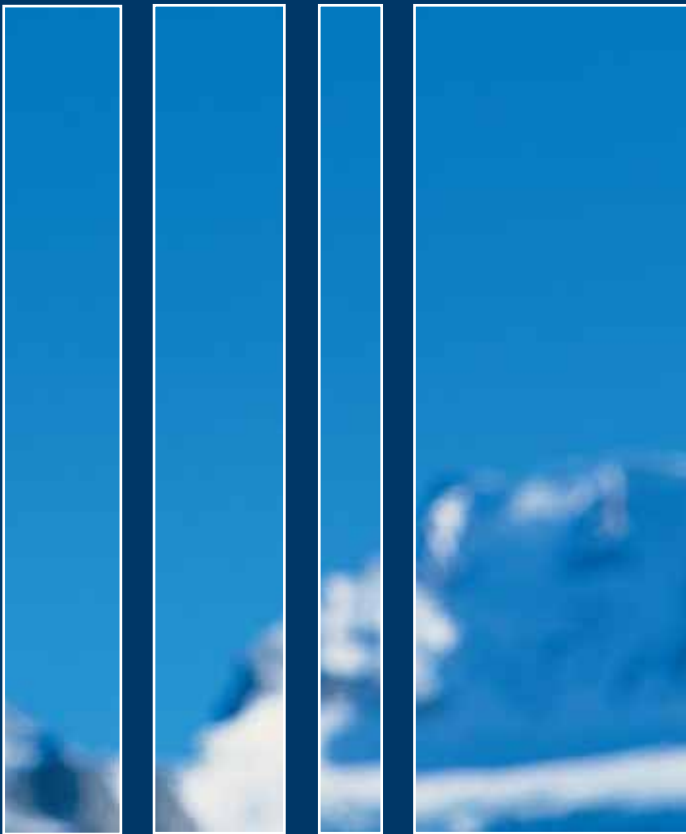


Electro-Hydraulic

M S A P R O D U C T S



S O L U T I O N S Y O U C A N B U I L D O N



MAGNET-SCHULTZ OF AMERICA
SPECIALISTS IN ELECTROMAGNETIC DEVICES

SCALING THE HEIGHTS OF QUALITY AND PERFORMANCE


Magnet-Schultz of America is a leading innovator and manufacturer of solenoids, electromagnetic devices, value added assemblies and precision machined components.

Our commitment is to provide our customers with:

- Innovative ideas and designs
- Superior, consistent quality and reliability
- Projects that are completed to specification, on time and within budget
- Globally competitive value

Founded in the western suburbs of Chicago in 1955 as Regdon Solenoid, the company was acquired in 1987 by Magnet-Schultz Memmingen (MSM) in Germany. As a part of Worldwide Magnet-Schultz, MSA has a corporate commitment to providing total quality. Our advanced engineering and design capabilities allow us to participate in

highly custom, very sophisticated designs. By providing higher force, improved hysteresis, longer life solutions, our customers' end-products simply out perform the competition.

Our product solutions are available in standard offerings as well as custom product, tailored to fit specific customer performance requirements (look for the special  icon next to products where customization is available).

Our experienced design team and support services, coupled with our lean manufacturing and vertical integration, provide the flexibility needed to meet your ever-changing requirements. The willingness to take on difficult design challenges is why customers come to Magnet-Schultz of America, project after project.

MSA has been ISO9001 certified since 2000, and achieved ISO9001:2000 in 2003. Magnet-Schultz of America truly provides...**"Solutions You Can Build On."**

Lifting the hydraulics industry with proven expertise.

In the dynamic, rapidly changing world of hydraulics, Magnet-Schultz of America utilizes its knowledge of marketplace demands and innovative designs to provide full-service solutions in both mobile and industrial applications. Our mission is to offer innovations that will have a lasting impact on the hydraulics industry for years to come.

We're leading the way with...

Environmentally-sound solutions...

Development of new Zinc coatings, allowing our customers to meet RoHS standards.

Customer-driven innovations...

The submersible **SPOOL-LOCK™** solenoid.

Our solenoids are often used in very challenging applications. In order to achieve maximum performance, safety and overall mutual success, we ask for active participation of our customers to define application-related product specifications, performance criteria and testing parameters. Ultimately, we rely upon the customer's testing and qualification process to ensure that our solenoids meet all requirements of the application.

To learn more about Magnet-Schultz of America, call us today or visit us at www.Magnet-SchultzAmerica.com



CONSTRUCTION/AGRICULTURAL
EQUIPMENT



MAN/MATERIAL LIFTS



FACTORY AUTOMATION

ON/OFF AND PROPORTIONAL SOLENOID ASSEMBLIES†



HYDRAULIC SOLENOID – 037^{†††}

 CUSTOMIZABLE

- Holding Force of 112N [25.2 lb] @ 23W
- Nominal Force (F_N) of 52.5N [11.8 lb] @ 23W^{††}
- Hysteresis: < 3% of F_N
- Working Stroke: 2 mm [0.079 in.]
- Coil outside diameter: 37 mm [1.457 in.]
- Coil axial length: 50 mm [1.969 in.]
- Solenoid tube outside diameter: 19 mm [0.748 in.]
- AMP Junior 2-pole connector pictured



HYDRAULIC SOLENOID – 045^{†††}

 CUSTOMIZABLE

- Holding Force of 156N [35.1 lb] @ 26W
- Nominal Force (F_N) of 60N [13.5 lb] @ 26W^{††}
- Hysteresis: < 3% of F_N
- Working Stroke: 3 mm [0.118 in.]
- Coil outside diameter: 45 mm [1.772 in.]
- Coil axial length: 50 mm [1.969 in.]
- Solenoid tube outside diameter: 22 mm [0.866 in.]
- Metri-Pack 150 series connector pictured



