

Charging your air rifle

Pre-charged air rifles require a supply of clean compressed air. This can be obtained in 2 ways, from a stirrup pump or a divers scuba tank.

Stirrup pumps

Are like an oversized bicycle pump that require significant physical effort. They are not cheap and do not clean the air very effectively. One thing that will kill an air rifle faster than anything is dirt or moisture getting into it's air cylinder. On the plus side you will be self contained and do not have to go to a dive shop. In general SBFTC does not recommend stirrup pumps, mainly because we're lazy, but even the new Hills pump does not filter air to the same level as a dive shop and some moisture and dust will get into your rifle. A good pump costs about the same as a 3ltr bottle so there's no real benefit apart from the ongoing cost of air in a bottle.



Scuba tanks



Are available from air rifle suppliers and divers shops. They come in various sizes and 2 main pressures 232 and 300bar. Always go for 300bar as they contain about 3 times more air, but check that your local divers shop can fill to 300 as some only have compressors rated at 232bar. Size is up to you, expect about 15 fills (about 1200 shots) from a 3ltr 300bar or 40 fills (about 3200 shots) from a 7ltr 300bar bottle so go for the biggest that you can comfortably carry and store. Refilling is done at a divers shop, costs less than £5 and will be completely free of moisture and other contaminants. Being located on the South Coast there are plenty of dive shops close by but it's worth noting that to get a tank filled for diving you must have a divers certificate, so make sure that the shop knows it's for a rifle. They are perfectly within their rights to decline to fill it so don't give them a hard time if the lad that works there part time on a Saturday doesn't realise you can use them with air rifles, he's probably had it drummed into him that he needs to see the certificate. He may also be unaware that air rifle valves only have to be tested every 5 years.

Air rifles must never be filled to more than the manufacturers stated pressure which is likely to be much lower than the pressure in the divers bottle. By exceeding the recommended pressure two things will happen. The first is that the power of the gun will drop significantly. It's a myth that the higher the pressure in the gun, the more power it produces. In fact you normally find that maximum power is produced about 10bar below the maximum recommended pressure on non regulated rifles and a 20bar overfill can reduce the power by 40%. The second is that you will damage the internal valves or the air receiver requiring a costly strip and rebuild with new components. If you are unsure of the correct pressure, contact the guns manufacturer or importer before filling it. There is no 'standard' pressure and even guns of a similar type may have differing maximum pressures so never try to guess what it should be. It's also important not to let the pressure drop too low. You'll notice

that the power really starts to drop off when you get to about 80bar in the rifle, and that's the time to refill. Some rifles, notably AirArms have a habit of dumping all of the remaining air when they get to about 40 bar in one go. It sounds like something has gone terribly wrong, but cocking the rifle usually stops it all escaping. This won't hurt the rifle, but you'll get through an awful lot of air and wasted a lot of pellets that weren't coming out at full power. If you've not got a gauge on your rifle, refill it as soon as you notice that your point of impact is starting to drop or alternatively use a chronograph to measure the speed of each pellet starting from a full fill. Keep count and once you start to see the velocities drop significantly you'll know how many shots you get from a fill.

Scuba tanks are required by law to be tested every 2 years if they are used for diving, but if marked 'for surface use only' and has an air rifle valve this becomes 5 years so if you buy a used bottle check how long it has left in test. Bottles used for rifles have a really easy life and will probably last a lifetime if looked after but a bottle used for diving will be lucky to last 5 years due to internal salt corrosion. A charged bottle contains an enormous amount of energy. They are quite robust, however, you should treat them with great care.

You will also need a charging adaptor to go between the bottle and your gun if the bottle isn't fitted with an air rifle valve. These are about £50 and are all much the same although you need to get either a 232bar or 300bar type as the valve on the bottle is different to prevent a 232 bar bottle being filled to 300 at the shop. A microbore hose will give you a few more fills than a standard one, both these items are available from any gun shop that sells air rifles. Once you've got all the kit, make sure that you don't allow dust or dirt to contaminate the hose or connectors. Any grit that gets into the hose will be transferred to the rifle the next time you fill it, and before long you'll have a leaky rifle or worse. Dive shops sell plastic screw on dust caps for the bottle and hose for a few pounds and you can use an old 35mm film container to make a good dust cap for the filler end.

