

Coil Housings

The National Electrical Equipment Manufacturers Association defines the various types of electrical enclosures used as follows:

NEMA 1 enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment in locations where unusual service conditions do not exist. They provide a degree of protection against limited amounts of falling dirt but will not prevent the entry of dust or liquids. They prevent the insertion of a straight rod of a specified diameter into the equipment cavity of the enclosure.

NEMA 4 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose directed water.

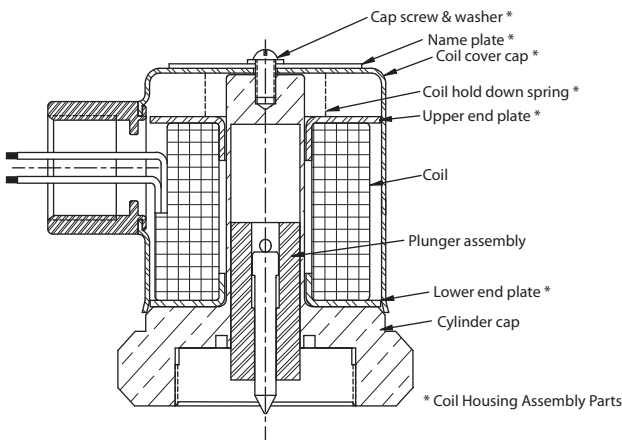
NEMA 7 enclosures are used in hazardous locations and are designed to contain an internal explosion without causing an external hazard. Type 7 enclosures are intended for indoor use and are capable of withstanding the pressures resulting from an internal explosion of specified gasses and contain such an explosion sufficiently that an explosive gas-air mixture existing in the atmosphere surrounding the enclosure will not be ignited. In operation, external surfaces do not reach temperatures capable of igniting explosive gas-air mixtures in the surrounding atmosphere.

NEMA 9 enclosures prevent the entrance of dust and external surfaces do not reach temperatures capable of igniting explosive dust-air mixtures in the surrounding atmosphere. Type 9 enclosures are intended for indoor usage.

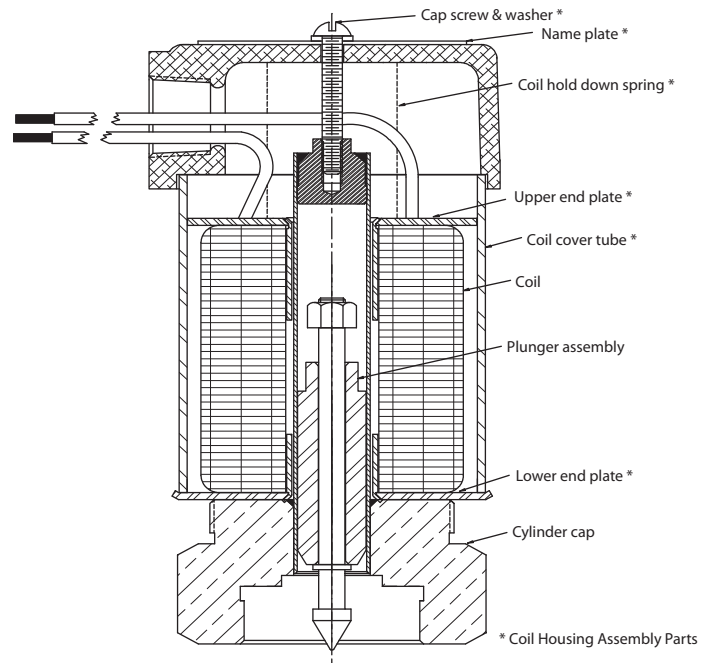
In the ATKOMATIC line, combination NEMA 7 or 9 and 4 enclosures combine the features of waterproof and explosion-proof housings and are intended for either indoor or outdoor usage. Additionally, the NEMA 4 housings meet the requirements of NEMA 2 and 3 that provide lesser degrees of protection from water.

