Reverse Osmosis - Osmosi inversa - Troubleshooting - Eng

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L'osmosi és el procés físic a través del qual es fa passar aigua per una sèrie de filtres i una membrana semipermeable al amb l'objectiu de filtrar impureses com els microorganismes, metalls pesats, excés de sals, i altres tipus de substàncies tòxiques. El resultat final del procés és l'obtenció d'una aigua pura.

L'osmosi inversa és la inversió de l'osmosi per purificar aigua. Al revés de l'osmosi el flux s'inverteix aplicant una pressió oposada que superi la pressió osmòtica. Mitjançant l'osmosi inversa s'extreu l'aigua a força d'una solució concentrada, deixant enrere el solut (és a dir les impureses).

RO System Repair – Quick Check Table

ProblemCauseSolution

No or low water flow from faucet
Feed water valve closed
Open feed water valve

Water storage tank valve closed
Open water storage tank valve

Feed water pressure below 35-40 psi
Increase pressure in your home or install a pressure pump

Water storage tank over or underpressurized
Set pressure to 6-8 psi when tank is empty (or according to manufacturer specifications)

Membrane clogged/fouled
Replace membrane

Filter(s) clogged
Replace filter(s)

Tubing bent
Straighten all water lines

Empty storage tank
Let storage tank refill and consider buying a pressure pump to increase flow rate

Water running continuously down the drain
Shut-off valve broken
Replace shut-off valve

Check valve broken
Replace check valve

Feed water pressure below 35-40 psi
Increase pressure in your home or install a pressure pump

System installed improperly
Re-check the whole system

Flow restrictor worn out
Replace flow restrictor

Leaking air gap faucet
Drain line blocked
Clear off the drain line

Drain saddle shifted
Align drain saddle with drain hole

Leaking faucet
Loose fitting
Tighten fitting

Faucet stem leaking
Replace faucet

Water tastes or smells unpleasant
Depleted filters or membrane
Replace depleted components

Fouled membrane
Replace membrane

Stagnant water
Flush entire system once or twice

Milky water
New system or filters
Will subside over time

Noisy drain/air gap faucet
New system or filters
Will subside over time

Tubing bent
Straighten all water lines

Filter/membrane housing leaking
O-ring displaced
Check if O-ring is worn out and needs replacement

Housing cap loose
Retighten the cap

Housing damaged
Replace the housing

Fitting Leaking
Fitting connected improperly
Reconnect fitting

Fitting damaged
Replace fitting

No water goes down the drain
Clogged flow restrictor
Clean or replace flow restrictor

Troubleshooting Reverse Osmosis Systems – Common Problems
Usually, it’s really simple to troubleshoot the most common problems that people find with their RO system.

Slow Water Flow From Faucet
You had your RO system for a number of years, and like every other morning you want to fill a glass of water, but all of a

sudden the glass only fills half full and the water flow goes down to a trickle.

Little or no flow coming from the faucet means that you either have low volume of water or low pressure.

The problem is likely caused by a malfunctioning storage tank. Inside the tank is an air bladder that, as more water flows into the tank, increases pressure. If the bladder leaks or breaks, it cannot build up enough pressure, so you are not going to get water delivered to the faucet in the amount you are accustomed to.

To solve the problem, lift the tank to check if it's full. A full tank weighs somewhere around 20 lbs as opposed to an empty one, which ways around 1-2 lbs. If the tank feels full and heavy, the problem is probably inside of it.

Pressurize RO Tank
Here is what you need to do:

Shut off the cold water supply to the system.
Close the storage tank valve.
Disconnect the tank from the system and take it outside, so you can open the tank valve to drain out the water inside of it. In the beginning, the water will pour out, but after some time the flow will decrease to a trickle.
As a lot of water is still inside the tank, you have to pump air into the tank's pressure vessel using a bicycle pump or a compressor. With each pump, more water will pour out.
Once the tank is empty, take a pressure gauge to measure the pressure inside of it. It should read about 6-8 psi. If your tank's pressure is below, you need to carefully re-pressurize it, again using a pump or compressor.
When you are done, reconnect the tank to you RO system and open up the tank valve and the feed water valve, and let the system refill.

If the problem reoccurs a couple of days later, this means that the bladder inside the tank isn't holding the pressure. In that case, you need to replace the whole tank.

