

PERRIN

WRX/STI RECIRC BLOW OFF VALVE

2021-07-29

Thank you for purchasing this PERRIN product for your car! Installation of this product should only be performed by persons experienced with installation of aftermarket performance parts and proper operation of high performance vehicles. If vehicle needs to be raised off the ground for installation, the installer must use proper jacks, jack-stands and/or a professional vehicle hoist for safety of the installer and to protect property. If the vehicle is lifted improperly, serious injury or death may occur! Please read through all instructions before performing any portion of installation. If you have any questions, please contact our tech department prior to starting installation. We can be reached in any of the following methods:

Email Tech@PERRINperformance.com
Instant Chat off the main page of www.PERRINperformance.com
Or simply call our tech team at 503-693-1702

GENERAL MODIFICATION NOTE

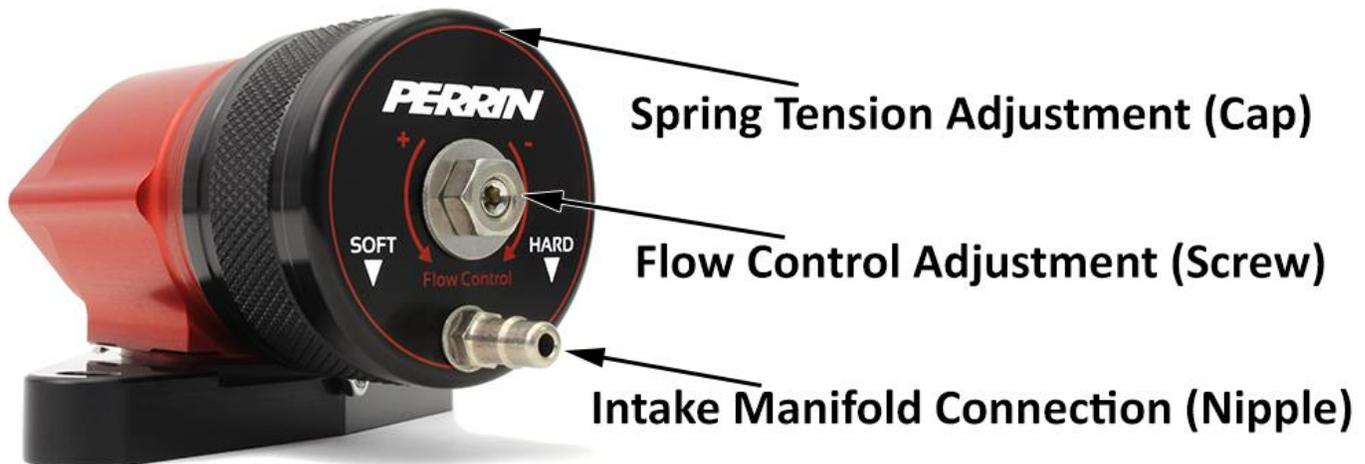
Modifications to any vehicle can change the handling and performance. As with any vehicle extreme care must be used to prevent loss of control or roll-over during sharp turns or abrupt maneuvers. Always wear seat belts, and drive safely, recognizing that reduced speeds and specialized driving techniques may be required. Failure to drive a vehicle safely may result in serious injury or death. Do not drive a vehicle unless you are familiar with its unique handling characteristics and are confident of your ability to maintain control under all driving conditions. Some modifications (and combinations of modifications) are not recommended and may not be permitted in your state or country. Consult the owner's manual, service manual, instructions accompanying these products, and local laws before purchasing and installing these modifications. You are responsible for the legality and safety of the vehicle you modify using these components

SPECIAL NOTES:

- Do not "tighten" blow off valve to increase holding pressure. The blow off valve will hold unlimited boost no matter what spring setting you have (even without a spring installed!!).
- Tightening cap with factory flow control settings will limit the amount of piston travel during blow off, which can lead to compressor surge.
- Before adjusting blow off valve, read through tuning tips below.

Parts Included with the PERRIN WRX/STI Recirc Blow off Valve:

- (1) PERRIN WRX/STI Recirc BOV
- (2) M8x20mm SS Socket Cap Screws
- (28") 1/2" Fuel Hose
- (1') 1/4" Hose
- (1) 1/4"-1/4" Connector
- (1) 1/2" Straight Connector
- (1) 1/2" Tee
- (1) 1/16" Allen Wrench
- (1) 8" zip tie



Installation Instructions:

- 1) Locate OEM Blow off valve, and remove from car. Use 12mm socket to remove (2) bolts and long handled needle nose pliers to remove clamp securing recirculation hose to blow off valve.
- 2) Remove vacuum fitting from back side of blow off valve and remove from car. **Note: If gasket comes off during removal of OEM BOV, make sure not to lose this. They are adhered to the intercooler normally, but over time can come loose.**
- 3) Remove cast aluminum elbow from front of BOV and transfer onto front of PERRIN BOV. **NOTE: Make sure o-ring on elbow is still in place.**
- 4) Locate and remove OEM steel crank case vent piping from front of intercooler.
- 5) Using supplied 1/2" tee, 1/2" connector and 1/2" hose, connect remaining rubber crank case vent hoses together. **NOTE: At the same time you can re-route this 1/2" hose under intake manifold to make a cleaner installation.**