All electrical connections are ½" NPT

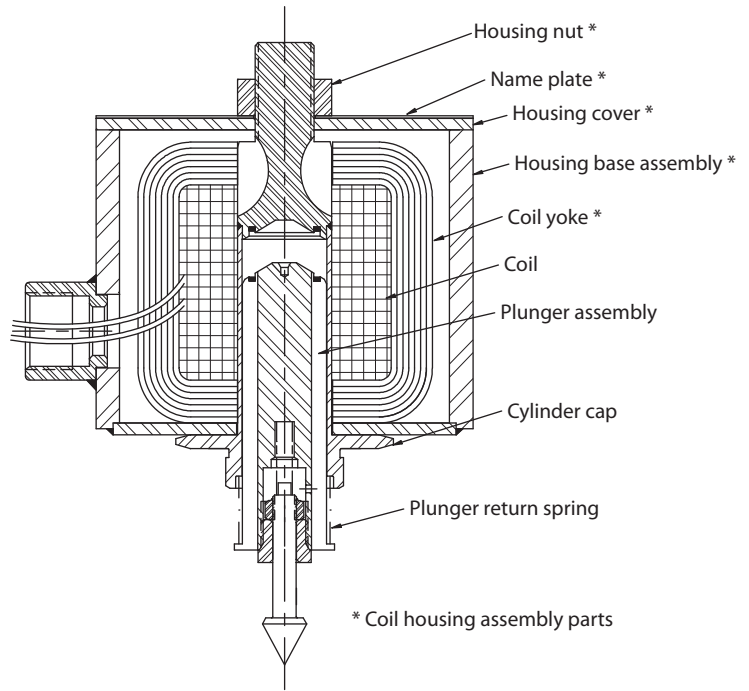
Note: Plungers, coils, and cylinder caps are not considered to be part of coil housing subassemblies, but are shown in some of the following cross sections.



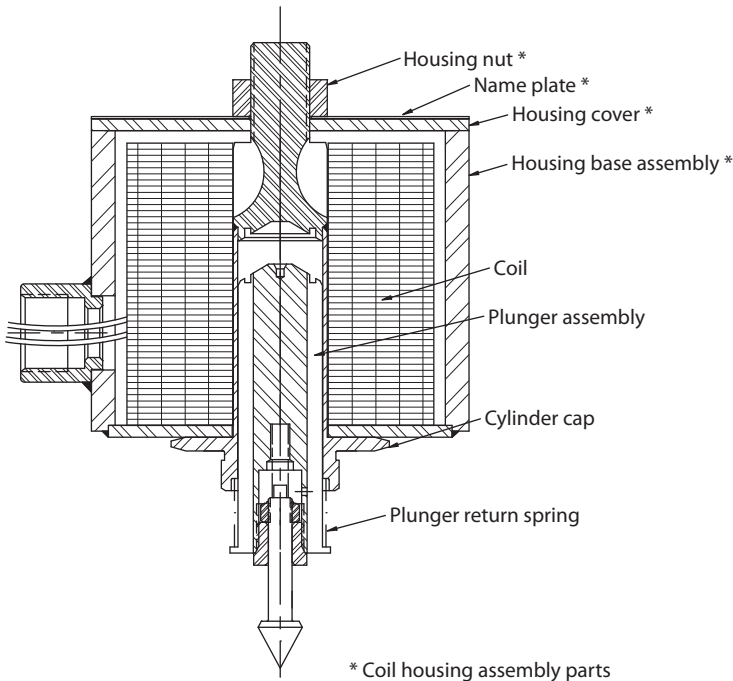
Standard NEMA 1 coil housing option for the following valve series: JJ, HS, and 500
(See page 17 for a cross section of the NEMA 1 housing used on normally open 500 Series valves)



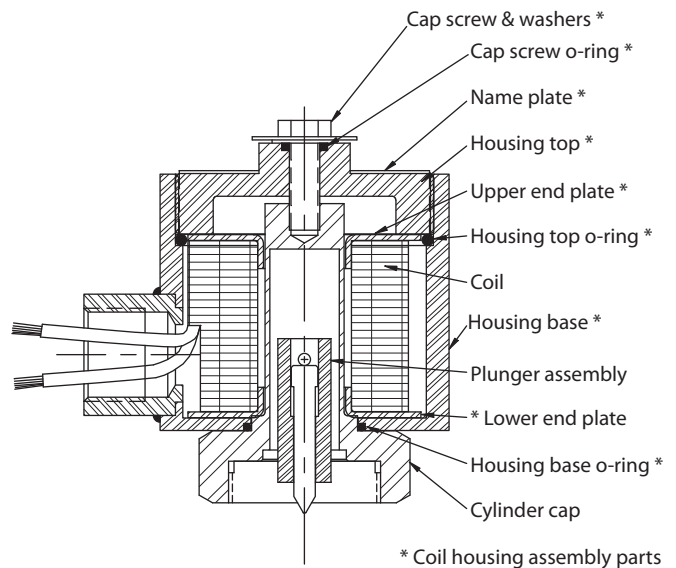
Standard NEMA 1 coil housing option for the following valve series:
2000, 3000, 4000, 5000, 6000, 7000, 8000, 15400, 15800, 16000