Slow faucet water flow can also be an indicator for overall low feed water pressure (below 40 psi). A booster pump is your best option then. And there are a couple of other reasons that can cause the issue:

Clogged filters/RO membrane – Membrane clogging usually occurs when a membrane has to process exceptionally hard water. You have two options here: You can either replace your system's RO membrane more frequently, which will add up to the maintenance costs, or you can additionally install a water softener in your home, which removes the hardness minerals from the water before it enters the filter system. If clogged filters are causing the low water flow, you need to replace them, too. This is especially true, if you have installed your RO system in a new home with temporary higher levels of debris and sediment in the plumbing system.
Bent tubing – Bent tubing also results in the reduction of pressure which in turn causes low water flow. You should check the tubing and straighten all water lines that are bent.

Water Running Continuously Down the Drain
Each RO system works on pressure. When the storage tank is full and has full pressure, it triggers the automatic shut-off valve to close down, which stops more water flowing into the system. It also stops more rejected water flowing down the drain line.

If the shut-off valve doesn't close properly or not at all, or the check valve is broken, water continuously runs down the drain line. This means that your reverse osmosis system is not only wasting a lot of water, it also makes noises, which can become quite annoying after a while.

The solution: Measure the pressure in the storage tank with a pressure gauge when the tank is full. You know if your tank is full by trying to lift it up. The pressure in the tank needs to be 35-40 psi. If it is, then either your shut-off valve or check valve is most likely defect and needs replacement.

Checking Valves: Test #1

Here is how you can test if both your automatic shut-off valve and check valve are functioning properly:

Draw about 20 oz. of water from the faucet to drop the pressure in the tank so your RO system will start processing some water to refill it.
Close the tank valve to mimic a full tank.
Wait for 5 minutes.
Check if water stops flowing down the drain line by either listening closely or pulling the drain line out of the drain saddle. If so, both valves are working as intended. If, however, water does continue to flow down the drain line, either the automatic shut-off valve or the check valve is broken. In that case, continue with test #2.

Checking Valves: Test #2

Let the tank refill and keep the tank valve open.
Turn off the feed water valve.
Check if water is still flowing down the drain line by either listening closely or pulling the drain line out of the drain saddle. If so, the water is coming out of the storage tank meaning that the check valve is broken and needs replacement. If no water is flowing, the system's automatic shut-off valve is broken and needs to be replaced.

Other causes for water running continuously down the drain line of your RO system are:

Feed water pressure is below 40 psi. If that's the case, increase the pressure to the required level by applying a pressure pump.
Your system wasn't properly installed and it's likely that the membrane causes the overflow. Therefore, take great care to fit all system parts in their correct positions. If you need help with your RO system installation, click here.
If the flow restrictor inside the drain line is worn out, it might cause the system to never stop running. Replace the restrictor.

Reverse Osmosis Air Gap Faucet Leaking
Is there water coming out of the hole of your air gap faucet above the sink? Then you are experiencing a very common issue called an 'air gap leak' that occurs when your drain line is blocked, which usually happens when debris, e.g. from food, accumulates in the drain.

The purpose of an air gap is to assure that drain water cannot flow backwards into your RO filter system. In normal operation water runs from the storage tank up to the faucet and falls through a small pocket of air called an 'air gap'. When the drain line starts clogging up, it creates back pressure, which causes water to flow out of the faucet and all over your sink.

All you have to do to fix the issue is clear off the drain line, so water is able to flow freely again. Take a pipe cleaner or wire brush to clean out the end of the drain line that is connected to the drain saddle, and also clean the drain saddle itself, because stuff tends to grow in there. Drain saddles also tend to shift so the holes aren't lined up anymore, which also restricts the water flow. So make sure to align the drain saddle with the drain line hole.

How Can You Prevent an Air Gap Leak?
Completely eliminating the chance for an occasional air gap leak is almost impossible, however, you can take the necessary precautions that reduce the frequency in which an air gap occurs significantly.

First of all, avoid rinsing large chunks of food or other stuff down the drain line.
Regularly treat your drain line with natural cleaner to dissolve possible blockades.

No Matter How Hard You Try, Sometimes You Have to Admit that Something Is Broken Beyond Repair. If You Need a Replacement, Find the Best RO SystemsHere.

Dripping or Leaking Faucet
A dripping faucet indicates that one or more system parts are loosely fitted. To stop the leaking, thoroughly tighten all fittings. Push the tubing further into their ports, valves, and drain saddle. If the leaking originates from the bottom of the

faucet stem, there is no way around replacing the piece.

