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Deluxe Nitrogen Kegging System Instructions

The Deluxe Nitrogen Kegging System contains:

- 5 gallon ball-lock soda keg
- Stainless steel diffusion stone with 2 feet of 1/4" ID tubing
- 5# Nitrogen cylinder
- Nitrogen regulator
- Gas connector kit (3 feet of 1/4" ID tubing and 1/4" MFL gas ball-lock disconnect)
- Faucet connector kit (5 feet of 5/16" ID tubing and 1/4" MFL liquid ball-lock disconnect)
- Stout faucet
- Shank Assembly
  - 3" shank
  - Hex nut
  - 1/4" barbed tail piece
  - Vinyl washer

Needed but not included: N/CO2 gas blend ("beer gas," see below), refrigerator, pint glasses.

Congratulations on the purchase of your Deluxe Nitrogen Kegging System from Northern Brewer! This kit contains the equipment you will need to turn ordinary draft homebrew into NitroBrew!

Warning

Working with pressurized gas is potentially very dangerous. Nitrogen cylinders are under very high pressure. If the valve were to break off of the cylinder, it would become an unguided missile, possibly causing injury or death. For this reason it is important that you immobilize nitrogen cylinders by securing them with chains, bungee cords, etc. Additionally, a gas leak in an enclosed area could displace oxygen and cause asphyxiation. Always test gas handling systems for leaks.

Nitrogen cylinders are pressurized to a much higher psi level than CO2 cylinders; they also have a female connection instead of a male connection. Only use a high-pressure nitrogen regulator with a nitrogen cylinder, and be sure to secure the cylinder when in use.

Beer Gas

Before you can use your system, you will need to fill your nitrogen cylinder with beer gas – a blend of 65-75% nitrogen and 25-35% carbon dioxide. Any gas supplier that can refill CO2 cylinders should be able to supply beer gas.

Dispensing Beers with Beer Gas

Brewers in Britain and Ireland began using nitrogen to dispense their beers as a way to mimic the pleasant qualities of real ale while avoiding the problems caused by pumping air into casks. Unlike CO2, nitrogen is not easily absorbed by liquid, and comes out of solution readily. This is why beer poured with an N/CO2 blend has a full mouthfeel, low carbonation level, and a thick, foamy head of very fine bubbles. Using a stout faucet, which forces the beer through a plate with a few small holes, helps to degas the beer and enhances the presentation by creating a cascade of bubbles that eventually settles out into a creamy head.

Initial Assembly and Leak Test

1. Use a wrench to tighten the swivel nuts on the gas connector kit (gray disconnect) and the faucet connector kit (black disconnect). The swivel nuts should be snug, but do not over-tigh ten.
2. Attach the gas line to the regulator's check valve (male threaded fitting on the bottom of the regulator body) and tighten with a wrench.
3. Attach the regulator to the nitrogen cylinder. Tighten firmly with a wrench. Make sure the regulator's adjusting screw is backed all the way out. Crack open the valve at the top of the nitrogen cylinder. There should be no hissing or other signs of leaks and regulator gauge readings should remain steady.

Putting it together

Install the faucet and shank

1. Drill a 1” hole in the refrigerator. If you choose to install the faucet/shank assembly in the door, keep in mind that you will need to open the door while the system is connected. There will be 5 feet of tubing connecting the shank to the keg, so if the faucet/shank assembly is installed too far above the top of the keg, opening the fridge could be problematic.
2. Install the shank from the outside of the refrigerator. Remove the nut from the back of the shank and push the shank through the 1” hole; the black plastic skirt should rest against the outside wall of the refrigerator. Working from inside the refrigerator, thread the nut back onto the shank and tighten it against the inside wall.
3. Assemble the shank assembly components in the following order: 1/4” barbed tail piece goes into the hex nut (barbed end should protrude), followed by the black vinyl washer. Use a wrench to tighten the hex nut assembly on the end of the shank inside the refrigerator. The nut should be snug, but do not overtighten.
4. Attach one end of the 5' section of 3/16” ID tubing to the 1/4” barbed tail piece on the shank. A useful trick is to soak the end of the hose in very hot water to make it soft and pliable – it should slide right over the barb. Leave a small amount of space between the end of the hose and the hex nut, so that the nut can move freely.
5. Slide a hose clamp over the hose and position it over the barbed fitting. Use a screwdriver to tighten the clamp down and securely fasten the hose to the barb.
6. Mount the faucet on the shank on the outside of the refrigerator.

Install the diffusion stone

Important! Do not handle the diffusion stone with your bare hands! Oil from your skin can clog the stone's pores.

