Useful Info for CPAP Machine Users

by: The CPAP Shop
# Table of Contents

**Sleep Apnea**

Introduction ............................................................................................................. 3

**General CPAP Treatment**

Treating Sleep Apnea .............................................................................................. 4

Standard CPAP vs. Auto CPAP ............................................................................... 5

Common CPAP Side Effects .................................................................................... 7

Is Humidification Worth It? .................................................................................... 8

Benefits of Auto-Adjusting CPAP Machines .......................................................... 10

Common CPAP Problems & Solutions .................................................................. 11

**CPAP Machines**

ResMed Masks & Machines .................................................................................... 12


Traveling with Your CPAP Machine ....................................................................... 15

Style and Technology: ResMed S9 Auto CPAP Machine Has it All .................... 18

Is a Bi-Level Machine Right for You? ................................................................... 19

Bi-Level Machine Comparison Guide .................................................................... 21

Philips Respironics PR System One and Comfort Gel Mask – A Solid Pairing ...... 23
Introduction

Do you have trouble sleeping? Do you feel fatigued throughout the day? Does your partner complain that you snore? If so, you may suffer from sleep apnea, a common disorder that can adversely affect your health if not properly treated. Sleep apnea cuts off the ability to breathe, putting a person at risk for serious medical conditions including diabetes, high blood pressure, heart disease and stroke. Fortunately, the most common form of sleep apnea, obstructive sleep apnea (OSA), can be treated with continuous positive airway pressure (CPAP) therapy.

In addition to CPAP treatment prescribed by your doctor, certain lifestyle changes can alleviate your sleep apnea:

- **Quit Smoking**: This will open your airways and minimize throat irritation.

- **Lose Weight**: Excess fat in the neck area restricts the airway. Losing weight may be the single most important lifestyle change you can make, both for your overall health and for the treatment of sleep apnea. Losing weight can be extra difficult with sleep apnea, because fatigue hinders your ability to exercise. Talk to your doctor to create a safe, ideal diet and exercise weight loss plan.

- **Avoid Alcohol and Sedatives**: Alcohol and sedatives relax the muscles in the throat, worsening sleep apnea. Avoid drinking for at least four hours before going to sleep. Be sure your doctor knows that you have sleep apnea before prescribing any sedatives.

- **Sleep on Your Side/Stomach**: Many patients find that sleeping on their back triggers sleep apnea. Sleeping on your side or your stomach may improve your ability to breathe.

Along with these lifestyle changes, your doctor will likely recommend a CPAP machine and mask to wear during sleep. The CPAP machine will counter the negative effects of sleep apnea by sending positive airflow pressure through a CPAP mask to keep the air passages open during sleep. Although the pathway to successful sleep therapy treatment can be frustrating at times, CPAP treatment can dramatically improve your quality of everyday life.
Treating Sleep Apnea

Since CPAP machines and supplies are considered medical equipment, you will need a prescription from your doctor to purchase them. You should participate in a sleep study to determine your type of sleep apnea, and to decide on the best course of treatment. After getting a diagnosis and prescription, it is easy to purchase the necessary equipment to meet your needs.

In recent years, with more people being diagnosed, the technological advancements in CPAP machines have been substantial. The most advanced machines, such as ResMed’s S9 AutoSet, no longer deliver a constant pressure to the patient. Instead, the S9 AutoSet changes pressures with the breathing pattern of the patient. The device reads and reacts to the breathing of the patient on a breath-by-breath basis, eliminating the need to adjust settings. In addition, ResMed’s S9 AutoSet offers climate control, which automatically adjusts the humidity and temperature of the delivered air. This protects the patient from rainout (condensation collecting on the mask and tubing), and delivers optimum comfort during treatment.

ResMed S9 AutoSet CPAP Machine

CPAP machines are not the only supplies that have progressed over the years. CPAP masks come in a wide variety of styles, and have become more comfortable and easy to use. Finding a comfortable mask can be a daunting task, as there are many on the market. ResMed’s Mirage SoftGel Nasal Mask is a comfortable, easy-to-use model that improves patient compliance. There are two layers of gel cushions that offer high levels of comfort and stability. The cushion adapts to the contours of the face, and includes small vents that quietly diffuse air away from the user.

After adjusting to this new way of sleeping, most CPAP users experience a dramatic improvement in sleep quality. Therefore, it is highly beneficial to take time to adjust to the new lifestyle, as it can improve your overall health and wellbeing.
Standard CPAP vs. Auto CPAP

For sleep apnea sufferers, a CPAP machine can improve sleeping habits dramatically. After a sleep study and diagnosis by a doctor, a sleep apnea patient will receive a prescription for one of the following CPAP machines: a standard CPAP, auto adjusting CPAP or a bi-level machine. CPAP machines are at the forefront in sleep therapy treatment and the primary defense in the battle against sleep apnea. New, technologically advanced CPAP machines help patients get a good night’s sleep without causing frustration throughout the night. Machine sizes and noise levels have decreased dramatically. Newer machines also offer different air pressure treatments that allow the user to receive the necessary amount of airflow required for each apnea event.