Bad Taste and Odors
Nothing is more deterrent than water that tastes and smells unpleasant. And it might sound like a bad joke, but a handful of customers have reported that their supposedly high-quality water purification systems added a strange taste and/or odor to their drinking water instead of removing them. The only way you can prevent this from happening is to invest your money in a decent system that is up to today's standards.

It's also possible that after months or years of using your RO system, the filtered water starts to turn cloudy. This is usually caused by biofilm accumulation in the system's filter stages. Therefore, what you should do is replace any clogged filters or fouled membrane(s) immediately, and from there on replace these components on a more regular basis (every 6-12 months). Remember: If you let germs accumulate in your RO system, it can pose a serious threat to your health.

Investing in an RO system that allows you to dispose the filter together with the filter housing has proven to be the best way of preventing the accumulation of germs not only in your filter unit, but also in the water that flows through it. These kinds of systems are usually more expensive and filter replacements are also more costly.

In general, we recommend you to maintain your RO system periodically and to clean it according to the manufacturer's instructions. This also includes sanitizing the storage tank.

Unused Water
Over time bacteria starts to grow in stagnant water, which can be the source of bad taste and smell. If you haven't used your RO system for a while, it's a good idea to flush the entire system (and the storage tank in particular) once or twice before you restart using the water.

Noisy Air Gap Faucet or Drain
When you put your RO system into use for the first time, or just recently you've replaced one or more of the filter cartridges, the drain line may make some noises, which is nothing to worry about. It's caused by air being pushed out of the system. However, the issue is not supposed to persist for more than a couple of days or weeks at maximum.

If the noise doesn't subside and it bothers you, make sure that all tubing is set straight. The noise can also be caused by a restriction in the drain tube or drain saddle. So make sure that the problem doesn't originate from there.

If that doesn't help, it's time to check the entire system for gaps and correct any detected faults.

Leaking Filter or Membrane Housing
A worn-out rubber O-ring might be causing a leak in one of your system's filter housings. Follow these instructions to solve the issue:

Close the feed water valve so no more water can flow into the system.
Close the storage tank valve.
Unscrew the leaking filter housing.
Replace the O-ring if it looks worn out.
Also make sure that the O-ring is placed correctly.
Screw the filter housing back onto the system module and hand tighten it. Next use a housing wrench to carefully tighten the housing a bit more.
Open up the tank and feed water valves.
Check for leaks. If the filter housing is still leaking, it may be damaged and needs replacement. You can check if the housing is causing the problem by exchanging it with one of the system's other filter housings.

It's also quite common for a housing cap to come loose over time, which displaces the O-ring. Therefore you should periodically re-tighten it

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Reverse osmosis systems problems

Please note any problem you run into should be resolved as soon as possible. Ignoring an issue could only lead to bigger issues later on down the road.

To avoid panic and prevent you from making frantic calls, we familiarize you with some problems you are likely to encounter with your Reverse Osmosis system and their probable causes.

With that being said here are the most common reverse osmosis problems you will run into and how to fix them.

A Noisy Drain and/or Faucet

If you are using your reverse osmosis system for the first time, or you have recently had some of the filter cartridges replaced, there is a good chance the drain line will make a little noise.

This happens when air is being pushed out of the system. For the most part this is nothing to worry about.

However, if the noise continues after a day or two you may want to have a look around the system to make sure everything is properly hooked up.

Start by checking the tubing and making sure it is set straight. Look for any restrictions in the drain tube that could be interrupting the flow of water.

If you find that the system is still noisy you may need to check the entire system for gaps. If there are any faults be sure to have them corrected as soon as possible.

Slow or No Water Flow

Have you had your reverse osmosis system installed for a few years now? Have you enjoyed waking up every morning to a nice refreshing glass of water?

If so you would probably be devastated if you woke up one morning to find your beloved reverse osmosis system has a very slow water flow. In some cases there may be no water flow at all.

If you have little to no water flow it is usually the result of one of two things. Either the water pressure is low or the volume of water is low.

This type of problem is usually caused by a storage tank that has malfunctioned. The storage tank has an air bladder that increases the pressure when more water starts to flow into the tank.

If the bladder malfunctions due to a leak or break it won’t be able to build up enough pressure in the tank.