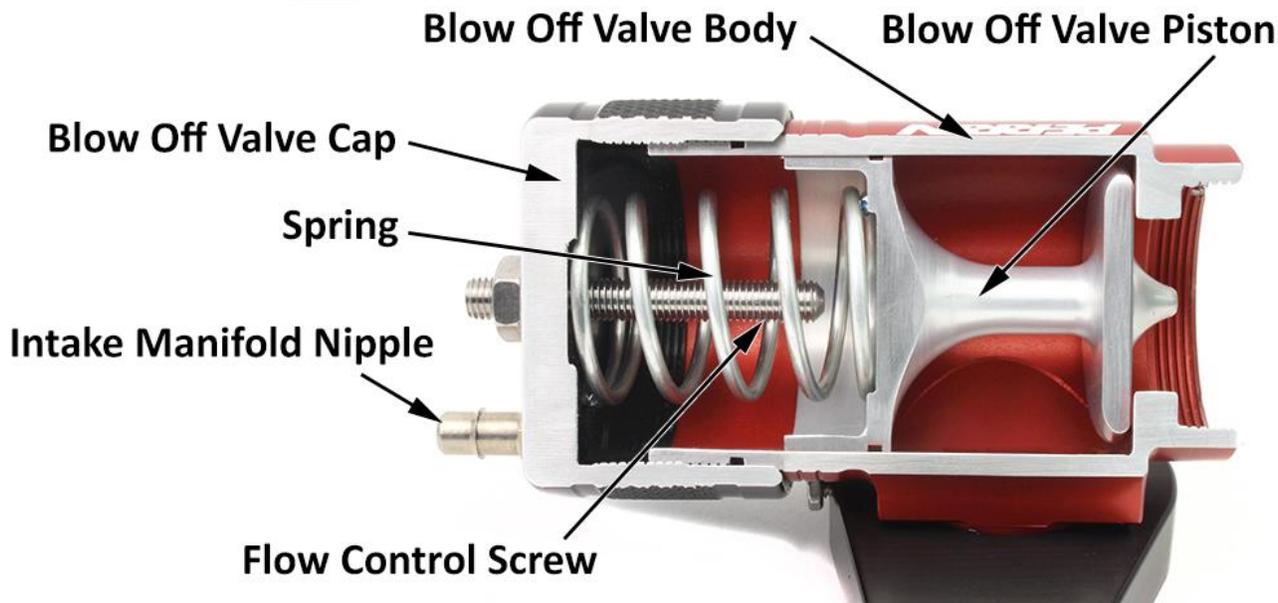
- 6) Slide rubber recirc hose over cast aluminum elbow, and secure using OEM pinch clamp.
- 7) Install blow off valve to Intercooler using supplied M8 bolts. Tighten screws to 14ft-lbs. **NOTE: If gasket came loose, make sure to install between blow off valve and intercooler.**
- 8) If adjustment of blow off valve angle is needed to clear aftermarket parts or intercooler diverter follow these instructions carefully:
 - a. Loosen (2) small nuts and set screws on flange
 - b. Adjust angle to desired location.
 - c. Retighten set screws until a very slight amount of force is felt, then tighten nut to secure. **Note: do not over tighten set screws as this can damage blow off valve body, as well as deform it causing piston to bind up.**
 - d. Depending on desired angle, removal of BOV may be necessary.
- 9) Install supplied 1/4" adapter into OEM vacuum hose and connect 3/8" hose to fitting. Attach 3/8" hose to BOV and secure with zip tie.
- 10) BOV is factory set, and no adjustment is necessary.
- 11) Start car and check for leaks. If car runs erratically, check for leaks around blow off valve flange and around recirc hose. If these are not sealed, a vacuum leak will occur causing car to run poorly.

Tuning Instructions:

We preset each BOV to work on 95% of the applications and no adjustment is necessary. On cars with significantly higher boost levels, you may want to make the BOV flow more when venting. In these situations simply adjusting the flow control screw counter clock-wise is all that is needed.

If you desire to gain a little more response between shifts stiffening up the spring by screwing down the cap is necessary. As you screw the cap down you need to adjust the flow control screw to ensure the piston opens enough and flows the desired amount. Keep in mind that as you stiffen the spring, it keeps more boost in the tubes between shifts and can potentially lead to compressor surge. For instance if you are running 10psi of boost, setting the spring too stiff may cause compressor surge which will damage your turbo over time. But that same setting will be fine for cars running 25psi or more.

