

[2012]

STC Valve



[FREQUENTLY ASKED QUESTIONS]

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Technical Issues

I have mounted a pilot-operated valve in my system and it will not open. Is it broken?

- Assuming there is no debris in the system that may block the valve orifices, the likely problem is a lack of differential pressure in the system. We recommend using a zero differential or direct acting valve that does not require a differential pressure to operate.

My solenoid valve is not working. What could be wrong?

- Check the following:
 - The proper medium is being used.
 - The seal material is compatible with the medium.
 - The differential pressure is within the valve specifications.
 - The position of the valve is correct.
 - The coil input is correct (voltage, frequency, current match specs).
 - Is the coil burned out or disconnected?
 - The valve openings, the bleed and the pilot orifices, and the armature are not being impeded by debris.

My solenoid valve is making an unpleasant noise, what can I do to fix it?

- Check for dirt or debris in the armature tube. This can often lead to an unpleasant humming noise.
- Tighten the coil nut. Especially for AC coils, the cycling of the power source cause vibrations which may lead to a humming sound.
- If the solenoid valve is buzzing loudly, IMMEDIATELY DISCONNECT THE VALVE from the power source.
- This is often the result of an incorrect power supply and can result in serious bodily or system damage.

My solenoid valve is leaking, what should I do?

- Check the following:
 - The medium is compatible with the application of the valve.
 - The medium is compatible with the seal material of the valve.
 - The differential pressure is within the specifications of the valve.
 - The position of the valve is correct (specifically for the 2L series).
 - The power input matches the coil rating.

- The coil is operated effectively and is not burned out or disconnected.
- The valve orifices and the armature are not being blocked by debris.
- In the case of actuated ball valves, check that the torque bolts are consistently torqued, and that the top nut has been appropriately tightened.

Why does the solenoid valve not close?

- Valve Issues:
 - Check if there is dirt in the main orifice.
 - Check for outside damage (i.e. has the valve been dropped, which could bend the armature tube).
 - Check the inlet and outlet ports to make sure nothing is being blocked.
 - Check the bleed and pilot orifices in the diaphragm for debris or blockage.
 - Check if the diaphragm function is limited because of wear or swelling (e.g. EPDM seal exposed to oil).
- Coil Issues (Normally Open versions):
 - No voltage to coil.
 - Note: do not remove coil when voltage is being applied as it could easily burn out or cause bodily harm.
 - Measure the operating voltage at the coil to ensure that the coil is installed with the proper voltage source.
 - Permissible voltage variation is approximately $\pm 10\%$ of rated voltage.
 - If the coil is burnt out, it could be the result of an ambient temperature higher than the coil is rated for or moisture in the coil (i.e. the IP rating does not fit the application).

Why does the solenoid valve not open?

- Valve Issues:
 - Check if there is dirt in the main orifice.
 - Check for outside damage (i.e. has the valve been dropped, which could bend the armature tube).
 - Check the inlet and outlet ports to make sure nothing is being blocked.
 - Check the bleed and pilot orifices in the diaphragm for debris or blockage.
 - Check if the diaphragm function is limited because of wear or swelling (e.g. EPDM seal exposed to oil).
- Coil Issues:
 - No voltage on coil.
 - Lift coil slightly and note whether it offers resistance.

- Note: do not remove coil when voltage is being applied as it could easily burn out or cause bodily harm.
- Check relay contacts, lead connections, and fuses.
- Make sure that the coil is rated and installed properly.
- Permissible voltage variation is approximately $\pm 10\%$ of rated voltage.
- If the coil is burnt out, it could be the result of an ambient temperature higher than the coil is rated for or moisture in the coil (i.e. the IP rating does not fit the application).

Why is the solenoid valve humming?

- Solenoid valves can hum for several reasons, but the most common reasons are:
 - Dirt or wear in the actuator system.
 - Vibrations. Solenoid valves with AC coils will often hum as a result of the cycling of the AC current. Tightening the coil nut or positioning the valve in a different orientation often will reduce or eliminate the humming.

Why is the solenoid valve buzzing loudly?

