SEMPRA ENERGY SOLUTIONS INSTALLATION INSTRUCTIONS FOR THE AUTOMATIC EARTHQUAKE GAS SHUT-OFF VALVE:

Models SE-075, SE-100, & SE-150*

Before installing a Sempra Energy Solutions Seismic Valve, please read the following information and instructions thoroughly.

The Sempra Energy Solutions Seismic Valve is a low-pressure earthquake-automatic gas shut-off valve. It is designed to stop gas flow through approved gas piping in the event of a seismic disturbance at the valve. The valve operates on a gravity/acceleration principle. When the accelerated force of oscillation is able to overcome the gravitational pull on the chrome steel ball, the ball then rocks off its precision-engineered pedestal and seals off gas flow at the valve outlet. The motion needed to trip the valve is approximate to the motion induced by a 5.4 Richter Scale earthquake.

CAPACITY CHART

For determining approximate values at selected natural gas pressures up to 25 PSIG at 60°F.
Capacity of 3/4", 1" and 1-1/2" Seismic Valves in 0.64 Specific Gravity Gas (scfh)

Pressure Drop	8" w.c.		1 psig		2 psig		10 psig		15 psig		20 psig		25 psig	
("w.c.)	3/4" & 1"	1 1/2"	3/4" & 1"	1 1/2"	3/4" & 1"	1 1/2"	3/4" & 1"	1 1/2"	3/4" & 1"	1 1/2"	3/4" & 1"	1 1/2"	3/4" & 1"	1 1/2"
0.1	173	652 (549)	177	673 (567)	183	694 (585)	223	844 (711)	244	926 (780)	264	1001 (843)	282	1071 (902)
0.5	388	1457 (1227)	397	1505 (1268)	409	1553 (1307)	498	1888 (1590)	546	2070 (1744)	590	2238 (1885)	631	2394 (2016)
0.8	490	1843 (1552)	502	1904 (1604)	518	1964 (1654)	630	2388 (2011)	690	2619 (2205)	746	2831 (2384)	798	3028 (2550)
	548	2061 (1735)	561	2129 (1793)	579	2196 (1849)	704	2670 (2249)	772	2928 (2466)	384	3165 (2665)	892	3385 (2851)
2			794	3011 (2535)	819	3105 (2615)	996	3776 (3180)	1092	4141 (3487)	1180	4476 (3769)	1262	4788 (4032)
3			972	3687 (3105)	1003	3803 (3203)	1219	4625 (3895)	1337	5072 (4271)	1445	5482 (4616)	1546	5864 (4938)
4			1123	4258 (3586)	1158	4391 (3698)	1408	5341 (4497)	1544	5856 (4932)	1669	6330 (5331)	1785	6771 (5702)
5			1255	4760 (4009)	1294	4910 (4134)	1574	5971 (5028)	1726	6547 (5514)	1866	7077 (5960)	1996	7570 (6375)

The flow capacity table was computed on the average Cv of 10. These readings apply to the 3/4", 1" and 1-1/2" valves. Capacities in parentheses represent flow for the angle-inlet configuration.

VALVE SPECIFICATIONS

Models	SE-075, SE-100, SE-150	
Nominal Pipe Sizes	3/4" IPS pipe, 1" IPS pipe, 1-1/2" IPS pipe	
Inlet/Outlet	3/4" female NPT threads, 1" female NPT threads, 1-1/2" female NPT threads	
Pressure Rating	0.10—25 PSI	
Operating Pressure	Maximum pressure 25 PSI, Max reset pressure 5 PSI**	
Approved Gases	Natural, Butane, Propane & manufactured fuel gas	
Temperature Rating	–10°F to 150°F	
Calibration	Seismic disturbance at valve of 5.4† or greater on the Richter Scale	
Flow Capacity	SE-075/SE-100	540,000 BTU per hour
	SE-150	1,220,000 BTU per hour

* 1-1/2" valves available mid-1999.

**Valve designed not to reset if inlet pressure is greater than 5 PSI so as not to damage gas piping or equipment within the structure being protected by the valve.

† This is approximately equivalent to a horizontal sinusoidal oscillation having a peak acceleration of 0.3G for a period of at least 0.4 seconds.