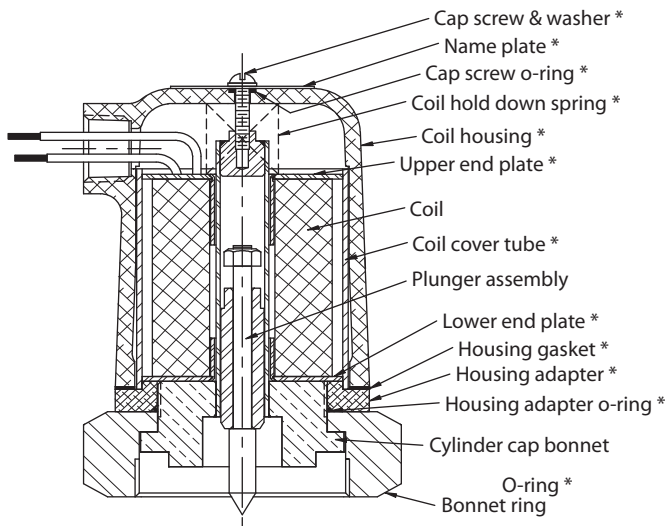
Shown with a AC coil
 Standard NEMA 1 coil housing option for the following valve series:
 13000, 30400, 30800, 35000, 40000, and 50000



Shown with a DC coil
 Standard NEMA 1 coil housing option for the following valve series:
 13000, 30400, 30800, 35000, 40000, and 50000



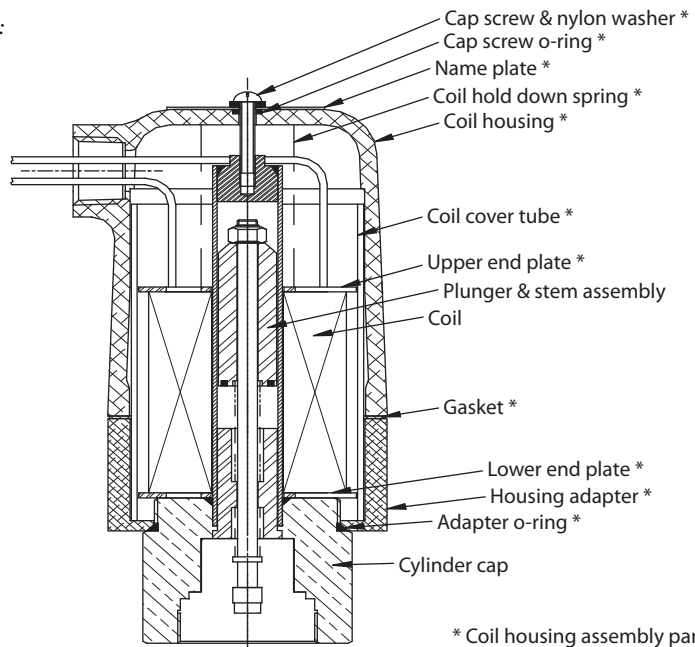
Waterproof NEMA 4 coil housing option for the 500 valve series
 (is standard on the 15-794 valve).



* Coil housing assembly parts

Waterproof NEMA 4 coil housing option for the following normally closed valve series:
2000, 3000, 4000, 5000, 6000, 7000, 8000, 15400, 15800, 16000

