44mm Piston external wastegate



Kit contents:

Forge external wastegate assembly
Stainless steel valve seat
V-band clamps x2
Banjo air fittings x2
Banjo bolts x2
Copper sealing washers x4

INITIAL INSTALLATION REQUIREMENTS

- Your Forge Motorsport external wastegate is designed for use in a custom turbocharger installations and it cannot be installed where your existing turbo already has a wastegate attached to it.
- It should be installed with the provided stainless steel v-band clamp connectors by having them professionally welded to your exhaust manifold at the collector BEFORE it enters the turbo.
- Mount the wastegate such that the upper aluminium part of the assembly is as far from a heat source as possible.
- Ensure you have the ability to tune the car after installation and that the boost you set the wastegate to run at is within the capabilities of your engine. Forge Motorsport cannot accept any liability for engine failure as a result of incorrect fitting or poor tuning.

WASTEGATE SPRING PRESSURE (TARGET BOOST)

Your Forge Motorsport wastegate follows the well established principle of the ability to run two springs simultaneously, giving a great range of spring pressures for your target boost. Your wastegate will have come pre-built with the spring rate you requested. Additional springs are available from Forge Motorsport. For your reference, desired boost settings/springs required are as follows:

PRESSURES ACHIEVED WITH A SINGLE SPRING

BAR	PSi	Spring
0.2	2.9	small green only
0.4	5.8	small yellow only
0.5	7.2	small blue only
0.6	8.7	small red only
0.7	10.1	large green only
0.8	11.6	large yellow only
0.9	13.0	large blue only
1.0	14.5	large red only