Standard CPAP Machine

Standard CPAP machines provide a constant flow of air pressure throughout the entire sleep cycle. The machine generally starts at a comfortable breathing level, then ramp up to the required pressure within a specific timeframe. Even though this is a basic machine with few bells and whistles, it can have a dramatic impact on patients with sleep apnea. The standard CPAP machine is best for people who have a stable or unchanging pressure requirement. These also work well for people who don’t move much during sleep. Other patients, however, may require a more robust and technologically advanced machine that can adjust pressure levels.

Auto CPAP Machine

Everyone has unique sleeping habits and patterns throughout the night. The auto-adjusting CPAP machine automatically adjusts to compensate for light or heavy breathing, rolling over while sleeping and more. The APAP machine will provide the exact amount of pressure required to prevent the airway from collapsing during sleep.

ResMed S9 AutoSet CPAP Machine
Bi-level CPAP Machine

Bi-Level machines automatically adjust air pressure during both inhalation and exhalation. During inhalation, the pressure from the Bi-Level machine increases to open the airway passage. During the exhalation period, the air pressure reduces to allow for easier exhaling against the positive air pressure being delivered by the Bi-Level machine. Although the Bi-Level air pressure treatment can help many, it may not be the perfect solution for everyone. Some advanced Bi-Level machines are used for more complex disorders, or for ventilator support systems.

PR System One REMstar BiPAP Auto with Bi-Flex and Heated Humidifier

The Final Word

CPAP machines deliver positive airflow pressure to open airways, easing sleep apnea. Airflow pressure requirements vary, so patients should participate in a sleep study to determine what machine and settings will work best for them. Sleep apnea and snoring are best treated using positive airflow pressure, which helps to keep the airway open. The type of positive airflow pressure needed depends upon the results from a sleep study and a doctor's prescription. Companies such as Respironics, ResMed, Fisher & Paykel and Puritan Bennett produce a range of positive airflow pressure machines.

Common CPAP Side Effects

According to the National Sleep Foundation “Sleep in America Poll” released in March of 2010, roughly one third of Americans do not get enough sleep. The research was based on approximately 1,000 poll respondents, and analyzed by respondent ethnicity. According to the poll, blacks, whites and Hispanics were nearly twice as likely as Asians to suffer from sleep disorders. More than one third of all respondents said they used either over the counter or prescription sleep medications. All races suffered from sleep apnea.

Sleep apnea refers to a disruption of breathing while asleep. If left untreated, sleep apnea can be life threatening. However, most people with sleep apnea have never been diagnosed, or do not realize they suffer from its affects. One type of sleep apnea, obstructive sleep apnea (OSA), occurs when the throat muscles collapse during sleep, preventing air from getting to the lungs. Certain factors contribute to the occurrence of obstructive sleep apnea, such as excess weight, large tonsils or adenoids, a deviated
septum, an enlarged tongue, a receding chin, nasal congestion or blockage from a cold, allergies or smoking. Alcohol and sedatives also contribute to OSA, as they relax the throat muscles.

A second type of sleep apnea is called Central Sleep Apnea (CSA). In patients with CSA, the brain temporarily stops sending signals to the muscles that control breathing. CSA results from conditions that affect the brainstem, including stroke, obesity, bulbar poliomyelitis, encephalitis, Parkinson's disease, arthritis, radiation of the spine, and congestive heart failure.

The primary therapy recommended for both types of sleep apnea is a CPAP or Bi-Level machine. CPAP machines provide pressurized air through a mask while a person sleeps. Even though CPAP machines work very well to prevent sleep apnea, about half of all people who try CPAP therapy stop using CPAP because they feel the machines are uncomfortable and difficult to use. Fortunately, newer CPAP models provide more comfort and ease of use.

As with any treatment of a disease or disorder, the use of a CPAP machine to treat snoring or sleep apnea may produce side effects. However, the side effects of CPAP machines are typically mild, and far easier to deal with than the dangers of not using a CPAP machine.

8 Common CPAP Machine Side Effects:

- **Claustrophobia**: Having to wear a mask on your face every night can initially be uncomfortable. Start by using it for as long as you can, and gradually increase the length of time it is worn. Eventually, wearing it all night will get easier. Make sure that the mask is not too tight. A sleep technician should fit the mask for the first time. Use it while you're watching TV or doing work before bed for the first few days. This will help you get used to the feeling of not only the mask but also the sensation of the air pressure.

- **Stuffy Nose or Irritation**: The air released by the CPAP machine is generally very dry. This can cause nasal dryness and nosebleeds. Humidifiers are the best method to alleviate this discomfort, and some CPAP machines feature integrated humidifiers. If your machine does not, you may want to consider a stand-alone humidifier, or a new machine with an integrated humidifier.
• **Nose Breathing Difficulties:** Your nasal and throat passages must open to relieve sleep apnea and snoring. If you find it difficult to breathe through your nose, a [CPAP machine](#) may not be effective. An ear, nose and throat doctor can help diagnose any allergies or sinus issues that may be restricting your nasal passages.