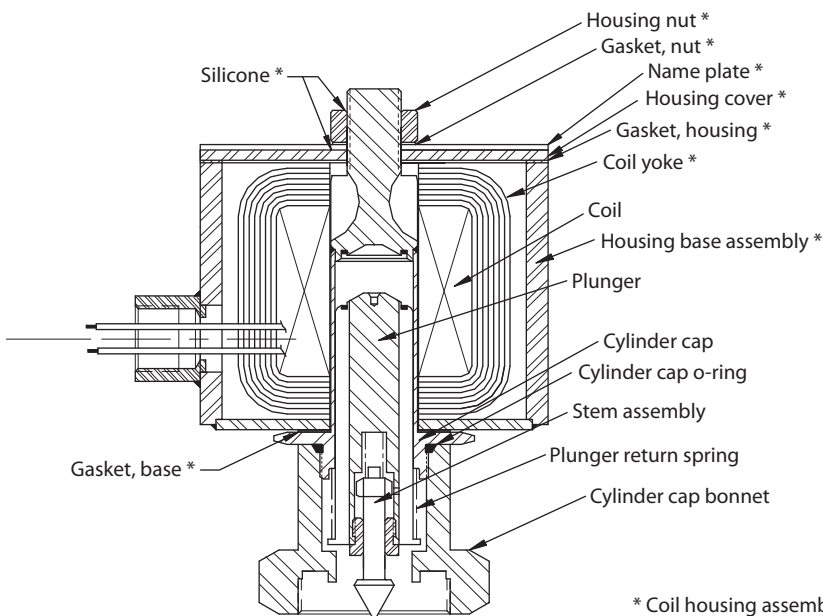
Note that there are some minor differences among housings used on these valves



* Coil housing assembly parts

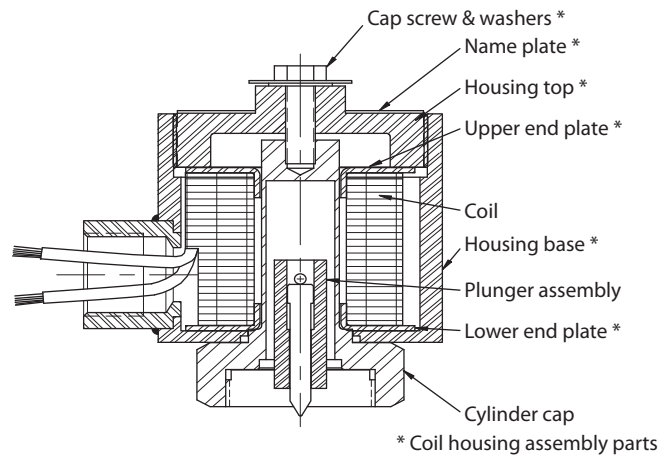
Waterproof NEMA 4 coil housing option for the following normally open valve series:
3001, 4001, 5001, 6001, 8001, 15401, 15801, 16001

Note that there are some minor differences among housings used on these valves



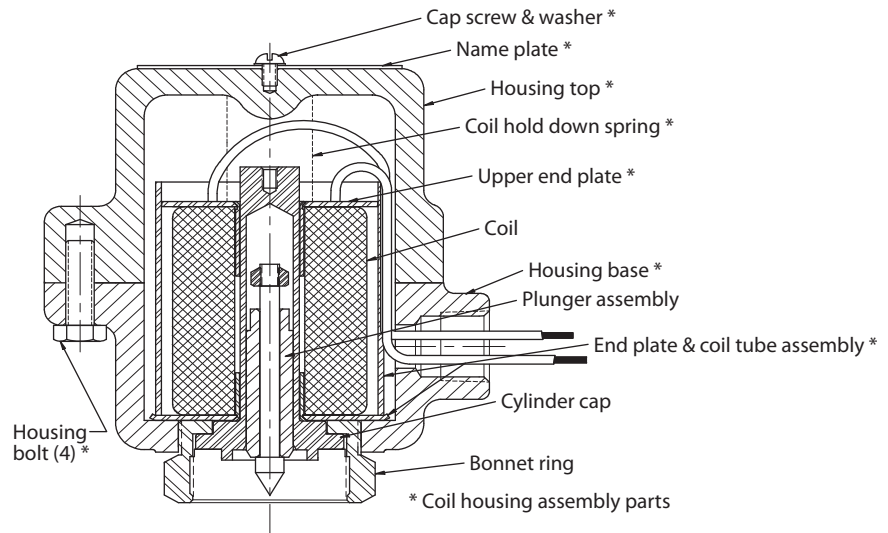
* Coil housing assembly parts

Waterproof NEMA 4 coil housing option for the following valve series:
13000, 30400, 30800, 35000, 40000, and 50000