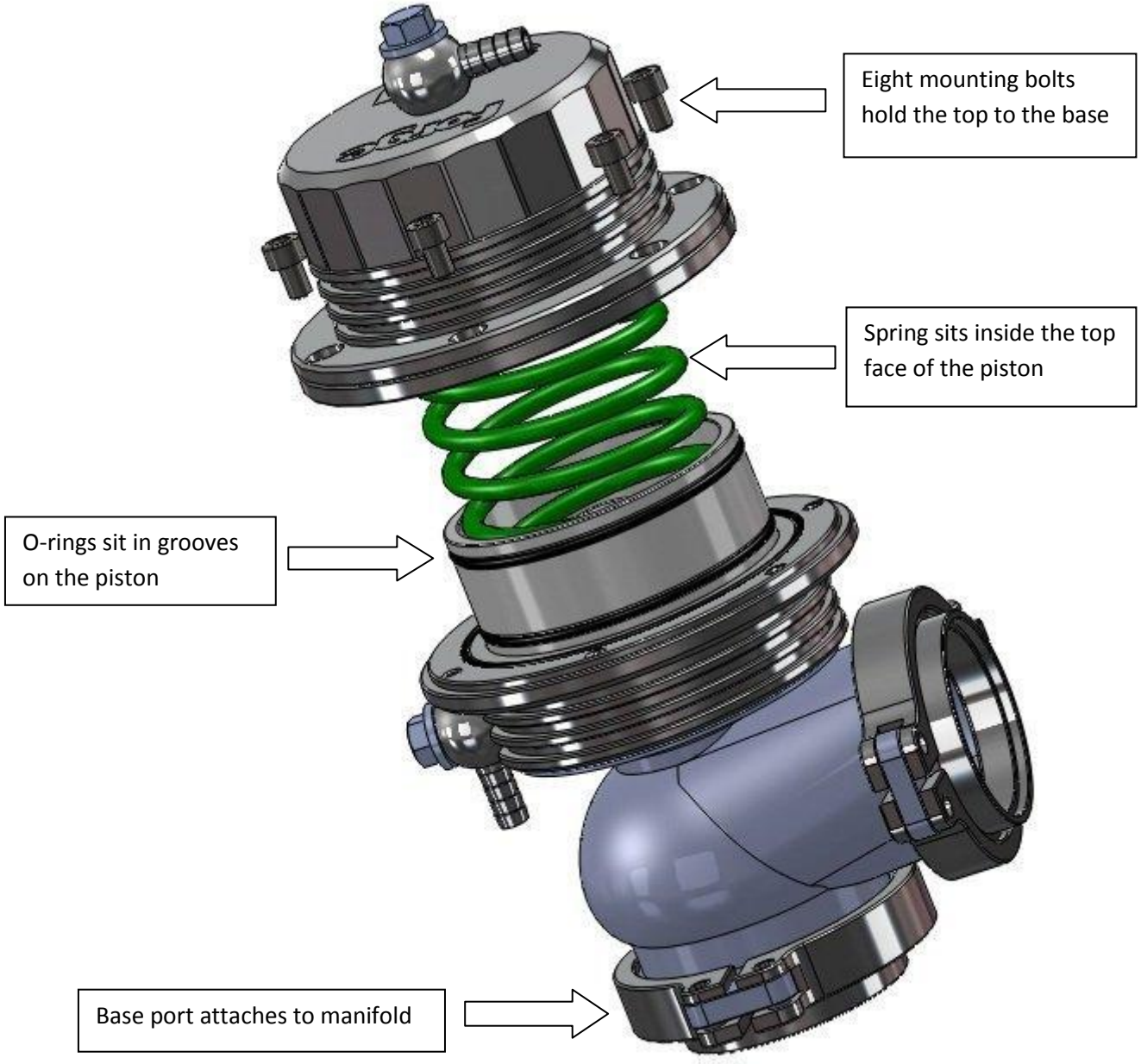
PRESSURES ACHIEVED WITH COMBINED SPRINGS

BAR	PSi	Springs
1.1	15.9	large green + small yellow
1.2	17.4	large yellow + small yellow
1.3	18.8	large blue + small yellow
1.4	20.3	large red + small yellow
1.5	21.7	large red + small blue
1.6	23.2	large red + small red



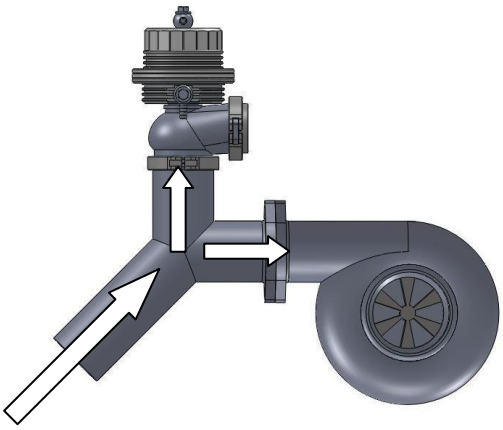
CHANGING THE WASTEGATE SPRING

Your wastegate is very highly sprung even when built with the softest green spring. Care must be taken when disassembling the valve to service it or change the spring. For this reason, please take care when removing the top of the wastegate. Undo six of the eight bolts holding the top down, leaving two bolts opposing one another on the top of the valve. At this point, place the wastegate in a vice/drill press and undo the last two bolts. Slowly open the vice or press in order to release the top of the wastegate from the base, and reveal the spring. Upon reassembly, ensure the o-rings are in place on the piston as you lower the top down over it.