• **Headaches and Head Pressure:** If you have a cold or flu, the blockage may cause pressure to build up. It may be necessary to suspend the use of your machine until the symptoms clear.

• **Sleep Loss Due to Noise:** Older machines tend to produce a humming or vibratory sound. If you have an old machine, keep it as far away from you as possible. If sleeping due to the noise is still an issue, upgrade to a newer model, or experiment with noise-cancelling headphones.

• **Bathroom Break Difficulties:** For nighttime bathroom breaks, do not remove the mask. Simply disconnect it from the tube or machine. Leaving the mask on should help you return to sleep sooner.

• **No Improvements:** If you experience no improvements with CPAP use, consider keeping a sleep diary. Keep track headaches, tiredness, feeling rested or if you’re consistently waking up at night (remember to track the hour). If your sleep apnea does not improve after a month or so, you should return to your doctor (and remember to take your diary with you).

• **Aerophagia:** If you find that you end up swallowing air when using a CPAP machine, try using only one pillow to flatten your sleeping position, or talk to your doctor about lowering the machine’s pressure.

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**Is Humidification Worth It?**

Humidification can help increase your comfort when using a CPAP machine, particularly during winter. Dry air reduces the amount of moisture flowing through your CPAP machine. Your nasal passages may dry out, resulting in bleeding, swelling, sneezing and congestion. Humidification, especially heated, can increase your CPAP satisfaction, comfort and compliance.

**Cold Passover Humidification**

Cold, or “passover,” humidification was the first type of humidification therapy introduced for CPAP. Air from the CPAP “passes over” a water chamber before entering the tubing, creating humidified air. This type of humidification works well for CPAP users who require lower pressure settings, and live in warm climates. This method, however, produces static, and may result in air too cold to tolerate for the entire sleep cycle. Given the difficulties with passover humidification, many CPAP patients have gravitated towards the new and more advanced heated, integrated CPAP systems.
Heated Humidification

Heated humidification has become the most popular type of humidification for CPAP patients. Based on several industry studies, satisfaction, comfort and compliance increase measurably with the use of heated humidification. To meet the needs of CPAP patients, the major manufacturers (ResMed, Respironics, DeVilbiss and Fisher & Paykel) have all introduced integrated heated humidification to their CPAP systems. Integrated heated CPAP systems have become popular because of their convenience, size and effective results. In fact, the use of heated humidification tends to reduce or eliminate most of the disadvantages of CPAP use, including dry mouth and throat and nasal congestion. The resulting outcome is a more effective treatment and a refreshed feeling upon awakening. Although the disadvantages of heated humidification include rainout, or water collecting in the tube and mask, it generally can be overcome by properly calibrating the machine and the room temperature.

Integrated CPAP Machines

ResMed, Respironics and Fisher & Paykel have advanced the integrated humidified CPAP system. ResMed’s S8 series new H4i delivers 30% more humidity than the previous model. It easily integrates into the CPAP machine, and remains compact for traveling. Fisher & Paykel’s ICON uses patented Ambient Tracking Plus technology, which utilizes an auto-adjusting heater plate to maximize humidity delivered. Respironics’ newest machine, the PR One system, analyzes ambient temperature, changing environmental conditions, relative humidity and therapy flow to deliver optimum humidity – and ultimate comfort – throughout the night, while also dramatically reducing rainout. Dry Box technology isolates the humidifier’s water source from the inner workings of the device to protect against accidental spillage and water damage.

ResMed S9 Elite With EPR and Heated Humidifier

The Final Word

No matter which CPAP machine you choose, the use of a heated humidifier can provide a more comfortable CPAP experience with fewer complications. This translates into a more refreshed awakening and higher quality of daily life.
Benefits of Auto-Adjusting CPAP Machines

Auto-adjusting CPAP machines (APAPs) are designed to automatically adjust the amount of pressure delivered on a breath-by-breath basis. The auto-adjusting CPAP can operate in a full CPAP machine mode to deliver a constant pressure when desired. These machines are typically software capable, or “smart” machines, which can help you and your doctor fine-tune your obstructive sleep apnea (OSA) therapy and monitor its effectiveness.

Proponents of the auto-adjusting CPAP machine suggest that the automatic pressure adjustments lead to more effective OSA therapy. The auto-adjusting process provides the minimum amount of pressure needed to decrease apnea and hypopnea events. By delivering just the right amount of pressure, APAP machines also help to reduce aerophagia, or the swallowing of air that can result in bloating.

Auto-adjusting CPAP machines are slightly more costly than a standard CPAP machine. However, patients often find it worth the cost to receive more optimized, effective treatment and fewer subsequent sleep studies.

