MSA can provide the magnetic design and complete design assistance, as well as manufacture and test the complete assembly.





# **MAGNET-SCHULTZ** OF AMERICA

SPECIALISTS IN ELECTROMAGNETIC DEVICES

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*MSA is certified to ISO 9001:2008*

