

# MAPA Solenoids

## Series 100-200

### General Service Solenoid Valve Specifications:

The Solenoids are NPT from 1/2" thru 1 1/2" in size and are of brass construction unless stated otherwise.  
 Operating Mode: (Standard) Normally Closed – Closed when de-energized

Maximum operating temperature for the solenoid is 180° F / 82.2° C  
 Coil Rating: Continuous duty totally encapsulated  
 Voltage Tolerances: +10%, - 10% of applicable voltage  
 All Solenoid Coils have a NEMA 1 Rating

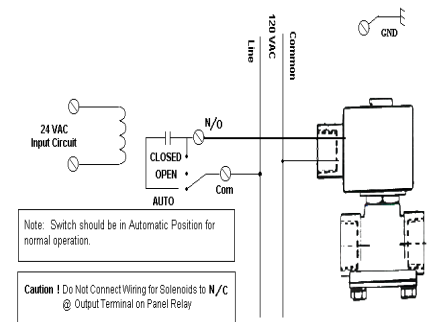


## Series 300 - Fuel gas.

Aluminum construction valves are standard for all MAPA  
 Natural gas applications in size 1/2" – 3/4" – 1" – 1 1/4" - 1 1/2" valves.  
 \*BTU @ 0.60 Specific Gravity W/pressure drop of 0.5inch water column.

### Wiring Options:

All coils are provided with 24"-18 AWG wire leads. MAPA recommends the use of appropriate electrical conduit for all 120-vac coils and, where mandated by local governing codes, all 24-vac coils.



### Notice:

Piping system should be thoroughly flushed prior to operation. If systems are operated without proper flushing, the solenoid diaphragm may become fouled and may not close properly when solenoid is disengaged. The use of in-line filters will greatly reduce the risk of damage to the solenoid diaphragm and/or orifice commonly caused by foreign materials in a fluid system. We recommend the use of filters or strainers for all fluid systems.

### Caution:

Coils should not be energized unless secured to the valve core. Coils will heat during operation. A temperature of ±150° is not uncommon. Do not pressure test fuel gas solenoids from the upstream side of the valve in excess of 15 psi. Damage to the coil when energized will occur.

### Maintenance:

We recommend that the piping system be periodically checked to assure that debris is not present in the system. Debris that lodges in the solenoid diaphragm will cause the solenoid to not function properly. Periodically test solenoid operation to assure that the valve closes completely when solenoid is disengaged.

### Important!

All electrical codes must be followed when making the wiring connections. Verify that electric supply conforms to coil voltage. Verify that the electrical supply is disconnected prior to making the wiring connections or servicing enclosure.

MAPA Model	Port Size (in)	Orifice Size (in)	Min. Pressure Diff.	Flow Factor Cv	Operation Pressure		24/60 VAC		120/60 VAC	
					Air/Gas psi	Water psi	VA Inrush	VA Holding	VA Inrush	VA Holding
MS-101	1/2	5/8	0	2.8	200	200	25	14.5	25	14.5
MS-102	3/4	5/8	0	2.8	200	200	25	14.5	25	14.5
MS-103	1	1	0	8.3	116	116	25	14.5	25	14.5
MS-204	1 1/4	1 3/8	2	28	150	150	25	14.5	25	14.5
MS-205	1 1/2	1 1/2	2	36	150	150	25	14.5	25	14.5
MS-301	1/2	.71	0	4.0	3	171,600*	45	27	45	27
MS-302	3/4	.71	0	4.9	3	241,500*	45	27	45	27
MS-303	1	1.26	0	1.2	0.75	635,500*	45	27	45	27
MS-304	1 1/4	1.26	0	14	0.75	762,700*	45	27	45	27
MS-305	1 1/2	1.89	0.015	41	0.75	2,225,53*	45	27	45	27

\*BTU @ .60 Specific Gravity W/pressure drop of 0.5 inch water column

# INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR SOLENOID VALVES

## Warranty:

MAPA warrants the solenoid to be free from defects in materials or workmanship for a period of ninety (90) days. If the equipment or any part thereof becomes defective within the warranty period, the defective equipment will be replaced or credit allowed therefore at the sole option of MAPA, but without credit or payment for any labor.

Damage caused by incorrect installation or improper usage is not warranted. Failure to follow recommended installation, operation, and/or maintenance procedures listed herein may void product warranty. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

General Service Solenoids: MAPA cannot warrant against the effects of hard water, corrosive agents, contaminants, or debris present in the piping system or against effects of exotic or harsh substances.

## Limits of Liability:

MAPA's liability shall be limited to costs of repair or replacement parts. MAPA shall not be liable for damage or injury caused by the improper use of the product.

Care should be taken in the installation of this product. MAPA shall not be liable for damage or injury caused from the improper installation of the product.

Warranty is Subject to Compliance with Specific Installation Requirements.

## Caution:

### 1. Pressurized Devices

- This equipment is a pressure containing device.
- Do not exceed maximum operating pressure.
- Do not exceed max. during testing of the piping system.
- Make sure equipment is depressurized before working on or disassembling it for service.

### 2. Electrical

- This equipment requires electricity to operate.
- Install equipment in compliance with national and local electrical codes.
- **Disconnect power supply to equipment when performing any electrical service work.**

## A. INSTALLATION

a.1. Before mounting the valve, it is essential to check that the solenoid valve model, the voltage (Volt) and the frequency (Hz) correspond to the characteristics required.

a.1. **Solenoids should not be mounted in an inverted position.**

## B. MECHANICAL PART

- b.1. Assembly of the solenoid valve must correspond with the flow direction indicated with an arrow on the valve body.
- b.2. If the valves are provided with caps for protecting the connections, make sure they are removed before assembly.
- b.3. Care should be taken to prevent foreign bodies from entering the valve during the assembly phase, e.g. material chips, dirt or particles of insulating material, such as the PTFE tape from the "external thread" connections.
- b.4. Although the valve can be used in any position, the inverted position is not advised since possible impurities could become blocked inside the core tube causing malfunctioning.
- b.5. When installing the valve, make sure that the position and surrounding space are sufficient to allow for possible future maintenance or replacement of the coil.
- b.6. Never use a part of the core tube or the coil itself as a lever during the tightening phase. This could cause irreparable damage to the valve.
- b.7. In those installations where impurities, slag or deposits of various types may infiltrate the fluid, it is advisable to mount a filter upstream of the valve.
- b.8. Particular attention should be paid to the temperatures when installing valves with connections welded.
- b.9. When carrying out welding between the valve connection and the pipe of the system, it is necessary to dismantle the coil and check that the temperature of the valve body does not exceed values of 100 - 150°C (200 - 300°F). The flames should be regulated so that it does not come into contact with the valve. The body of the latter should be cooled by wrapping it in wet cloth. Should it be impossible to carry out these precautions, we suggest dismantling the parts inside the valve.

## C. ELECTRICAL CONNECTIONS

- c.1. Before connecting the coil to the supply system, make sure that the characteristics conform to the supply voltage.
- c.2. Where applicable, the earth terminals must be connected.
- c.3. The coil should not be energized before being installed on the valve since this could cause it to burn out.
- c.4. Rotate the coil to the most suitable position, loosening and subsequently tightening the upper nut.

## D. WORKING TEMPERATURE

- d.1. It is normal for the coil temperature to increase during operation; irregular overheating will cause smoke and a smell of burning. In this case, the supply must be immediately isolated.
- d.2. Care should be taken to not install the valve near sources of heat or in environments where there could be a dissipation of the heat produced by the coil.

## E. MAINTENANCE

Refer to Solenoid Maintenance Document for recommended service requirements.