As a result you will experience slow or no water flow.

To solve this problem you will first need to check the tank to see if its full. If the tank is full it will weigh around 20 pounds. If the tank is empty it will weigh less than 2 pounds.

If the tank is full that usually means the problem is coming from the inside.

To fix it you will need to pressurize your RO tank.

Here is how to do it…

Step 1 – Start by shutting off the cold water supply to the system.

Step 2 – Make sure the storage tank valve is closed.

Step 3 – Disconnect the tank and take it outside. Once outside you will need to open the tank valve and drain out all the water.

When you first open the valve the water will start to pour out quickly. However, after a few minutes it will start to slow down and eventually become nothing more than a trickle.

Step 4 – Don’t be fooled by the trickle of water. There will still be quite a bit of water left inside the tank. To get it out you will need to use a bicycle pump or a compressor to pump air into the pressure vessel.

Every time you pump you will notice more water pouring from the tank.

Step 5 – Once all the water has been removed from the tank you will need to measure the pressure inside using a pressure gauge.

The gauge should read between 6 psi and 8 psi. If the pressure falls below that you will need to pressurize it again.

Step 6 – Once you are done pressurizing the tank you can reconnect it to the reverse osmosis system. Once reconnected refill the system by opening the tank valve and the feed water valve.

If after a few days you notice the water pressure falls again, this would mean the air bladder is malfunctioning and the whole tank will need to be replaced.

Slow water flow may also be a sign that the low feed water pressure is too low. This is usually caused by clogged filters in the membrane.

When the membrane is constantly being forced to process water that is exceptionally hard, this will lead to it becoming clogged up.

To fix this issue you can either replace the membrane more often or you can install a water softener to help remove certain minerals from the water before it goes through the filtration system.

If the low water flow is being caused by clogged filters then you will need to have them replaced as well.

Clogged filters tend to be more common in new homes where high levels of debris and sediment temporarily fill the plumbing system.

Slow water flow can also be a result of bent tubing. When tubing is bent the pressure in the tank gets reduced and the flow of water gets restricted.

Check the tubing and if any water lines are bent straighten them out immediately.

Water Continuously Runs Down The Drain

All reverse osmosis systems, including whole house reverse osmosis systems, work on pressure. Anytime the storage tank is full and there is full pressure the automatic shut off valve gets automatically triggered.

Once this happens water stops flowing into the system and rejected water stops flowing down the drain line.

If the shut off valve or check valve are not functioning properly water will continue to flow down the drain line.

As a result your reverse osmosis system will waste a ton of water and make a lot of noise.

To fix this issue there are two potential tests you will need to run. But first you will need to measure the pressure in the tank using a pressure gauge.

Make sure the tank is full before you try to measure the pressure. You will know its full when you try to lift it.

The pressure inside the tank should be between 35-40 psi. If the pressure falls within this range then that means either the shut off valve or the check valve need to be replaced.

Here are the two tests you can perform to see if the valves need to be replaced:

Test #1

This test will help you determine if the automatic shut off valve and check valve are functioning properly.

Step #1 – Lower the pressure in the tank by letting about 20 oz of water flow from the faucet. This will force the system to start processing water to refill the tank.

Step #2 – Mimic a full tank by closing the tank valve.

Step #3 – Give the system 5 minutes to process the water.

Step #4 – The fourth and final step is to check to see if the water has stopped flowing down the drain line.

You can do this by listening to what the system is doing, or by removing the drain line from the drain saddle.

If the water has stopped flowing that means the valves are functioning as they were designed to do so.

If on the other hand the water continues flowing down the drain, this means one of the valves is broken.

If the valves are broken continue on to the second test.

Test #2

Step #1 – Keep the tank valve open while the tank is refilling.

Step #2 – Turn off the feed water valve.

Step #3 – Check to see if water is still flowing down the drain line. Refer back to step 4 in the previous test to see how this is done.

If water is still flowing it means it's coming from the storage tank. This indicates the check valve is broken and needs to be replaced.

If no water is flowing that means the automatic shut off valve is no longer functioning properly and will need to be replaced.

3 More Reasons Water May Be Continuously Running Down The Drain Line

The feed water pressure can also affect the flow of water. If the feed water pressure is 40 psi or lower, use a pressure pump to increase the pressure to the right level.
Did you hire a professional installer or did you try to install the system yourself? Improper installation is one of the biggest reasons water will continue running down drain.