Members can now charge their rifle for 20p a fill from the club tank. The hose is fitted with a standard Air Arms snap fit connector (not the newer banjo type) which is probably the most common type of filler. If yours has a different type, bring the adaptor supplied with the rifle with you and we can make up an adaptor for a small fee.



Not charged an air rifle before?

Charging a pcp rifle with air is not difficult, but you do need to exercise caution. It's very easy to overfill a rifle which could cause it to burst the air receiver, something you really don't want to happen as it'll go off like a bomb. Now I've scared you, hopefully you'll always be careful. Ideally get someone to show you how to do it at a club until you're confident, but if you need to do it yourself here's the process:

1. When you first get your bottle you'll need to attach the adaptor that came with the rifle to the end of the hose. It needs to be airtight, but generally they only need to be tightened a bit more than hand tight. Be

careful though as they're fine threads often in brass and can't take much torque. Once it's on leave it there.

2. Ensure the adaptor is on the bottle and hand tight. There's an 'O' ring on the bottle end that only needs to be hand tight to seal.

3. Tighten the bleed valve.

4. Check what pressure your rifle is designed to take and don't exceed it (on non regulated rifles it's better to under fill by about 10 bar)

5. Attach the adaptor to the rifle making sure that both the adaptor and rifle valve are clean and dry. Make sure it's fully engaged and never use oil or grease on any part of the filler or adaptor.

6. You're now ready to start filling. For some reason the last person to tighten the valve always had 3 Weetabix for breakfast and the bottle valve takes tremendous effort to open. Make sure that the rifle is somewhere it can't fall over and use both hands to open the valve. As soon as it opens close it off again quickly but gently. This stops you from venting 300 bar into a rifle designed to hold 180. It should now be much easier to open the valve and control the flow of air once you've broken the initial tight seal. Open it just enough for the needle to start moving on the adaptor gauge. Never rely on the one in the rifle, they're not very accurate and are very slow to move lagging a bit behind the actual pressure. Aim to fill slowly, the process should take between 30 seconds and a minute. Don't be tempted to give it a quick blast at full pressure. You'll notice that the pressure rises quite quickly until it equalises with the air inside the rifle and then it slows down often with a slight click as the rifle valve opens to receive air. Keep it going nice and slow until you reach your pressure.

7. Close the bottle valve firmly.

8. Unscrew the vent valve and it will expel blast of air. This allows the pressure to escape from the hose so when you remove the adaptor it doesn't fly off at speed.

9. Uncouple the adaptor.

Problems that are sometimes encountered

1. The air seems to be leaking from somewhere on the adaptor. Check the bleed valve is done up, it's an easy mistake and often if it's not good and tight it starts to leak at about 120 bar. If the hose isn't tight the same can happen at any of the joints.

2. Air is coming out of the barrel. You may have used up all of the air in the rifle and the valve isn't sealing. This is a specialty of Air Arms rifles if you run them down to below 40 bar (which is way too far, power starts to drop off at 80-90 bar), the internal valve releases and they dump all of their air. Easy to sort out though. Cock the rifle (make sure this is done somewhere that you can fire the rifle as soon as you've filled it) and follow the steps above. You may find you have to give it a quick burst of air to get 50 bar into the rifle to seal the valve though. Note: If you loaded the rifle and

found that there was no air in it the pellet will come out at speed as you charge it, so make sure you're safe. Once filled dry fire it or de-cock it to make it safe. If you're using a pump you'll never get enough air into it quickly enough to seal the valve and you'll have to get a fill from a bottle.

And finally, a safety warning

IMPORTANT: *It is essential that only compressed breathing air is used, or in the case of guns designed to use CO2 the appropriate CO2 canister. There have been cases of experimentation with other gasses, with sometimes catastrophic results. Anyone stupid enough to ignore this is risking the safety of everyone nearby and is committing a criminal offence. If SBFTC discover that any other gas is being used, you will be reported to Police and expelled from the Club.*