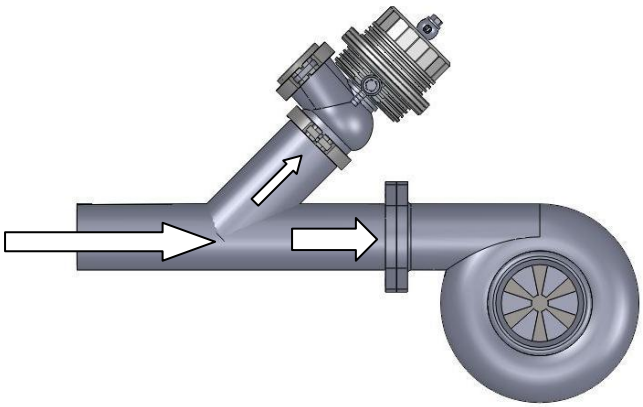


POSITIONING YOUR WASTEGATE ON THE MANIFOLD

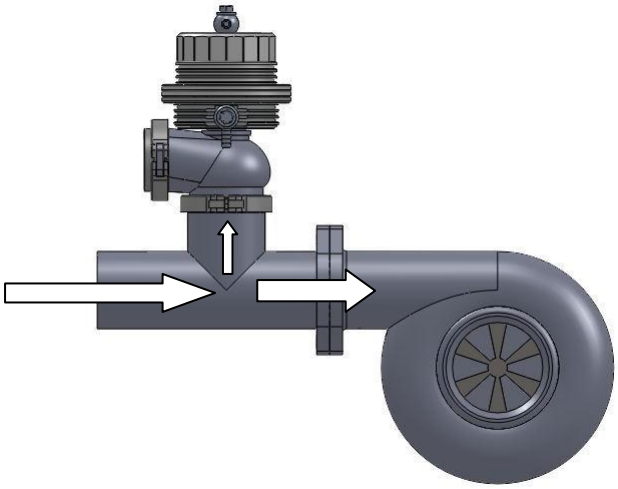
Your wastegate needs to be professionally installed using the supplied v-band weld on fitting and clamp. It needs to be installed on the collector of the manifold i.e. where all branches of the manifold meet BEFORE entry to the turbo. The wastegate will not work well at all if it is fitted to just one runner of the manifold.



Symmetrical mounting of the turbo and wastegate is excellent for boost control, but not always possible upon installation due to space constraints



Angled mounting is good for flow into the wastegate, and should be the minimum you aim for in your installation

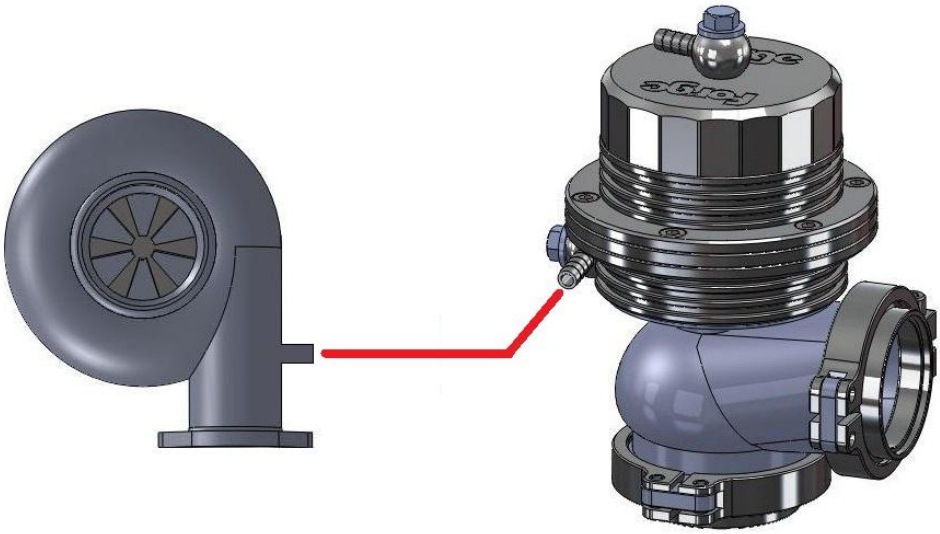


With the wastegate at 90 degrees to the flow of exhaust gas, the boost control will be compromised. Mounting the wastegate at any greater angle than 90 degrees is not recommended in any installation.