- If the solenoid valve is buzzing loudly, IMMEDIATELY DISCONNECT THE VALVE from the power source.
- This is often the result of an incorrect power supply and can result in serious bodily harm or system damage.

Technical Definitions

What are the differences between direct acting, pilot-operated, and direct lift solenoid valves?

- Direct acting valves have an armature that acts directly on the valve orifice to control fluid flow and does not require a minimum pressure to operate.
- Direct-lift valves have an armature that acts directly on the valve diaphragm and the valve orifice to control fluid flow and does not need a differential pressure to operate.
- Pilot-operated valves have an armature that acts on a pilot orifice, which releases pressure and volume above the diaphragm, allowing the differential pressure of the fluid to open the valve and control fluid flow.

What does pilot-operated mean?

- Pilot-operated means that instead of the armature tube acting directly on the valve orifice (or directly on the valve diaphragm), the valve instead uses differential pressure to operate the valve. The differential pressure between the inlet and outlet ports lifts the diaphragm and allows fluid to pass through the valve.

What does “solenoid” mean?

- A solenoid is a loop of conducting wire, often wrapped around a metallic core, which produces a magnetic field when current passes through it. In valve applications, this magnetic field is used to actuate the armature and operate the valve.

What is a K_v or a C_v value?

- K_v and C_v values are an indication of the flow rate of a particular valve. These ratings are a measure of how much water is flowing through the valve at a particular pressure over a particular time integral.
- K_v is measured in $\frac{m^3}{hr}$ at a pressure of 1 bar.
- C_v is measured in $\frac{gallons}{minute}$ at a pressure of 1 psi.

What is the difference between direct acting and pilot-operated solenoid valves?

- Direct acting valves have an armature tube that acts directly on the main orifice to control the flow of fluid. Because of this, direct acting valves do not need a minimum pressure to operate.
- Pilot-operated valves have an armature that acts on a pilot orifice, which in turn operates the flow of fluid. Because of their particular configuration, pilot-operated valves need a minimum differential pressure to operate.

What is differential pressure?

- Differential pressure is the pressure loss over the solenoid valve, or in other words, the pressure difference between the inlet and outlet port.

What is water hammer?

- Water hammer is the result of high liquid velocity, high pressure, and high flow velocity through small pipes. If a valve closes too quickly, the momentum of the liquid is stopped abruptly and the result is a “hammering” sound as the water strikes crashes to a stop.

Product & Equipment Questions

Are STC solenoid valves suitable for vacuum use?

- Yes. All of our direct acting and direct lift process valves are suitable for vacuum use.

Can I get STC valves that are suitable for seawater?

- Yes. However, the amount of salt, oxygen concentration, and temperature of sea water varies greatly. Sea water is naturally corrosive and should not be used with brass valve bodies. Stainless steel or aluminum is a good choice for the valve body, although both

will be affected by the corrosive nature of seawater over time. An isolated valve, such as the STC 2T Series would be the best choice because the sea water does not come into contact with the armature.

Can I use STC solenoid valves with chlorine?

- Because of the extremely corrosive nature of chlorine, we recommend using a plastic valve. The 2T Series valve is compatible with chlorine, although for most applications we would recommend using PVC.

Can I use STC solenoid valves for steam applications?

- Yes. Both the 2L series and the 2LS series valves are compatible with steam at temperatures up to 180°C. We also offer several valves with an optional Viton seal that allows for use with lower temperature steam (up to 120°C).

Can STC solenoid valves operate by themselves, or do I need to buy additional equipment?

- All solenoid valves require electrical coils to function. Unless asked not to, STC solenoid valves are shipped with the appropriate coils installed. We offer many different coil options (12VDC, 24VDC, 24VAC, 110VAC, 220VAC) to meet specific application needs. Special explosion proof coils can also be provided (at additional cost) for several of our solenoid valve models.
- Other recommended additional equipment may include:
 - Wiring cable to connect the coil to a power source.
 - Check valve if the solenoid will experience back pressure.

Can STC supply a solenoid valve with the coil mounted?

- Unless otherwise noted, all STC solenoid valves come fully assembled with the specified coil.

Can I use the EPDM seal material for air?

