

Instructions For Building a Chipmunk and Squirrel Excluder

Abstract. I have 6 freestanding hook type holders for bird feeders in my back yard. Shortly after setting my feeders up, I saw a chipmunk climb one of the poles and get to a feeder and start raking seed out all over the ground for easy harvesting. At that moment, I knew I needed some way to stop the chipmunks and squirrels.

What I did was research and find that a squirrel can jump up to 4 feet vertically. Well, that told me the top of my excluder needed to be just over 4 feet off the ground. I watched squirrels jumping from tree to tree and I noticed they ALWAYS jumped to a branch that was small enough for them to get their legs around and use their claws to not fall. That told me my excluder needed to be 6" in diameter and a hard metal so their claws could not grip. Finally, the branches they jumped to moved somewhat when they jumped, but they were able to get a grip on them and the branches soon stopped moving. That told me that my excluders needed to be able to swing freely and rotate easily so that they would keep a squirrel off balance. With these constraints in mind, I started looking for commercially made products. The ones that looked like they actually had any chance of working were priced pretty high, so I went into design mode. Now a squirrel can jump about 9 feet horizontally, BUT it needs a fairly strong starting point. One day, I found a branch of a Rhododendron broken off and there were no tree branches near by to indicate it was broken by a falling branch. The only conclusion I could reach was that a squirrel tried to jump from my Rhododendron to my bird feeder, but the branch broke off and in doing that absorbed a significant amount of the energy the squirrel used to try to jump and he failed miserably! So, the lesson here is to try and place your bird feeders 10 feet from any trees or shrubs. You need to be farther from tall trees as a squirrel will try to jump from greater heights to get the distance it needs; you really want to discourage the squirrel as much as possible.

To meet all my constraints, I came up with a steel heating duct pipe that you press the edges together to form the pipe. The product comes as a flat to rounded, but still open piece of metal that has one side edge crimped to be the part that gets inserted into the other crimped side edge that is made to receive the other crimped side and to lock the pipe into the round shape! I use a 24" length of pipe. The next piece of this build is a 6" heat duct end cap. To hold the excluder at the right height and to allow it to swing and rotate, I use 2 screw type hose clamps, one on the bottom and one on the top, but not so tight as to stop the excluder from moving. Finally, I spray the entire excluder with a protective black paint. I prefer a flat black, but last build I did, I had to use a gloss black. It really doesn't matter; the paint is to protect the metal pipe.

Parts list for 1 Excluder:

1 Master Flow BCP6x24 snap lock round metal duct pipe. **It is IMPERITIVE you buy the pipe UNSNAPPED or you will not be able to get it around the pole for your feeder.**



1 Masterflow 6" end cap, P/N DC6.

1, 100 pack, #6 x 3/8 self-drilling pan head sheet metal screws. **You will need many of these to make one excluder.**

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1, 10 pack, hose clamps 3/8 – 7/8 dia. You can go one size larger, but smaller ones may not fit around some hook poles. You will use 2 per excluder.

1, can fast drying black spray paint, preferably one that protects steel from rusting. I prefer black. Your color choices may vary.

Tools you will need:

1 #2 Phillips screw driver

1 nut driver / socket wrench to fit the head of the hose clamps you purchased.

A Dremel tool and several cut off disks to cut the end cap, or a pair of metal shears to do the same job.

A drill, I use one of those step drills to cut the center hole because these have been the easiest to use.

A power drill, battery or plug, for the drill bit.

A pencil for marking the end caps.

A hammer to flatten the center hole once drilled.

A ruler of some type to measure the diameter of the end cap.

A measuring tape for placing the bottom hose clamp on the pole.

A pair of good heavy leather work gloves! **You are working with metal and cutting sharp edges, these gloves are required for your safety.**

A pair of safety glasses and WEAR THEM!

How to build:

I start by taking the sheet metal screws and the end cap. Where the end of the cap meets the side walls, the metal is only pressed together and that will not stand up to the work you are about to do. In the intersection of the side wall and the cap cover, put 2 screws about 1 inch apart and NOT where the side walls overlap. Between these screws is where you will cut the end cap so you can get it around the pole. Talking about the side wall overlap again, you want to put a screw in the single wall at both ends of the overlap to make that more stable. After that is done, put 3 more screws evenly spaced, in the intersection of the side wall and the end cap, around the cap to hold the side wall to the end cap.

Now find the center of the cap by measuring at the widest point—that should put your measurement on the diameter of the cap—and draw a line from one side to the other. You should draw a 2nd line that is perpendicular to the first. Now, about halfway between the two lines draw another, and finally, draw a 4th line perpendicular to the last one. If you are REALLY good, you will have all 4 lines intersect at the same point. For the rest of us, look at where the lines get closest to intersecting and drill your hole at what appears to be the middle of the cap. You don't need to be dead on the center, but you do need to be close.

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With the sidewall screwed to the end cap and the center hole drilled, take your hammer and tap the edges of the center hole flat. The drilling will leave a raised edge that will stop the excluder from moving freely. Now find those 2 screws you put in about an inch apart showing where you want to cut the cap. Using your Dremel tool or metal shears, cut the cap and side wall completely from the center hole to between those 2 screws you put in to show where you wanted to make your cut. **THIS creates lots of flying metal and disk pieces so be sure you have you eye protection and gloves for this piece. If you are using a Dremel or other power tool, be sure to get and use hearing protection! If using shears, you still need those gloves and safety glasses because you are creating sharp edges and pieces may flip off the cap while you are working.**

At this point, you should have a cap with a hole in the middle and a cut through one side so you can put it around a pole.

Now, take one of your hose clamps, a nut driver or socket, and your measuring tape to your birdfeeder pole. Measure up from the ground and at 4 ft. and 1 inch install your hose clamp with the bottom of the clamp at the 4ft. 1 inch mark. This will keep your end cap from going any lower.

Now bring your end cap, the UNSNAPPED pipe section, your #2 Phillips screwdriver, the self-drilling sheet metal screws, and the can of paint out to your bird feeder.

Wearing your gloves, bend the cut in the end cap just enough to slide the end cap onto the pole just above the hose clamp. Once it is there, GENTLY try to bend the end cap back to where the cut edges are pretty much aligned. Don't sweat it if they don't want to cooperate, we have a fix for that.

Now that the end cap is on the pole, get the UNSNAPPED pipe section and with the crimped end pointing up, snap the pipe together! BE SURE EVERYTHING IS WHERE YOU WANT IT BEFORE SNAPPING THE PIPE SECTION! You can install the hose clamp just above the end cap which will help you when connecting the two pieces in the next step.

With the pipe now snapped and round, and still using your gloves and safety glasses, fit the sidewall of the end cap around the outside of the crimped section of the pipe and get one screw into the side wall of the end cap AND through the pipe section. This is the most difficult screw to get in because everything is still moving freely. You can use you knee—if you have long pants on—to push the pipe section up while screwing your self-drilling sheet metal screw through the side wall and the pipe section. When this is done, the next screws will go easier because the pipe and end cap are now locked together and the next screws simply make the connection more secure. You can place 2 or 3 more screws, evenly spaced, around the side wall of the end cap and the pipe to secure them together. At this point, the assembly is complete. Take you paint can and paint the entire exterior of the excluder. You should stay around to keep the birds away until the paint dries for the protection of the birds.

Now, you only have to go through this as many times as you may have bird feeders to secure them. I have enjoyed watching the squirrels trying to figure out a way around these things.