PR System One REMstar Auto CPAP Machine

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I have a very old Puritan Bennett 425 Bipap...makes tons of noise. This Resmed VPAP Auto25 unit was a bit expensive but after the first night I knew I made the right decision. I did not get the heated humidifier, only because I spend the majority of the year in south Florida. This Resmed unit is very small and I can barely hear the soft noise when turned on. The auto function seems to work very good, as I feel much better when I wake up compared to my old bipap. It comes with standard cpap [read more]
Common CPAP Problems & Solutions

Using continuous positive airway pressure (CPAP) to treat obstructive sleep apnea (OSA) keeps air passages open, making breathing easier. However, a large percentage of people who purchase CPAP machines stop using them, despite the obvious benefits. Here are a few common problems patients experience while using these devices, and some simple solutions.

Stuffy Nose

- Spray a saline nasal spray in each nostril before using the CPAP machine. Purchase this spray at a drugstore, or make it yourself by measuring one-quarter teaspoon of salt into one cup of boiled or distilled water, and filling a clean nasal spray bottle or using a bulb syringe. You can also try using a nasal decongestant, but check with your doctor first.

- If your CPAP machine doesn't include a humidifier, consider switching to one that does. This will moisten the air, making breathing more comfortable.

- Make sure to clean the mask and tubing every day; it only takes a few minutes to use a Citrus mask wipe, Citrus Spray or a simple vinegar and water solution. Periodically wash the mask and tubing with soap and hot water, and use some rubbing alcohol to disinfect the tubing. Replace any leaky tubing.

Uncomfortable Pressure

- Never reduce the CPAP air pressure setting without first consulting your doctor! Reducing the air pressure in your CPAP device can potentially lower your oxygen intake and result in serious health issues.

- Acclimate yourself to the machine by using it while you're awake. You can set the “ramp” at a low level of pressure, and the device will automatically raise the air pressure at a gradual rate.

Sore Throat

- Breathing through your mouth can result in a sore throat. To help keep your mouth closed while sleeping, attach a chinstrap to your mask or get a full-face mask that covers your nose and mouth.

- Turn on the humidifier to keep the air moist.

- Make sure the filters in the CPAP are clean and dust-free. The machine most likely has both foam and ultra-fine filters, which should be checked regularly. Foam filters should be washed once per week and should be replaced after 6 months of use. Ultra-fine filters, however, cannot be reused, and need to be replaced every 2-4 weeks, depending on dust levels.
Filter Cover for S9 Series CPAP Machines

Air Leaks

- Adjust the straps on your mask to improve the fit. Make sure the mask is parallel to the face. Ideally, the mask should be snug enough to create a good seal without being overly tight.

- Regularly check the condition of both the mask and cushion. Purchase a new mask or new cushions every 3 to 6 months, or whenever needed due to wear and tear. An old cushion causes air leaks and forces the user to over-tighten the mask.

- Try a different type of mask or different nasal pillows; some masks will mold better to the shape of your face.

- Try sleeping on your back to prevent the mask from slipping.

- Chafing is caused by mask slippage or over-tightening. If you wake up with sore spots on your face, loosening the straps on the mask can alleviate the discomfort. Do not over-loosen, though!

- Use pads like Pad a Cheek to cover the straps, which will help prevent chafing and alleviate pressure points.

- Consider trying a different type of mask. Speak with a CPAP equipment provider about the problem, and they should help you find a solution.

ResMed Masks & Machines

Obstructive sleep apnea (OSA) differs from standard snoring in that the air passages in the throat completely close up, preventing the patient from breathing. While there is no definitive cure for OSA, positive airway pressure treatment can effectively control sleep apnea. Surgical procedures, weight loss and lowering alcohol intake can reduce the severity of mild obstructive sleep apnea. Positive pressure airway treatment, however, is perhaps the quickest, easiest and most effective treatment option.
ResMed is one of the leading designers and manufacturers of all types of sleep therapy equipment. They offer a full line of masks, including nasal, full-face and nasal pillows, as well as multiple types of CPAP machines.

**CPAP Masks**

CPAP therapy requires the use of a CPAP mask. The CPAP mask is one of the most important aspects of sleep therapy, and should be chosen for effectiveness, durability and comfort. The most common mask is a nasal mask that covers only the nose. ResMed makes a number of comfortable and effective nasal masks that suit many different facial structures—one of the most popular is the ResMed Softgel. The nasal mask should fit snugly and create a good seal on the face to prevent leakage.

A second type of mask is the full-face mask, which works particularly well for patients who breathe through their mouth while sleeping. Full-face masks form a seal over both the nose and mouth, and eliminate the need for a chinstrap. ResMed offers a few full-face masks for patients, the most popular being the Quattro FX. If you use a nasal mask and continue to snore, it may be a good idea to switch to a full-face mask.

The third type of mask is the nasal pillow mask. These masks, particularly the Swift FX, are particularly popular, because the minimal design creates few pressure points on the user’s face.


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**FF Quattro fx**

*Josh A (GA) - February 3rd 2011*

I don’t feel claustrophobic in this full face mask, thanks to the removal of the forehead piece. My previous mask was a nasal mask + a chinstrap. Now I can get a good night’s sleep again. This is a great full face mask!