- Yes, if you can assure that the air is free of oil and grease. Most air compressors are lubricated with grease, which will mix with the compressed air and damage the EPDM seal. In this case, STC recommends using an NBR or Viton seal.

Does STC offer a timer for solenoid valves?

- Yes. STC offers several timers for different applications:

- The 2W200C-T is designed to be used with air compressors. It can be programmed for an ON duration of 0.5-10 seconds and an OFF duration of 0.5-45 minutes.
- The 2W200C-T-D can be used with the 2W200C & 2W350C coils and can be programmed for an ON duration of 0.5-10 seconds and an OFF duration of 0.5-45 minutes.
- The 2W200C-T-(DH or DL) can be programmed for an ON duration of 1 second-99hours and an OFF duration of 1 second-99 hours.

Do you have solenoid valves for air compressors?

- Yes. With the proper seal, you can use any of our solenoid valves as long as they meet the needed specifications.

Do you offer steam valves?

- Yes. Both the 2L series and the 2LS series valves are compatible with steam at temperatures up to 180°C. We also offer several valves with an optional Viton seal that allows for use with lower temperature steam (up to 120°C).

If I already have a coil, what STC valves can I use it with?

- We do not recommend using coils other than STC coils that are specifically rated for the particular valve that is being used. Some other coils may function with our valves, but we do not recommend nor do we guarantee the performance of STC valves with non-STC coils.
- If the coil you have is an STC coil, you can use it for any STC valve which is rated for that particular coil. Please see our catalogue or the individual product specifications on our website to ensure the proper compatibility between a coil and a valve.

If I am using a solenoid valve for steam applications, and I need a higher flow rate, what should I choose?

- Our 2KS & 2KD angle seat valves would be a good choice for this application. These valves have high operating temperatures & pressures and a high flow rate. You will need to make sure your system has 65-120 psi compressed air to control the 2KS or 2KD valve.

If my system has back pressure, should I take any additional precautions?

- If your system has back pressure, we would advise that you install a check valve on the output side of the valve to ensure you will not have any problems. We do offer bi-directional valves, but the majority of STC valves are uni-directional and would require the installation of a check valve.

I need a solenoid valve for a machine for use in North America, do you have any?

- Yes. We have many valves with NPT connections and coils listed by both UL and CE.

I would like to install a valve in a closed system with Argon gas, which valve should I use?

- Depending on the flow and differential characteristics of the system, many STC valves will work for this application. Please consult the chemical compatibility chart on our website (under the Download section) to choose the proper seal.

What do I need to know to select the right product?

- The following information covers the basics of selecting the right product:
 - Application
 - Pressure
 - Temperature
 - Medium
 - Power source/connection

What type of seal material is appropriate for certain types of chemicals?

- STC offers a chemical reliability chart that can be found under the Download section of the website at: http://stcvalve.com/Download_Literature.htm
- Be sure to check the chemical compatibility of every wetted surface in the valve to ensure proper function of the valve.

Where can I find your data sheets?

- Our data sheets are located on our website under each particular product. Installation instructions are also located under the Download section of our website.

Which coil should I choose to get a Normally Open (NO) or Normally Closed (NC) valve?

- Whether a valve is NO or NC does not depend on the coil. The configuration is determined solely by the valve, and the correct coil will be included with your choice of valve.

Which media are STC solenoid valves suited for?

- STC manufactures valves with several combinations of body materials and seal types to suit most media. Please refer to our catalogue or the individual product specifications on our website to ensure the particular valve you are interested in is appropriate for the media you will be using it for.

- STC produces valves which can be used for a range of media including air, gas, liquid, steam, water, and in very particular cases corrosive fluids.

Which solenoid valve should I choose if I am not sure about the differential pressure of the application?

- If you are not sure about the differential pressure of your particular application, you should choose either a direct acting or a direct lift diaphragm valve, since both of these valves can operate with a differential pressure of 0.

Which solenoid valve should I choose for showers?

- You should choose a valve with an EPDM seal. Depending on your specific system needs, you can choose from direct acting, direct lift, or pilot-operated valves.

Which valves should I choose for an aggressive or corrosive fluid?