While we always recommend hiring a professional, we realize that's not always feasible. If you plan on installing it yourself make sure you take your time and carefully read through all instructions.

Make sure all system parts are in the right position before operating the system.

Over time the flow restrictor can wear down and cause the system to continue to run on a constant basis. To fix this issue simply replace the flow restrictor.

Dripping or Leaking Faucet

Have you noticed your faucet is dripping or leaking for no apparent reason? If so this may be a sign that some of the system parts aren't fitted properly.

Stopping the dripping and leaking is a simple as inspecting the machine and making sure all fittings are tightened.

Check the tubing to make sure it is pushed all the way into the ports, valves and drain saddle.

If you notice the leaking is coming from the bottom of the faucet stem, the only way to fix this is by replacing the piece.

Bad Taste and Odors In The Water

There is nothing worse than wanting a cold glass of water only to find the taste and odor are very unpleasant.

And while the purpose of a reverse osmosis system is to provide you and your family with pure drinking water, its not uncommon for this type of system to add a strange taste or odor to the water.

Unfortunately there is only one way to prevent this from happening and that is to be willing to invest in a good reverse osmosis system.

After using the system for several years it is very common for filtered water to start turning a bit cloudy.

Cloudy water is usually a result of biofilm accumulating in the various stages of filtration. The only way to get rid of biofilm is to immediately replace all clogged filters and any membranes that are fouled.

Once you have replaced the filters and the membranes make it a point to continue replacing them every 6 to 12 months.

By replacing these components on a regular basis you can prevent germs from accumulating in the reverse osmosis system.

To prevent germs from accumulating in both the filter unit and the water flowing through it, consider investing in a system that allows you to dispose of both the filter and the filter housing at the same time.

Please note these type systems are usually more expensive than regular systems. The maintenance costs will also be a little higher.

However, the extra cost will be well worth it being that you won’t have to worry about germs getting into your drinking water and causing potential health issues.

To extend the life of your unit and keep your family safe we recommend doing maintenance on the system a minimum of twice a year.

Make sure you clean it exactly as the manufacturer’s instructions tell you to.

Beware of Unused Water

Another source of bad tasting water or water that has an odor to it is unused water. If water is stagnant for an extended period of time bacteria will start to grow.

Anytime bacteria starts to grow that can affect the taste and smell of the water.

If your reverse osmosis system has been sitting idle for a while, take the time to flush the entire system, including the storage tank, two times before using it again.

This will ensure anything that has built up in the filters and tank will get flushed out.

Air Gap Faucet Leaking

Have you noticed water coming out of the hole of the air gap faucet? If so this is known as an air gap leak and it is very easy to fix.

An air gap leak happens when the drain line becomes blocked with debris that has accumulated in the drain.

The purpose of the air gap is to prevent drain water from flowing back into the reverse osmosis system.

During normal operation the water will flow from the storage tank up to the faucet. The water will then fall through a small pocket known as the “air gap”.

If the drain line starts to clog it will create back pressure. This back pressure will push the water through the faucet and it will get all over the sink.

While this may sound bad, fixing it is not as difficult as you may think. All you have to do is clear out the drain line so that water is no longer restricted and able to flow freely again.

This can be done using either a wire brush or a pipe cleaner. The end connected to the drain saddle is the end you want to clean.

You should also clean the drain saddle as stuff tends to grow inside of it as well.

Drain saddles are also known to shift during operation. If the saddle shifts that too can restrict the flow of water.

After you have cleaned the drain line take a few seconds to check the drain saddle. If it has shifted realign it so that the drain saddle is in line with the drain line hole.

Preventing an Air Gap Leak

While it’s impossible to completely eliminate the chances of an air gap leak happening, there are a few things you can do to ensure they don’t happen on a regular basis.

The first thing you can do is avoid throwing big chunks of food down the drain. This is probably one of the leading causes of clogged drains.

Instead of throwing food down the drain put it in a small plastic bag and throw it out with the trash. This extra step can prevent a lot of issues in the long run.

The second thing you should do is treat your drain line on a regular basis. All you need to do is pour a little natural cleaner down the drain and you will be good to go.

Doing so will help dissolve any potential blockades before they become a serious problem.

If you replace any filter cartridges the air gap faucet may make some noise for a day or two. This is very common and nothing to worry about.

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