**SoftGel**

*Brant (PA) - May 24th 2010*

I was having trouble finding a mask that wouldn’t leak while I slept on my side. This mask finally solved that problem. Nice and quiet too! Thank you to thecpapshop for your help.
CPAP Machines

Using a CPAP or APAP machine and mask should not hinder your lifestyle. A ResMed CPAP or APAP device may take time to get used to, but you should experience almost immediate improvements in your quality of life. ResMed designs their machines to be portable, and their machines can run on virtually any power supply. If you’re overseas, all you’ll need is a plug adapter. Most airlines have approved ResMed’s devices for use on international flights as long as you provide documentation from your doctor or sleep clinic.

CPAP treatment can result in some discomfort, such as nasal irritation. The cool, dry air may cause a runny nose or sneezing, but this normally subsides after a few days. If the problem persists, try attaching an integrated heated humidifier to add warmth and moisture to the air. If you have a CPAP machine and you begin using a humidifier, your doctor may need to adjust pressure levels. If you are using a ResMed APAP device, the pressure will automatically compensate for the humidifier.

ResMed H5i Heated Humidifier for S9 CPAP Series

Soothing

Zack T (CA) - January 12th 2010

I got my S-8 Escape through insurance, no humidifier. I was waking up with a sore nose in the winter-time. I finally broke down and bought this Humidifier. What a difference! I know I sleep better and no more sore nose. You don't even have to have it turned up! Great service, Guys. Shipped out the same day.

Thanks


The most recent CPAP machines pack new technology and features into devices about the size of a shoebox! The S9 platform includes the Escape, Elite and the AutoSet. Recent refinements in the popular ResMed S9 CPAP machines include:

- Auto differentiation between obstructive and central sleep apneas to ensure the user receives the correct amount of pressure. The system can switch from higher to lower pressure during exhalation, making breathing easier.
- Quietness in both the machine and the tubing.

- Built-in humidifier and temperature control to provide comfort without causing condensation in the mask or tubes.

- Heated tubing that delivers constant comfortable temperature to the mask.

- Patient compliance is the primary focus of S9’s data management systems. The S9 Series offers three ways to prove patient compliance; data on the device (via the Sleep Quality Indicator and Sleep Report), SD card (with detailed, high resolution data for every device) and modules (for direct and remote download).


**Traveling With Your CPAP Machine**

Manufacturers such as ResMed and Philips Respironics have made significant strides in meeting the demands of those who want to travel with their CPAP machines. Gone are the days when packing a CPAP machine and battery required another suitcase. Today’s CPAP machines are lean and lightweight; they’re not much bigger than an alarm clock and weigh just a few pounds. Although camping requires a battery, re-chargeable lithium batteries are lightweight and work for many hours (when not using a humidifier).

The ResMed S9 machine is one of the most popular and effective CPAP machines on the market, and its small size makes it a great travel companion. ResMed has recently certified the use of an inverter and converter, which are effective for using the S9 in situations without standard electricity. ResMed has done extensive testing, pairing both
the Tripp-Lite power inverter with the S9 line of CPAPs. It is the only certified inverter for all of ResMed’s CPAPs.

Connecting a Battery to a CPAP Device

Most converters and inverters come with a car cigarette lighter plug fitted to provide a connection to the car battery. They can be connected to an auxiliary battery via the cigarette lighter outlet of a car or 4WD vehicle. If you need to connect directly to the battery terminals (such as if you carry the battery away from the vehicle), you will need an adapter cable. Refer to the photograph below. This cable provides a more energy-efficient connection than using the car cigarette lighter socket, because it bypasses the car’s electrical system.

Inverters

There are several different types of inverters available. The most common types are pure sine wave or modified sine wave. The Tripp-Lite is a pure sine wave inverter, which produces the same output waveform as a domestic power outlet. In addition to the output waveform, inverters also carry a power rating. This indicates the amount of power the inverter can deliver; most inverters will have a continuous rating and a surge or peak rating. The continuous rating indicates the power level it is capable of delivering under sustained use without overload.

Converters

Unlike the inverter, the new ResMed converter allows you to plug directly into any cigarette lighter port. The ResMed DC/DC Converter 24V/90W allows you to operate an S9 device including an H5i and ClimateLine from a 12V or 24V DC power source in a car, boat, or other vehicle equipped with a suitable battery. Consult your equipment supplier for more information about this accessory.
Battery Basics

The type of batteries typically used to run CPAPs are lead-acid batteries. Not all batteries are created equal, and it’s important to understand the battery’s effective power, or Watt-hours. Other batteries used while operating a CPAP include automotive batteries, deep-cycle batteries, marine batteries and high-grade lithium ion batteries. All have different power ratings and CPAP run times. Choose a battery that works best for your type of trip; high-grade lithium ion batteries work well for most forms of travel, but if you’re going camping, consider using an automotive battery.

Setup and Use

As you can see from the picture above, it’s quite easy to hook up your CPAP machine to a battery. If connected properly, run times on the S9 Elite with a 45amp lead acid battery and a pressure setting of 10cm H2O would have an 8 hour run time. The S9 Auto CPAP with a 50 amp lead acid battery and a pressure setting of 10cm H2O also yields 8 hours of run time. Each would have to be used without a humidifier, as the humidifier draws significantly more power and runs the battery out quickly.