- The 2T series valve is a Teflon isolated diaphragm valve with a Viton seal that is appropriate for many aggressive or corrosive fluids. Depending on the fluid, several STC stainless steel valves may be appropriate as well.
- Please refer to the Chemical Compatibility chart on our website (under the Downloads section) to ensure that the valve material and seal material are compatible with the particular fluid you are interested in using.

Why does STC not offer solenoid valves in sizes greater than 2”?

- STC generally stocks valves in sizes up to 2”. However, depending on specifications and volume, we generally can custom-order or custom-manufacture valves in larger sizes.

Certification & Ratings Questions

Does STC supply valve coils for hazardous areas?

- Yes. STC can provide explosion proof coils and IP67 rated coils for many of our solenoid air valves.

Does STC offer valves with EN161 certification?

- No. EN161 is a specific gas approval and STC does not offer any valves that are EN161 certified.

Does STC offer products with ATEX certification (EEx)?

- Yes. We offer the option for an explosion proof coil with our solenoid air valves.

Do STC products comply with RoHS directive (Restriction of Hazardous Substances)?

- STC Filters, Regulators, and Lubricators (FRLs) are compliant with the RoHS directive. Many STC valves are also compliant, but some are not. Please check the specifications for the particular valve you are interested in on our website or call us at (650) 856-8833 to ask about a specific valve.

Is it possible to use STC solenoid valves on natural gas installations?

- Yes. However, many natural gas applications require special approval. You should check the rules regarding your natural gas application to ensure the safety of using a solenoid valve and whether or not special approval is required.

What IP ratings do the valves have?

- IP ratings apply to the cable plug which is fitted onto the solenoid coil. The majority of STC coils are rated IP65, but IP67 is also available for certain models upon request.
- The IP rating corresponds to the coil/plugs protection against mechanical and moisture penetration. The first number corresponds to mechanical penetration and the second number corresponds to moisture protection. A higher number indicates a greater amount of protection.

Company & Order Questions

Can I get quality control plans, process flowcharts, material specifications, and/or FMEA for STC products?

- No. This information is confidential and proprietary and will only be shared in extremely rare cases where it is necessary or required for STC to do so.

Can I review your stock online?

- Currently our stock levels are not available online. However, we are working on an updated website that will have built-in stock levels.

Can you deliver custom products?

- Yes. We do have the ability to create custom products for customers, depending on specifications, applications, and volume.

Can you send me the full STC catalogue?

- Absolutely. Please call us at (650) 856-8833 or email us at Sales@StcValve.com to request a catalogue and we will do our best to get you one quickly. You can also download the full STC catalogue from our website at: http://stcvalve.com/Download_Literature.htm

Do you have a complete catalogue showing all of your products?

- Yes. All of our products are listed on our website. You can download the full STC Catalogue from the website at this address: <http://stcvalve.com/STC-DOWNLOAD/STC%20CATALOG%202011%20S.pdf> or you can request a printed catalogue by calling STC at (650) 856-8833, or by emailing us at Sales@StcValve.com

Do you have local stock?

- Our warehouse and offices are located in California, but we have the ability to drop-ship from our factory in China if necessary.

Is it possible to place orders online?

- Yes. You can place orders online directly through our website at www.stcvalve.com

I placed an order online. Can you please check the delivery dates and inform me of the earliest possible delivery?

- When you place an online order with STC, we will send you a confirmation email with tracking information that you can use to check estimated delivery dates. STC offers several shipping options to meet most time deadlines.

Where can I find some technical information about your products?

- You can find technical information about our products either in print in our catalogue or on our website at www.stcvalve.com

Where can I find technical drawings of STC products?

- Technical drawings can be found in the STC product catalogue as well as on the STC website for each individual product. Not every product currently has available technical drawings, but the majority of our products do.

Where do I direct commercial or technical questions?

- Please call us at (650) 856-883 or email us at Sales@StcValve.com with any technical or commercial questions.

Which distribution channels does STC use?

- STC sells to distributors as well as end-users and Original Equipment Manufacturers (OEMs). STC also uses an online customer ordering system which can be accessed directly through our website.

Spare Parts & Repair Questions

Can I order only the upper part of a valve's housing as a spare part?