1. Remove the keg lid by pulling back on the lever and rotating the lid to lift it out of the keg.
2. Find the gas-in dip tube, located on the inside of the top of the keg, to one side of the lid hatch – it is the short (approx 2”) metal tube underneath the post marked “In” on the outside of the keg.
3. Locate the diffusion stone and its attached 1/4” ID tubing included with this system, being careful not to handle the stone with bare hands.
4. Briefly soak the tip of the free end of the 1/4” ID tubing in very hot water to soften it.
5. While the tubing is still soft, push it over the gas-in dip tube inside the keg. The stone should rest at or near the bottom inside the keg.

Connecting the Deluxe Nitrogen Kegging System

1. Attach the regulator to the nitrogen cylinder. Tighten firmly with a wrench. Make sure the regulator's adjusting screw is backed all the way out. Open the valve at the top of the nitrogen cylinder. There should be no hissing or other signs of leaks and regulator gauge readings should remain steady.
2. Connect the gray gas disconnect to the “In” post of the keg.
3. Make sure the faucet is shut (handle pointing straight up). Connect the black liquid disconnect to the “Out” post of the keg.

Using the Deluxe Nitrogen Kegging System

Diffusion stone method

With this method, you can inject beer gas directly into chilled beer through the diffusion stone.

1. Cold-condition the beer for several weeks to maximize yeast flocculation; alternatively, use a fining such as gelatin or isinglass. This will help prevent the restrictor disc in the faucet from becoming clogged.
2. Keg the beer and chill to 35°F.
3. Connect the nitrogen regulator/cylinder assembly to the keg, open the valve on the cylinder and set the pressure to 15 psi. Allow keg to pressurize for one hour.
4. Close the cylinder valve and relieve pressure in the headspace of the keg.
5. Connect the liquid line to the keg.
6. Open the cylinder valve. Using the adjusting screw, set dispensing pressure to 35 psi and pour a sample; adjust pressure as necessary.

Pouring with a stout faucet

1. Hold a glass under the spout and pull the faucet handle forward; it will lock at 90°. Fill the glass to ¾ full.
2. Admire the cascade while you allow the beer to settle 1-2 minutes.
3. Hold the glass under the spout again while pushing the faucet handle away from you. This injects air into the line as the glass is topped off, finishing the beer with a frothy head.

An alternate method

This method assumes that you already have a separate CO2 cylinder and regulator. The beer is carbonated to a very low level with pure CO2, then dispensed at a high pressure using beer gas.

1. Cold-condition the beer for several weeks to maximize yeast flocculation; alternatively, use a fining such as gelatin or isinglass. This will help prevent the restrictor disc in the faucet from becoming clogged.
2. Rack the beer to the keg and chill to facilitate absorption of gas.
3. Force-carbonate the beer ***with CO2 only*** to approximately 2 vols of CO2. Refer to the following chart to find the correct regulator setting based on the temperature of your beer.

Temp.	5 PSI	10 PSI	15 PSI	20 PSI	25 PSI	30 PSI
30° F	2.23	2.82				
35° F	2.02	2.52	3.02			
40° F	1.83	2.30	2.75	3.19		
45° F	1.66	2.08	2.51	2.94		
50° F	1.50	1.90	2.30	2.70	3.10	
55° F		1.75	2.12	2.47	2.83	3.18
60° F		1.62	1.95	2.27	2.60	2.92

4. Disconnect the CO2 and relieve any pressure in the headspace of the keg.
5. Connect the nitrogen regulator/cylinder assembly to the keg. Back the adjusting screw on the regulator all the way out.
6. Connect the liquid line to the keg.
7. Open the valve on the cylinder to begin gas flow. Using the adjusting screw, set dispensing pressure to 25 psi; pour a sample and adjust dispensing pressure as necessary.

Cleaning

Clean the faucet spout frequently with a faucet brush or toothbrush. After emptying a keg, clean the liquid line and faucet with a beer line cleaner or a homebrew cleanser such as PBW. Sanitize the liquid line and faucet before tapping a new keg.

Troubleshooting

No cascade of bubbles when pouring

- The dispensing pressure on the nitrogen regulator is too low; use the adjusting screw to raise the pressure.
- The beer was not carbonated with CO2 sufficiently; disconnect the nitrogen regulator and increase carbonation level using CO2.

Note that a stout faucet is necessary to achieve the cascade; ordinary faucets will not create this effect.

Beer is too foamy

- The beer is overcarbonated. Disconnect the nitrogen regulator and allow the keg to warm up, gradually relieving the pressure that builds in the headspace. Reconnect the nitrogen regulator and try again.
- The dispensing pressure is set too high. Lower the pressure on the nitrogen regulator, relieve pressure in the headspace and try again.

Beer won't pour

- The dispensing pressure is too low; use the adjusting screw to raise the pressure.
- The nitrogen cylinder is out of beer gas, or the valve is shut.
- The restrictor disc in the stout faucet is clogged. This can occur if too much yeast or sediment was racked into the keg, or if the faucet is not cleaned regularly. Disconnect the liquid line from the keg. Unscrew the black plastic faucet spout and soak in a solution of PBW (or a comparable cleanser) to unclog the restrictor disc.