Sempra℠
Energy Solutions

Version A

IMPORTANT

Installation Information: Installation of the Sempra Energy Solutions Seismic Valve must be performed by a qualified gas service person (i.e., plumbing contractor or gas utility). Installation must be in compliance with all local codes or, in the absence of local codes, the latest edition of the National Fuel Gas Code ANSI Z223.1 and if applicable, the National Electrical Code ANSI/NSPA #70. The Sempra Energy Solutions Seismic Valve must be installed on rigidly mounted gas service piping systems and downstream of the gas pressure regulator. For maximum performance and reliability, the valve must have a single rigid brace incorporated in the installation. The valve must be installed at or near the designated structure to be protected, so the brace can be anchored to the structure or L.A. City-approved free-standing support. Valves are not recommended for installation on mobile homes.

Installation Instructions

1. Sempra Energy Solutions Seismic Valves must be installed on rigid gas piping of the same size as their inlet/outlet size (see table below), downstream of medium pressure regulation. **Do not** use reducers to install a valve that is smaller than the gas pipe onto which it is being installed. Installation must conform to the provisions in the Uniform Mechanical Code and/or the Uniform Plumbing Code.

2. The valve can be installed either on the gas utility (if allowed by law) or customer's side of the gas meter.

i) Gas company (or utility side) of the meter is defined as the piping between the pressure regulator and the bypass "T" on the outlet side of the meter. This type of installation **must** be performed by your local gas or utility agency, or contractors authorized by that agency.

ii) Customer side of the meter is defined as the piping after the bypass "T" on the outlet side of the meter. This type of installation should be performed by a qualified gas service person and may require a building permit.

3. Before closing the gas service meter: (1) inspect all gas appliances for proper operation and close burner valves; and (2) turn off gas at gas meter or on service supply line upstream of the intended installation of the Sempra Energy Solutions Seismic Valve.

4. Remove all packing material from the valve.

5. Note the intended direction of gas flow on the valve. This is indicated by the word "Inlet" stamped on the side. The inlet side should be located on the piping that leads back to the pressure regulator and the outlet should be on the side where piping leads to the structure. Also note the bubble level which marks the top of the valve. The Seismic Valve must be installed using the appropriate gas flow inlet and outlet threaded openings. The bubble level and view port must be at the top of the valve (facing upwards). The valve should be positioned so that the reset actuating screw is readily accessible.

6. Install the appropriate Sempra Energy Solutions valve by threading it into the equivalent size male gas service piping (see valve sizing table at right), checking for proper level by using the bubble level at the top of the valve. Use a wrench on the provided hex to tighten valve on gas piping. **Do not** use excessive force when tightening valve, so as not to damage bubble level and view port.

VALVE SIZING TABLE

Pipe Size	SE-Model	SE-Model Threads
3/4"	SE-075	3/4"
1"	SE-100	1"
1 1/2"	SE-150	1 1/2"

Do not attempt to tighten valve by inserting objects into valve outlet for leverage. This could damage the valve internally. Place pipe dope **only** on male threads of pipe fittings and not on female threads of valve. **Do not apply excessive pipe dope. Internal contamination of valve will void all warranties.**

7. The bubble in the level must be at least 75% within the bull's-eye.

8. The view port on the top of the valve next to the bubble level is used to determine if the valve is set or tripped. The valve is set if the chrome steel ball is visible through the view port. If the chrome steel ball is not visible, the valve must be reset. The view port may collect debris. Clean with wet rag as necessary. *See reset instructions.*

9. For maximum performance and reliability, seismic valves **must** have a single rigid brace incorporated in the installation. When installing the brace to the structure or approved free-standing support, **the bracing may not extend out more than 12" from structure to gas piping and no more than 2" from the clamp.** Clamp the brace to gas piping at either the inlet or outlet openings, as close to the valve as is practical. It should be no more than within 6" of the valve, preferably the first nipple below the valve. The bracing clamp attached to the nipple **must always** be the same size as the nipple. Drill the smallest possible hole for the bracing. The portion of the bracing attached to the structure is **always installed in the horizontal position.**

10. After installation of the valve and brace, complete the following procedures:

a) Reset valve: Insert 1/4" standard flathead screwdriver into the reset actuating screw and turn gently counter-clockwise until screw stops (1/5 turn). Hold reset screw in this position for 2 seconds and release. Look through the view port (open/close indicator) on the top lid of the valve to ensure that the chrome steel ball has reset. The top of the silver ball should be visible. If not, repeat procedure.

b) Turning on gas: If gas is closed at service riser below utility regulator, use a wrench to turn cock slowly in either direction (1/4 turn).

c) Leak test: Check valve and all new or disturbed gas fittings for leaks with a soapy water solution or with an approved leak detection device.