At The CPAP Shop, we performed an in house test on the setup pictured above, which includes the C-222 rechargeable lithium ion battery, the Tripp-Lite inverter and the ResMed S9 Auto machine (without humidifier). The S9 had a pressure setting of 10cm H2O and was run continuously. The battery operated the ResMed S9 Auto CPAP for over 18 hours. We highly recommend this setup for travelers.

The Final Word

Traveling with a CPAP machine has become much easier in the last few years. There’s no need to spend a night without your CPAP machine—having the proper equipment makes for a more enjoyable trip. It’s important to ask an expert about proper hook-ups and equipment so that the process will be smooth and seamless. Happy traveling!
Style and Technology:  
The ResMed S9 Auto CPAP Machine Has it All

Recent studies suggest that approximately one in every five adults suffers from sleep-disordered breathing (SDB). Many of these people (roughly 80%) go undiagnosed and never receive treatment. The negative impact on public health is profound, with sleep problems contributing to cardiovascular problems, high blood pressure, and increased relative risk of heart failure. These risks can be lessened with treatment from a CPAP machine.

ResMed’s AutoSet APAP (Automatic Positive Airway Pressure) devices are designed to regulate air pressure into the air passage to alleviate SDB and apnea symptoms. The devices provide the minimum pressure required at each point in time, greatly improving comfort and usability. Automated pressure provides better sleep and a 37% reduction in median treatment pressure when compared to a manual CPAP machine. In addition, the devices respond to varying needs for pressure on a breath-by-breath basis.

ResMed S9 AutoSet with H5i and ClimateLine heated tube

The ResMed S9 AutoSet device is the premium APAP device in the S9 series. The device provides an excellent combination of Automatic Positive Airway Pressure and Easy-Breathe Expiratory Relief Pressure to prevent the collapse of the upper airway during sleep. The enhanced AutoSet continually monitors breathing in order to provide the optimal therapy at the lowest, most comfortable pressure.

The S9 AutoSet also provides climate control, which adapts to your climate and adjusts accordingly, sending the optimal temperature and humidity right to the mask. The climate control also prevents rainout, or condensation that forms in the tubing, which greatly increases comfort and ease of use.

In addition, the ResMed S9 AutoSet is designed to be quiet; the Easy-Breathe motor and noise-minimizing materials reduce noise, resulting in a peaceful sleeping environment.
Finally, the S9 AutoSet provides compliance management. Both patients and clinicians can easily monitor the therapy, helping to address any problems. There are three ways to track patient compliance: data on the device via the Sleep Quality Indicator and Sleep Report, an SD card with high resolution data for every device, and modules for remote and direct download. The Sleep Quality Indicator allows patients to view a “snapshot” of their therapy, provides daily feedback and encouragement and identifies usage, leak and AHI information. The Sleep Report offers compliance and therapy data for up to 365 days, which includes average usage, used hours, days used, run hours and pressure.

**Is a Bi-Level Machine Right For You?**

CPAP users have probably heard the term Bi-Level, VPAP or BiPAP but are unclear about what it is and how it differs from a regular CPAP machine. Without getting too technical, there are a few key differences between a normal CPAP machine and the more complex BiPAP machine. As CPAP users are aware, a regular CPAP machine prevents apneas by delivering a constant stream of air through a tube and into a facemask. This constant pressure helps keep the airway open, and allows the user to breathe normally.

Although the BiPAP machine functions similarly to a regular CPAP for inhalation pressure (IPAP), it differs on the exhalation pressure (EPAP). On exhalation, the BiPAP machine delivers a pressure relief or drop to allow for patients to breathe more closely to their normal breathing pattern. This exhalation pressure relief is especially noticeable for patients with prescribed pressures of 15cm or higher, as it allows them to exhale without fighting against a strong, constant pressure. The difference between the IPAP and EPAP or pressure support must be determined by a sleep study, and it has no limits. In fact, the EPAP pressure of a BiPAP can reduce to the machine’s lowest setting of 4cm. This function provides a more comfortable CPAP experience and, thus, a higher compliance rate.

A more advanced device, a BiPAP ST machine, provides Spontaneous/Timed (S/T) therapy. This machine allows for the patient to breathe at their normal, pre-set respiratory rate. If the patient experiences an apnea, or their breathing falls below the set rate, the device maintains the patient’s ventilation with a timed breath. The BiPAP ST device will actually initiate a breath during therapy, which allows the patient to receive a minimum number of breaths per minute. Even more complex machines actually calculate ventilation and BiPAP pressure automatically.

All major CPAP machine manufacturers offer bi-level machines that provide the pressure relief function. Any type of CPAP nasal, full-face or nasal pillow mask will function with a bi-level machine. CPAP compliance is directly associated with comfort levels, so it is important to consult with your doctor to find the best fit for both mask and machine.