- No. Housing parts are not available as spare parts.

Do you have spare part kits for STC solenoid valves?

- No. If you have a specific need for a replacement part, please call us at (650) 856-8833 to discuss your options.

I need a spare part for my valve, can you provide that?

- STC does not provide spare parts for the majority of its valves. If it is a smaller, less expensive valve, replacing worn out parts is often not worth the trouble or the cost and we suggest replacing the valve entirely. However, if it is a large or expensive valve, we may be able to repair the worn out part or send you a replacement in specific situations. Please call us at (650) 856-8833 to discuss replacement options.

Product Testing & Configuration Questions

How can I connect a solenoid valve with a pressure/temperature switch?

- Simply connect the power cable through the pressure/temperature switch. If the switch is properly set-up, it will control the solenoid valve.

Can I install STC solenoid valves in a vertical orientation?

- Yes. With the exception of the 2L series, STC valves will operate in any configuration. However, orienting the valve with the coil vertical and the inlet/outlet ports horizontal will minimize the risk of debris blocking the valve orifices and will decrease wear on the armature.

Can I mount STC solenoid valves upside down or in a vertical system?

- Yes. With the exception of the 2L series valve, STC valves can be operated in any orientation. However, we recommend that you install valves with the coil upward whenever possible, as this will minimize the risk of debris collecting in the valve and will cause less wear on the actuator system and therefore a longer operating life.

Can I test if my solenoid valve is working properly without mounting it in a system?

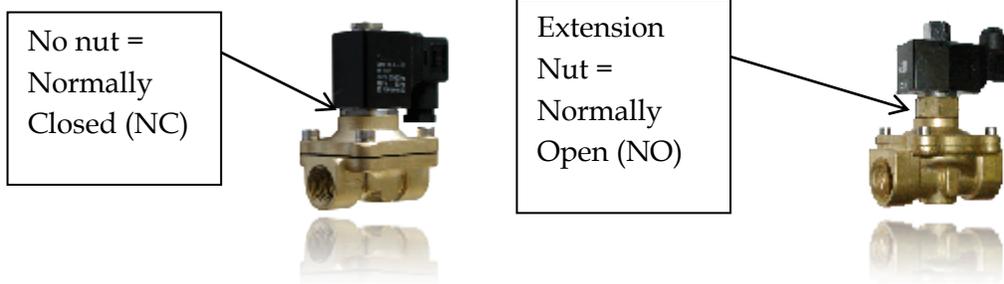
- Yes. Instead of using a coil, you can use a strong magnet to test whether the valve opens and closes properly.

Can I test the function of a solenoid valve by moving up and down the energized coil?

- No. Never take the coil off of the valve when it is energized. Doing so may lead to the coil burning out. In order to test the valve, de-energize the coil and remove it, then use a strong magnet to test the function of the valve.

How can I see if my valve is NO or NC?

- STC Normally Open (NO) valves have an large nut on the armature tube to extend the length of the armature tube. The nut will appear between the upper valve body and the coil, as shown below.



How do I tell if the coil is energized?

- The majority of STC Din housings for solenoid coils are transparent and have an LED indicator. If the LED indicator lights up, power is connected to the coil.

I have an STC NO valve. Is it possible to change this valve to a NC configuration?

- Yes. You can specify this when ordering many of our solenoid air valves and we will adjust the valve before shipping it to you. In certain circumstances, we can provide you with instructions on how to change the valve configuration yourself. Please call us at (650) 856-8833 if you would like to change the configuration of an existing STC solenoid air valve.

I would like to energize my solenoid valve for a short time with a controlled sequence - what should I do?

- STC offers several timers for different applications:
 - The 2W200C-T is designed to be used with air compressors. It can be programmed for an ON duration of 0.5-10 seconds and an OFF duration of 0.5-45 minutes.
 - The 2W200C-T-D can be used with the 2W200C & 2W350C coils and can be programmed for an ON duration of 0.5-10 seconds and an OFF duration of 0.5-45 minutes.
 - The 2W200C-T-(DH or DL) can be programmed for an ON duration of 1 second-99hours and an OFF duration of 1 second-99 hours.