11. After determining there are no leaks in the gas piping system, re-light and service all gas appliances.

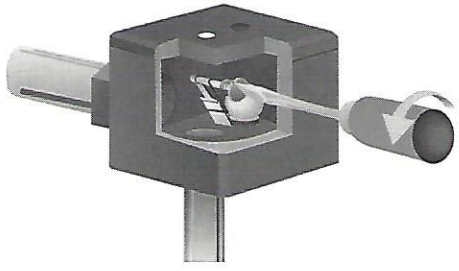
Resetting The Sempra Energy Solutions Seismic Valve After Tripping From An Earthquake

1. **Close all gas appliance burner valves and pilot cocks** (if so equipped).

2. Visually inspect all exposed gas service supply piping, plus rigid and flexible appliance connectors, for damage or stress. Isolate, replace or repair (as needed) all damaged parts prior to resetting valve.

3. Examine appliance vents for separation at the appliance, wall or ceiling. Make the necessary repairs or leave the appliance off. Repairs must be completed before using the appliance. If there is a leak that cannot be isolated, the gas supply should be left off.

4. **Resetting the valve**—Prior to resetting the valve, take a wrench and close the main gas valve to the gas meter. Insert a 1/4" standard flathead screwdriver into the reset actuating screw and gently turn counter-clockwise until the screw stops (1/5 turn). Hold the reset screw in this position for 2 seconds, then release. Look through the view port to verify that the chrome steel ball has reset.



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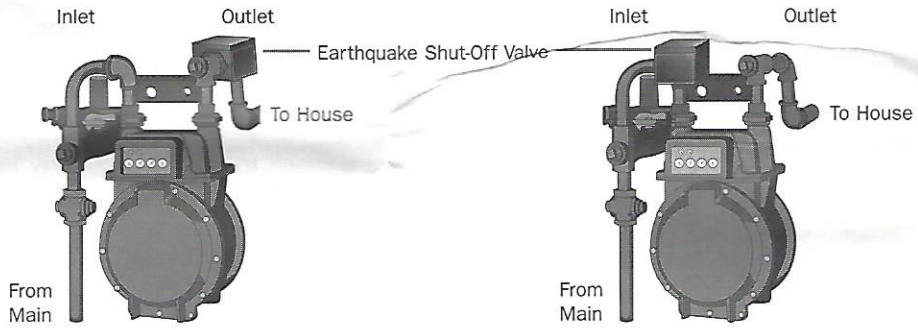
5. Checking meter registration—After resetting the seismic valve, slowly turn on the gas with the wrench at the main valve. Locate and observe the gas meter's smallest valve test dial (i.e. 1/2, 1 or 2 foot). Test dials are located on the front of the gas meter on the index below or above the recording dials. Observe the test hand for at least two minutes. If the test hand moves, recheck all appliances to see if a burner or pilot was not closed. If the test dial is still showing any movement after rechecking all appliances, soap the exposed appliance fittings (i.e., flexible connectors) to test for leaks. If a leak is discovered, make the necessary repairs. If the test dial hand is still moving and you are unable to locate, repair or isolate the leak, close gas at the meter. Call a qualified gas service agency to locate and repair leakage.

6. Restoring service—If no leakage is detected after observing the test dial for 2 minutes, begin re-lighting and servicing all gas appliances.

7. Detailed restore instructions—More detailed natural gas restore instructions with illustrations are available to Sempra Energy Solutions customers in Sempra Energy Solutions's manual, "The Safe Way To Restore Natural Gas Service At Your Home Or Business."

Illustrations of Typical Installation of Models SE Series Earthquake Valve



"CUSTOMER SIDE" INSTALLATION

TYPICAL "UTILITY SIDE" INSTALLATION

Maintenance of the Sempra Energy Solutions Automatic Earthquake Gas Shut-Off Valve.

Visually inspect the valve on an annual basis. This is to insure that the valve is level and hasn't been damaged. If the valve is found to be out of level (bubble is less than 75% within bull's eye) or appears damaged, the customer should call the installer or a qualified gas service person for repairs. The valve must be replaced if it is exposed to extreme elevated atmospheric temperatures resulting from fire, chemicals, etc.

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