At The CPAP Shop, we are impressed with is the new ResMed S9 VPAP Auto Bi-Level. The main objective of this remarkably compact machine is to deliver effective therapy as naturally and comfortably as possible. This Bi-Level features ResMed’s new comfort technology, and offers maximum clinical control to help meet the unique needs of even the most difficult bi-level patients. The VPAP Auto’s VAuto mode combines with Easy-Breathe pressure delivery to synchronize with the patient’s normal respiration, making
breathing feel more natural and comfortable. Additionally, the device features enhanced Vsync™ technology, which compensates for leaks to provide excellent patient–ventilator synchrony, as well as TiControl™ (Ti Max/Min) to accommodate individual respiratory conditions.

With ResMed’s clinically proven AutoSet algorithm, the S9 VPAP Auto detects flow limitation and acts preemptively to prevent apneas and snoring events. The H5i™ heated humidifier offers advanced humidification with Climate Control, which automatically maintains temperature and humidity levels as conditions change throughout the night (and from season to season). ResMed’s patented ClimateLine™ tubing delivers a constant, comfortable temperature, and helps to substantially reduce rainout.

Philips Respironics has also designed a Bi-Level machine, which automatically adjusts to the patient’s breathing cycles. The System One Auto BiPAP includes all of the great features you expect from a sleep therapy system, including a wide pressure range (4-25cm), patient adjustable ramp, automatic altitude adjustment, data card, the latest BiFlex comfort technologies and a universal power supply. In addition, the BiPAP AUTO is an auto-adjusting bi-level system, so it will adjust your inhalation and expiration levels throughout the night to ensure that you receive optimum pressure for the most comfortable and successful sleep experience. The BiPAP AUTO features resistance control technologies that adjust to different mask styles, and advanced therapy tracking capabilities, including advanced event detection, response and reporting.
The CPAP Shop is pleased to offer the following BiPAP machines:

- PR System One REMstar BiPAP Pro with Heated Humidifier
- PR System One REMstar BiPAP Auto with Bi-Flex and Heated Humidifier
- PR System One REMstar BiPAP ST Machine with Heated Humidifier
- Respironics BiPAP AutoSV Advanced with Humidifier
- ResMed S9 VPAP™ Auto Bi-Level
- DeVibiss IntelliPAP Bi-level S with Heated Humidifier

**BiPAP Machine Comparison Guide**

If your doctor recently diagnosed you with sleep apnea, the good news is that technology has advanced significantly in the past few years. The bad news is that BiPAP machines are generally more expensive than standard CPAP machines. The following information is a comparison guide for the Philips Respironics PR System One Auto BiPAP and the DeVibiss IntelliPAP Bi-level S.

**A Brief Summary of BiPAP Machines/VPAP Machines/Bi-level Machines:**

Although BiPAP/VPAP or Bi-level machines function similarly to CPAPs during inhalation (IPAP), they differ on the exhalation pressure (EPAP). BiPAP machines deliver a pressure relief or drop during exhalation that allows patients to breathe closer to their normal breathing pattern. BiPAP machines work especially well for patients who require higher than average pressure (typically 15cm and up), because the machine allows them to exhale without struggling against that strong, constant pressure.

The differential between the IPAP and EPAP pressures or pressure support must be determined by a sleep study. The EPAP pressure of a BiPAP machine can reduce to the machine’s lowest setting of 4cm, while the IPAP can be 15cm or higher. BiPAP machines are particularly helpful for patients with lung disease, and those with excessive levels of carbon dioxide. This function provides for a more comfortable CPAP experience.

**3 BiPAP Machine Modes:**

**Spontaneous** – Switches between inspiratory and expiratory as the BiPAP machine senses the change in breathing.

**Timed** – Switches between inspiratory and expiratory at a programmed rate to maintain the prescribed breaths per minute.

**Spontaneous/Timed (ST)** – Switches as it senses the change in breathing. Timed mode functions as a failsafe to maintain breaths per minute.
DeVilbiss IntelliPAP Bi-Level S vs. Philips Respironics PR One Auto

DeVilbiss IntelliPAP Bi-level S with Heated Humidifier, PR System One REMstar Auto BiPAP with Heated Humidifier

Because the Respironics PR System One BiPAP Pro and the DeVilbiss IntelliPAP Bi-level S are spontaneous BiPAP machines, they share a few similarities. Each BiPAP sleep therapy system has wide pressure ranges (PR one 4-25cm, IntelliPAP 3-25cm). Additionally, the IPAP and EPAP differential can be as great as 22cm. Both can be operated in either the standard BiPAP or CPAP mode. As is typical with BiPAP machines, ramps are adjustable, altitude adjustment is automatic and each includes optional integrated heated humidifiers.

The DeVilbiss IntelliPAP is shaped like a cube, while the PR One BiPAP Pro is rectangular—both are compact, and fit easily on a night table or into carry-on luggage. The DeVilbiss IntelliPAP BiPAP machine weighs 4.45lbs including the humidifier, and has dimensions of 6.5” x 8.4” x 6.4”. The PR One Pro BiPAP machine weighs 4.85lbs, including humidifier, and has dimensions of 7” x 10.75” x 4”.

