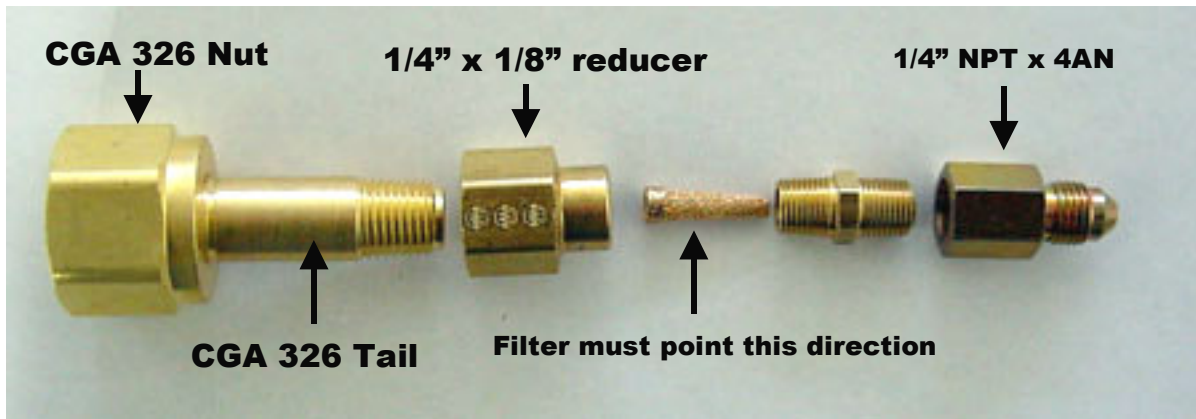


BoonDocker 20lb Refill Bottle Kit

Kit Contents:

- 1 – 20 lb bottle (siphoned)
- 1 – CGA 326 nut
- 1 – CGA 326 tail
- 1 – 1/4" NPT female to 1/8" NPT reducer
- 1 – nitrous filter (1/8" NPT male)
- 1 – 1/8" NPT female to 4AN fitting
- 1 – 36" braided hose
- 1 – 15 lb digital scale



Bottle Adaptor and Nitrous Filter Installation

1. Attach the CGA 326 nut and tail piece to the 20 lb bottle valve. This is a compression seal - do not use any sealant.
2. Attach the 1/4" NPT to 1/8" NPT reducer to the tail piece. Use Teflon tape on the threads - be careful not to get tape on the inside of the thread surface.
3. Assemble the nitrous filter to the end of the reducer as shown. Make sure the filter is pointed in the direction as shown. Use Teflon tape on the threads – be careful not to get tape on the inside of the thread surface.
4. Connect the 36" hose from the 20 lb bottle to the bottle being filled. Follow the instructions on the following pages to fill the bottle.

Where to Get Nitrous

Automotive speed shops that sell nitrous kits can usually fill nitrous bottles. This bottle can be filled with non-medical grade nitrous oxide that contains a very small amount of sulfur dioxide (combines with water in your lungs and forms sulfuric acid if breathed too much). This is the same nitrous that is used for all nitrous oxide systems, usually with the name "Nytrosus-Plus". You may also check with your local welding supply or gas house.

Bottle Fill Weights

Fill our smaller bottles according to the weights below. We do not recommend overfilling the bottle – when the bottle gets hot, it will rupture the blow-off disk.

<i>note: all weights are in 1/10's of pounds, not ounces (16oz = 1 lb)</i>	Bottle Size			
	20 lb Refill Bottle	3.0 lb AL Bottle	2.9 lb CF Bottle	4.0 lb CF Bottle
Weight of Cylinder & Gas	45.5 lb	6.1 lb	6.0 lb	7.4 lb
Weight of Cylinder Empty	25.5 lb	3.1 lb	3.1 lb	3.4 lb
Weight of Gas	20.0 lb	3.0 lb	2.9 lb	4.0 lb

How to Transfer Nitrous

Important Note1: Escaping nitrous vapor is extremely cold (-128 deg F) and will cause freeze burns if it contacts skin. Wear gloves and eye protection before performing any of the steps below.

Important Note2: The 20lb Refill bottle should be at room temperature (70-90 deg F). Never heat a bottle using a concentrated heat source (such as a torch) – this can weaken the structure of the bottle, resulting in catastrophic failure.

A. Bottle Chilling Instructions:

To fill a bottle without a nitrous pump requires that the bottle being filled (smaller bottle) is chilled as much as possible. This will allow the maximum amount of nitrous to transfer - nitrous will stop transferring when the pressures equalize between the two bottles. Usually keeping the bottle in a freezer for a couple of hours is sufficient. The bottle being filled may be chilled using the nitrous contained inside by following the steps below. This must be done in an open, well-ventilated area.

1. The bottle must already have some nitrous in it (1/4 full is sufficient). If the bottle is empty, follow the filling instructions below to partially fill the bottle.
2. By allowing the nitrous liquid to expand into a vapor inside the bottle, the temperature of the bottle can be lowered. To do this, nitrous **vapor** is released from the bottle.
 - a. If the bottle has a siphon tube, orient the bottle so the siphon tube only draws vapor (in most cases, hold the bottle upside down).
 - b. If the bottle does not have a siphon tube, orient the bottle so the valve end of the bottle only draws vapor (hold the bottle valve-side up).
3. Crack open the valve slightly to allow vapor to escape for about 5 seconds. This will quickly cool the inside of the bottle. Close the valve.
4. Wearing gloves, slosh the remaining nitrous liquid around inside the bottle. After a couple of minutes the bottle should start to get noticeably cold.
5. If the bottle does not feel sufficiently cold (at least ice cold), repeat steps 3 and 4.

B. Bottle Filling Instructions:

Important Note: A scale is necessary to determine how much to fill a bottle. A bottle can easily be overfilled.

1. Weigh the bottle being filled on a scale (a 10lb postal scale works well). Note this weight and compare to the weight of **cylinder & gas** marked on bottle – the difference will be the amount of nitrous needed to fill the bottle.
2. Connect the transfer line from 20lb refill bottle to bottle being filled. Make sure the hose does not change the weight reading on the scale too much (the weight usually increases by 2 oz – this can be compensated for when filling).
3. Open the valve on the bottle being filled first.
4. Open the valve on the 20lb refill bottle. Nitrous will transfer between the bottles until the pressure equalizes. Watch the scale and be ready to shut off the valve when the proper weight is obtained.
5. When the proper weight has been reached, shut off the valve to the bottle being filled.
6. Shut off the valve on the refill bottle. Make sure both valves are fully closed.
7. Slightly loosen the transfer line on the bottle being filled and allow the nitrous pressure in the line to escape (1/2 to 1 turn is sufficient). Be careful, the escaping nitrous will freeze anything it touches.
8. After the nitrous pressure has been relieved, completely disconnect the line from the bottle.
9. Recheck the weight of the bottle being filled to make sure it does not exceed the maximum fill weight.