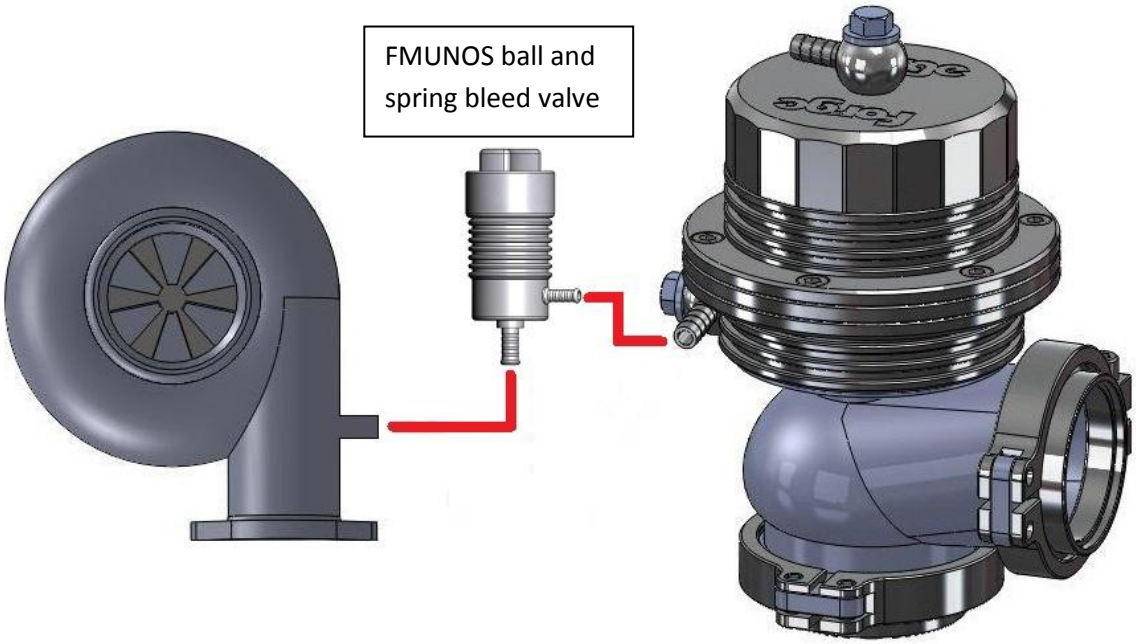
INSTALLATION

The outlet of the wastegate needs to feed back into the exhaust after the turbo in most countries, at a minimum distance of 12” (300mm) for best performance. If the car is not for road use, the outlet of the wastegate can be directed straight out and towards the ground – the exhaust gas exiting is very hot and will likely shoot flames under certain throttle conditions so make sure it is well away from any components in the engine bay.

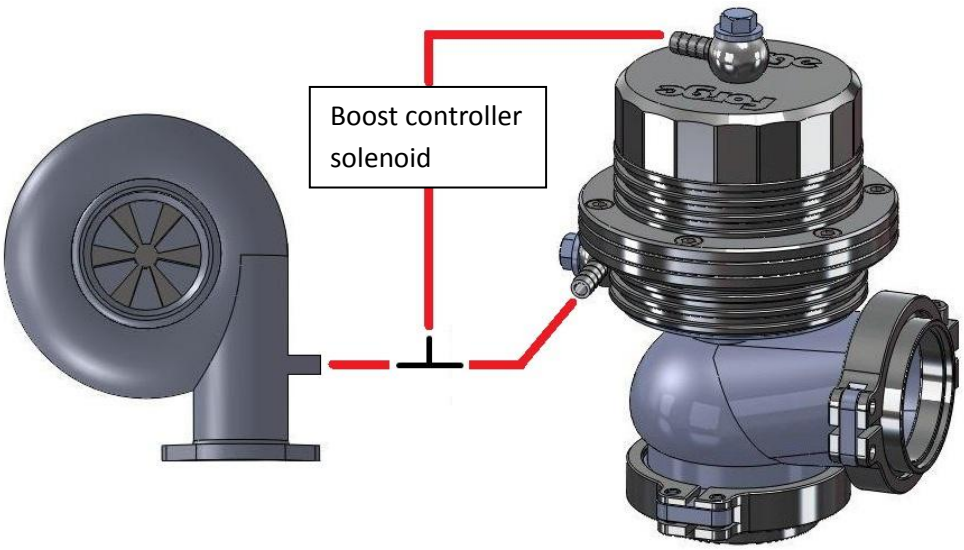
For the wastegate to limit boost to the preset spring tension, a boost line needs to be run from the turbocharger compressor housing (i.e. the turbo outlet to the intercooler) to the LOWER port on the wastegate. The upper port is left open to atmosphere.



If you are running a manual boost controller (bleed valve), simply tee into the line running to the lower port of the wastegate and set up the bleed valve according to your required boost setting.



If you are running an electronic boost controller, then please follow the guidelines laid out in the boost controller instructions *based on an external wastegate setup*. A typical installation is laid out below, where the boost controller solenoid sits in a line teed off the lower port of the wastegate, going to the upper port of the wastegate to vary the resistance above the piston, but please double check for your specific boost controller.



ENGINEERED FOR PERFORMANCE

You may also be interested in this related product:



The Forge UNOS boost controller is of the ball and spring type, CNC machined to aircraft specifications and incorporates a ratchet type top adjuster that will allow for the positive and precise adjustment that your driving style demands. The controller can be dash or engine bay mounted to suit your preference.

Order code from your distributor: FMUNOS