Functionally, both the PR System One BiPAP Pro and the IntelliPAP Bi-level S BiPAP machines detect the most important aspects of BiPAP sleep therapy including apnea and hypopnea events, leak detection and compensation, breath rate and other respiratory events. Additionally, each system can track sleep therapy diagnostics.

Advanced Technology

This is where the BiPAP machines begin to differ, and the superior technology of Philips Respironics shines through. The DeVilbiss IntelliPAP algorithm includes a function called “Flow-Rounding.” Essentially, Flow-Rounding technology is a scalable setting that softens the transition from inhalation to exhalation (IPAP to EPAP). This technology is especially important when there’s a significant difference between the IPAP and EPAP settings.

The Philips Respironics PR System One BiPAP machine utilizes similar technology called “Bi-Flex.” Bi-Flex technology offers pressure relief at inhalation and exhalation to make BiPAP machine therapy more like natural breathing. By tracking each breath, Bi-Flex delivers pressure relief at three critical points in the breathing cycle: the transition from exhalation to inhalation, inhalation to exhalation, and during exhalation.
PR System One Resistance Control allows the device to work with a variety of masks, and still provide optimal performance. This technology instructs the device to compensate for variable resistance characteristics related to different masks. The result is synchronous pressure delivery, and the assurance patients can use any mask they choose.

Finally, the PR System One BiPAP machine addresses advanced sleep assessment parameters, including AHI, large leak, flow limitation and RERAs that help determine appropriate clinical management of obstructive sleep apnea (OSA). Another advancement is the PR System One’s ability to point out when the patient experiences symptoms beyond classic OSA. The device can indicate the need for specialized therapy.

The Final Word

BiPAP machines share similarities, but also vary technologically. Not everyone requires the most advanced BiPAP machine! Consult with your doctor or CPAP supplier to find the machine with the best value that suits your needs.

Philips Respironics PR System One and Comfort Gel Mask – A Solid Pairing

If you suffer from obstructive sleep apnea, your doctor will most likely prescribe a CPAP machine and CPAP mask. While lifestyle and diet changes may improve your sleep apnea symptoms, CPAP machines can provide immediate, effective treatment. Finding a comfortable, correctly sized CPAP mask is a critical part of effective CPAP treatment.

The Philips Respironics ComfortGel Blue is an improvement over previous models of the ComfortGel series. The Philips Respironics CPAP mask reduces pressure points, minimizes noise and redirects exhalation airflow away from your bed partner, making the mask convenient both for you and your significant other. The soft, latex-free blue gel in the mask contours to facial features, while the premium headgear is easy to use and provides a proper seal. The increased comfort of the ComfortGel Blue ensures patient compliance, which increases the effectiveness of CPAP treatment.

ComfortGel Blue Nasal CPAP Mask with Headgear
In addition to finding the right mask, determining the optimal CPAP machine can be overwhelming. The Philips Respironics PR System One device utilizes advanced intelligence to provide optimum care and patient management. As opposed to older machines that are set to a single constant air pressure, the PR System One device uses smart technology that delivers constantly changing airflow that is designed to fit your needs. With the PR System One working in with your mask through the use of simple settings, the technology instructs the machine to compensate for the resistance of your particular mask. By using advanced humidity control technology, the PR System One device can compensate for ever-changing environmental conditions. By analyzing ambient temperature, relative humidity and patient flow, the device delivers optimum humidity – and ultimate comfort – to the patient while also dramatically reducing rainout.

PR System One REMstar Auto CPAP Machine

The Philips Respironics CPAP System One device also includes an advanced detection system that allows patients to make more informed decisions by monitoring apnea-hypopnea index (AHI), large leak, flow limitation, and respiratory effort-related arousals (RERAs). This ensures that the patient can determine appropriate clinical management. The most important advancement, however, is the device’s ability to point out when a patient experiences symptoms beyond classic OSA. With a system that can immediately identify clear airway apneas and periodic breathing, the device can indicate the need for specialized therapy.

The Final Word

Finding the correct mask and machine can improve your sleep therapy and overall quality of life. With the Philips Respironics ComfortGel Blue mask and System One Auto CPAP device, patients are guaranteed comfort and results.
Thanks for Reading!

If you have additional questions, do not hesitate to contact us at www.TheCPAPShop.com, or call us toll-free at 866-414-9700. If you are in the tri-state area of Pennsylvania, New Jersey or Delaware, please stop into our location in Voorhees, NJ. We work with patients from every corner of the US, and are always interested in speaking to CPAP patients. Thanks to all our customers for their support! We look forward to helping our new customers get the rest they deserve. For more CPAP info, feel free to browse these links:

http://www.awake.truckersforacause.com

http://www.apneasupport.org/

http://www.users.cloud9.net/~thorpy/

http://www.sleepresearchsociety.org/

http://www.sleepeducation.com/CPAPCentral/

http://www.sleepapnea.org/index.html

http://www.sleepapnea.org/awake/aboutgroups.html

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