

FORGE (FMDVSUPR) Blow Off Valve

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This is a good valve [machined](#) by [FORGE \(FMDVSUPR\)](#) with very high air flow rate, but distinctly slow acting. Say you have FORGE diverter valve like me, and say like me you are unhappy with it's reaction / activation time. There are few causes some of which I intend to trial to rectify. A short summary of areas to tackle:

- Heavy piston
- Large piston volute (takes time to evacuate)
- Small vacuum line (Forge offers cap with larger fitting)

There are number of things you can do about it. I will start with heavy piston. As supplied by Forge, it's weight is 118g or 4.2oz. Compare this to say Bosch valve fitted to AUDI/VW,

membrane weight is barely 1/100th of that, making it much faster in operation.

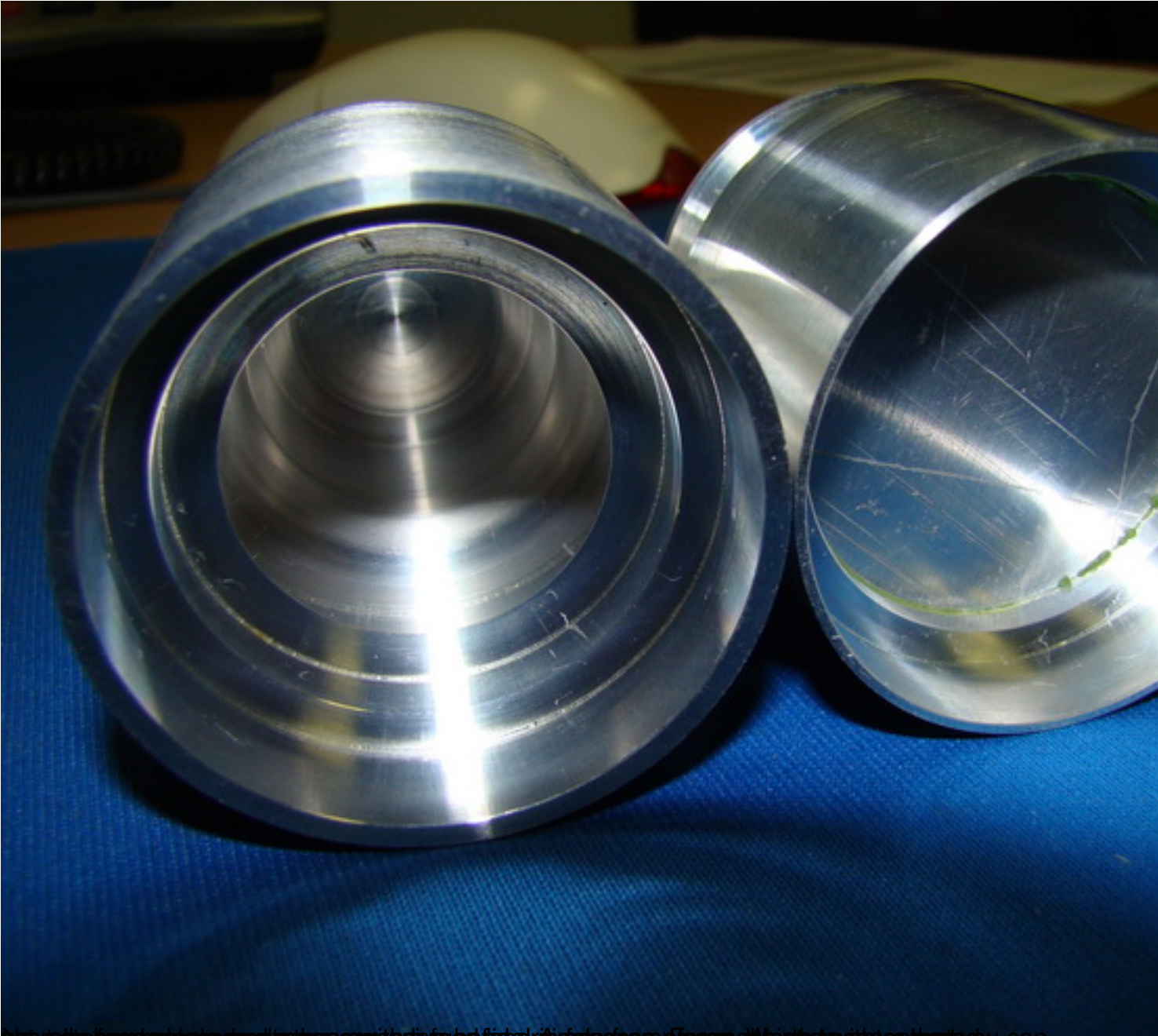
By doing some stress analysis, I came up with reduced wall thicknesses that provide balance between mechanical stifles of the piston and its weight. I have [CNC machined the sample](#) for trials to evaluate its operation and wear/tear. Reduced weigh will reduce movement delay (AKA reaction delay time) and cycle time during piston oscillation. But may increase piston wear due to more dynamic piston operation (more movements as it reacts to smaller signal inputs) as well as reduce the piston seat wear at the same time, due to piston reduced weight.



[http://www.forgevalve.com/Products/Blow-off-valve/Blow-off-valve-15.html](#)



Not the @ in the 15 is a red 16 is a blue 17 is a green 18 is a yellow 19 is a purple 20 is a pink 21 is a light blue 22 is a light green 23 is a light yellow 24 is a light purple 25 is a light pink 26 is a light blue 27 is a light green 28 is a light yellow 29 is a light purple 30 is a light pink 31 is a light blue 32 is a light green 33 is a light yellow 34 is a light purple 35 is a light pink 36 is a light blue 37 is a light green 38 is a light yellow 39 is a light purple 40 is a light pink 41 is a light blue 42 is a light green 43 is a light yellow 44 is a light purple 45 is a light pink 46 is a light blue 47 is a light green 48 is a light yellow 49 is a light purple 50 is a light pink 51 is a light blue 52 is a light green 53 is a light yellow 54 is a light purple 55 is a light pink 56 is a light blue 57 is a light green 58 is a light yellow 59 is a light purple 60 is a light pink 61 is a light blue 62 is a light green 63 is a light yellow 64 is a light purple 65 is a light pink 66 is a light blue 67 is a light green 68 is a light yellow 69 is a light purple 70 is a light pink 71 is a light blue 72 is a light green 73 is a light yellow 74 is a light purple 75 is a light pink 76 is a light blue 77 is a light green 78 is a light yellow 79 is a light purple 80 is a light pink 81 is a light blue 82 is a light green 83 is a light yellow 84 is a light purple 85 is a light pink 86 is a light blue 87 is a light green 88 is a light yellow 89 is a light purple 90 is a light pink 91 is a light blue 92 is a light green 93 is a light yellow 94 is a light purple 95 is a light pink 96 is a light blue 97 is a light green 98 is a light yellow 99 is a light purple 100 is a light pink



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