HYDRAULIC SOLENOID – 063[†]

 CUSTOMIZABLE

- Holding Force of 300N [67.4 lb] @ 46W
- Nominal Force (F_N) of 124.5N [28.0 lb] @ 46W^{††}
- Hysteresis: < 4% of F_N
- Working Stroke: 4 mm [0.157 in.]
- Coil outside diameter: 63 mm [2.480 in.]
- Coil axial length: 73 mm [2.874 in.]
- Solenoid tube outside diameter: 31 mm [1.220 in.]
- Deutsch DT04-2P connector pictured



CUSTOM PRODUCTS

 CUSTOMIZABLE

Hydraulic applications are becoming more custom with every advance in technology and Magnet-Schultz of America can work with you to make the solenoid that fits your application perfectly.

From internal modifications for pressure, force or stroke to external mounting or fully custom modifications, we can help to create the solenoid that makes your application perform to the level that you require.

†These specifications are based off of current standard solenoid designs and are intended to be used as a guide. Please contact Magnet-Schultz of America, Inc. to establish a solenoid which can be customized to meet your requirements or needs.

††Nominal Force values based on mid-stroke value of proportional solenoid version.














†††Heat-rise test run at Class H rating with the following conditions: Stabilized temperature with no oil flow/natural convection only, $T_A=50^\circ\text{C}$, solenoid mounted to a (46x46x66)mm Valve block mounted onto a (46x66x30)mm base plate.

†††Heat-rise test run at Class H rating with the following conditions: Stabilized temperature with no oil flow/natural convection only, $T_A=50^\circ\text{C}$, solenoid mounted to a (67x67x82)mm Valve block mounted onto a (102x115x30)mm base plate.

GENERAL SOLENOID ASSEMBLY SPECIFICATIONS

- **Additional features:**
 - Soft start: with replaceable orifices, if desired
 - Manual override options:
 - High pressure
 - Twist lock
 - Screw adjustment
 All manual override options are available with replaceable seals.
- On/off and proportional design types available
- Push/pull type available for all sizes
- Fatigue life up to 20 million cycles
- Pressure ratings of up to 5,000 psi
- Magnet wire insulation: up to Class H (180 deg C)
- Water ingress rating levels available up to IP-X9* for electrical components
- Available in both AC and DC

MSA ELECTRO-HYDRAULIC COIL SUMMARY OF CONNECTOR STYLES BY SIZE CURRENTLY TOOLED

COIL OUTER DIAMETER	CONNECTOR STYLES						
	Deutsch DT04-2P	DIN 43650	Metri-Pack 150 Series Terminal	AMP Junior	Dual Spade	Wire Leads Radial	Wire Leads Axial
037 mm							
045 mm							
063 mm							
	<ul style="list-style-type: none"> • All items can be customized  • All items made in the following plastic materials: HTN, PPS, Rynite and Nylon • Products are available with IP Ratings of 65, 67 and 69 • Connectors can be tooled in multiple sizes • Available in both AC and DC • Available in multiple voltages • Rectification and suppression against voltage spiking also available 						



ADDITIONAL HYDRAULIC PRODUCTS



HYDRAULIC TUBES

 CUSTOMIZABLE

- Magnet-Schultz of America (MSA) is a recognized leader in the design and manufacture of quality, high-performance electro-hydraulic solenoids
- Our hydraulic tubes can be developed to meet specific performance criteria, or manufactured to an existing design specification
- All hydraulic tubes are available in an extensive array of mechanical packaging options, allowing the flexibility to meet any fit and performance requirements



PUSH-PULL

LINEAR MOTOR

BI-DIRECTIONAL ACTUATORS

 CUSTOMIZABLE

- Two bi-directional actuator options are currently available to fit your application, the bi-directional linear motor and the push-pull solenoid
- Can be paired with the entire line of MSA standard removable coils
- *Linear Motor*: Bi-directional operation is achieved in the same package size as standard MSA electro-hydraulic solenoids
- *Push-Pull Actuator*: Provides force and stroke equivalent to using two standard MSA electro-hydraulic solenoids in one package
- All items can be customized to fit your application



SPOOL-LOCK

 CUSTOMIZABLE

- Sealed against water ingress, providing a protection rating up to: IP-X9* for the connectorized version (shown), and IP-X7* for the wire lead version (not shown)
- Durable construction insures operation in severe temperature and vibration conditions
- Standard design rated at 12VDC, additional voltage levels available on request
- Working stroke: 3.6mm
- Locking/holding pin diameter: 6.35mm
- Can be mounted directly without the need for additional hardware
- 9/16-18 UNF-2A mounting thread standard with other threads available on request
- Duty cycle: 100% continuous



PRECISION MACHINING

- Magnet-Schultz of America, Inc. has extensive experience in CNC turning and finishing of precision parts in a wide range of metallic and plastic materials, serving many industries.
- Additional services that range from custom surface finishing and coatings, to heat treatment, grinding, staking, riveting and over-molded sub assemblies are available.
- MSA provides one stop engineering capabilities on site, with full engineering support and 3D CAD/CAM design tools.

*Based on Magnet-Schultz IP testing procedures. Specific customer testing/requirements also negotiable.



MAGNET-SCHULTZ OF AMERICA
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MSA and MSM are certified to ISO 9001:2000.