* Coil housing assembly parts

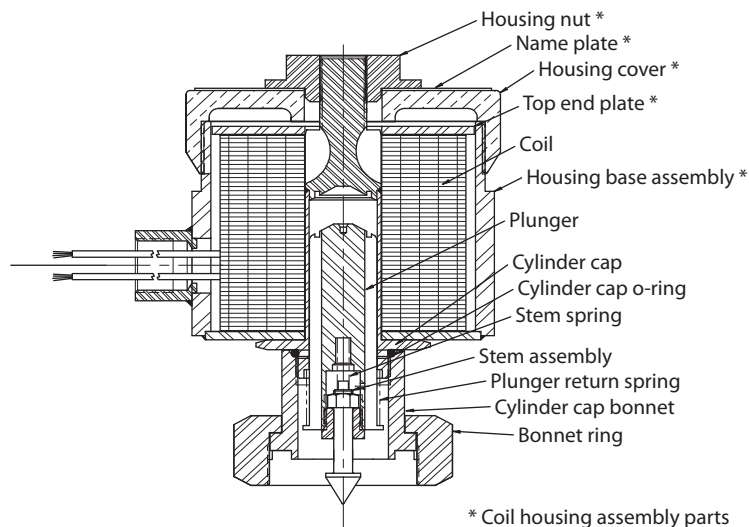
Explosion-proof NEMA 7 & 9 coil housing option for 500 valve series.



* Coil housing assembly parts

*Explosion-proof NEMA 7 & 9 coil housing option for the following valve series:
2000, 3000, 4000, 5000, 6000, 7000, 8000, 15400, 15800, 16000*

There are some differences among housings used on these valves. For instance, the 2000 Series housings do not use the 4 housing bolts and the housing top is threaded to the top of the cylinder cap. The cap screw & washer is also replaced with a nut that is threaded to the cylinder cap.



* Coil housing assembly parts

Explosion-proof NEMA 7 & 9 coil housing option (Shown with a DC coil) for the following valve series: 13000, 30400, 30800, 35000, 40000, and 50000

Note: These NEMA 7 housings are made into combination waterproof & explosion-proof NEMA 4 & 7 housings by the application of silicone sealant to the outside of the joints.

Coil Housings for Hazardous Locations

Explosion-proof coil housing on ATKOMATIC valves are NEMA 7 & 9 enclosures and meet the requirements for Division I, Class I, groups C & D.

The National Electrical Code defines various types of hazardous areas and classifies them by class, group, and division. The Code is maintained by the National Fire Protection Association and is recognized as the standard for electrical installations in the United States. Basically, class defines a distinction between types of explosive hazards in the atmosphere. Class I atmospheres contain hazardous vapors of volatile chemicals and class II atmospheres contain hazardous concentrations of dust or particulate that are potentially explosive. Each of these class designations is subdivided into groups that identify specific types of hazardous materials present. These are:

Class I group classifications:

Group A. Atmospheres containing acetylene

Group B. Atmospheres containing hydrogen or vapors of equivalent hazard such as butadiene, ethylene oxide, propylene oxide, and acrolein.

Group C. Atmospheres such as ethyl ether and ethylene.

Group D. Atmospheres such as acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methanol, methane, natural gas, naphtha, and propane.

Class II group classifications:

Group E. Atmospheres containing combustible metal dusts including aluminum, magnesium, and their alloys.

Group F. Atmospheres containing combustible carbonaceous dusts including carbon black, charcoal, and coal.

Group G. Atmospheres containing other combustible dusts including flour, grain, wood, or plastics.

Industrial facilities are divided into two Divisions as follows:

Division I. These are areas where any of the hazardous atmospheres as defined above are present in the normal operation. For solenoid enclosures, this requires a housing that meets the requirements of NEMA 7 or 9.

Division II. These are areas where either:

- 1 Where volatile and flammable liquids or gases are handled and processed but where the vapors are confined within closed containers or systems from which they can only escape in case of accidental rupture or breakdown.
- 2 Where ignitable concentrations of vapors are prevented by mechanical ventilation.

For solenoids, explosion-proof NEMA 7 or 9 enclosures are not required by the National Electric Code for these Division II locations.

The National Electrical Manufacturers Association (NEMA) defines physical requirements of solenoid enclosures for use in hazardous locations in NEMA standard # 250 (some of the requirements are in referenced Underwriters Laboratories standards ANSI/UL 698 or 1002).