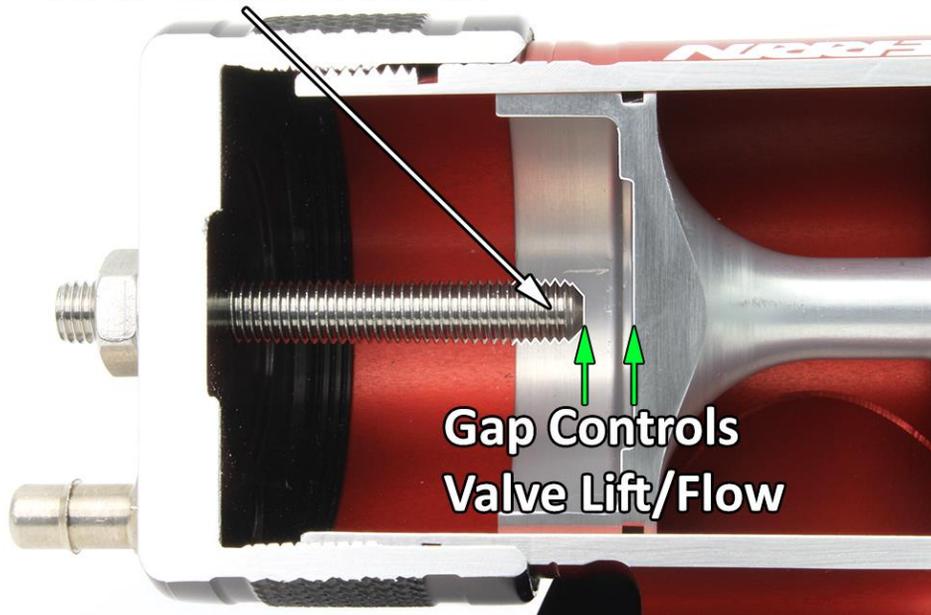
One last note: The blow off valve will hold unlimited boost even at the lightest setting. So adjustment is necessary to hold more boost with ultra-high boost applications.



Adjusting Spring Tension

- Adjusting the spring tension on the PERRIN blow off valve doesn't adjust the amount of boost it holds. Because of our unique design, no spring is needed to hold boost. The spring is used to adjust how quickly the blow off valve vents boost when backing off the throttle.
- Adjusting spring tension harder/tighter will make the blow off valve vent slower/later when backing off the throttle. Having this too tight can cause compressor surge under certain conditions (this is the fluttering or "cha-cha-cha" sound sometimes heard). A very slight amount of compressor surge is ok, but extreme amounts for prolonged periods of time can damage your turbo.
- Adjusting spring tension softer/looser will make the blow off valve vent quicker/sooner when backing off the throttle. Having this set loose will cause boost to be vented early while backing off the throttle, and in turn will reduce compressor surge. It is always best to error on the looser side than tighter.
- Use grooves on body below cap to indicate spring tension. The lightest spring tension is with 4 grooves showing and the tightest is with no grooves showing (where cap can't be adjusted any further).
- When adjusting spring tension, keep in mind that this affects the flow of the blow off valve due to the flow control screw moving up and down with the cap. When adjusting spring tension, its best to back flow control screw all the way out, then readjust flow control screw after spring tension is set. Follow directions below to adjust flow control screw.
- Factory setting is roughly 2 grooves on the body showing. This is not a critical setting to have correct as it will not cause any problem with how the BOV functions.

Flow Control Screw



Adjusting Flow Control Screw

- Using diagram, locate the flow control screw. Adjusting this screw limits the amount the piston can open between shifts, which determines how much air will be vented between shifts.
- Flow control should be adjusted only after spring tension is set or cap is screwed down to desired position. This is important because as the cap is screwed up and down, it changes the amount the piston opens.
- Adjusting flow control screw counter clockwise, will make blow off valve vent more boost when blow off valve vents. Venting too much boost, can cause the car to feel like it has turbo lag as the turbo has to refill the boost tubes.
- Adjusting flow control screw clockwise, will make blow off valve flow less when blow off valve vents. The benefit to this is to keep some of the pressurized air in the boost tubes, making the turbo do less work to re-fill boost tubes. This makes the car feel like it has less turbo lag between shifts. Take note that not venting enough boost can cause compressor surge which can eventually cause damage to the turbo.
- Once adjustment is set, make sure to lock nut down to piston.
- Factory setting is roughly .100-.150" of valve lift, which can be measured a couple of ways.
 - a. With BOV removed, push piston with thumb to open and take note of the distance.
 - b. With the BOV installed, screw cap down until it stops, take note of the amount of grooves showing, then back it off roughly 2 grooves or roughly 2 turns.

**Questions, Comments and Suggestions Contact: Tech@PERRINperformance.com
Visit Our Website for Instant Chat Options at www.PERRINperformance.com
Call Our Tech Team at 503-693-1702**