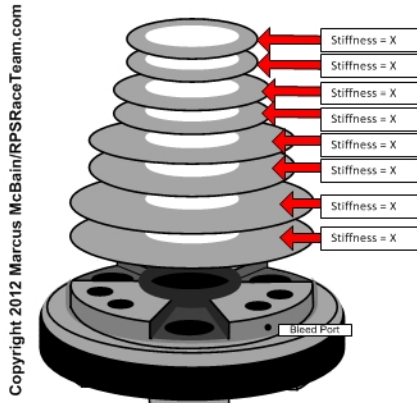


Document 9 - Rebound shim stack design and operation effects

Shims and how to read this document

A shim is nothing more than a steel washer. In most shocks, these "washers" are generally anywhere from .004" thick to .015" thick with diameters of .75" to 1.4" wide. Sequentially stacked, they provide "damping force" when oil is forced through the **Damping Port on the Piston.**

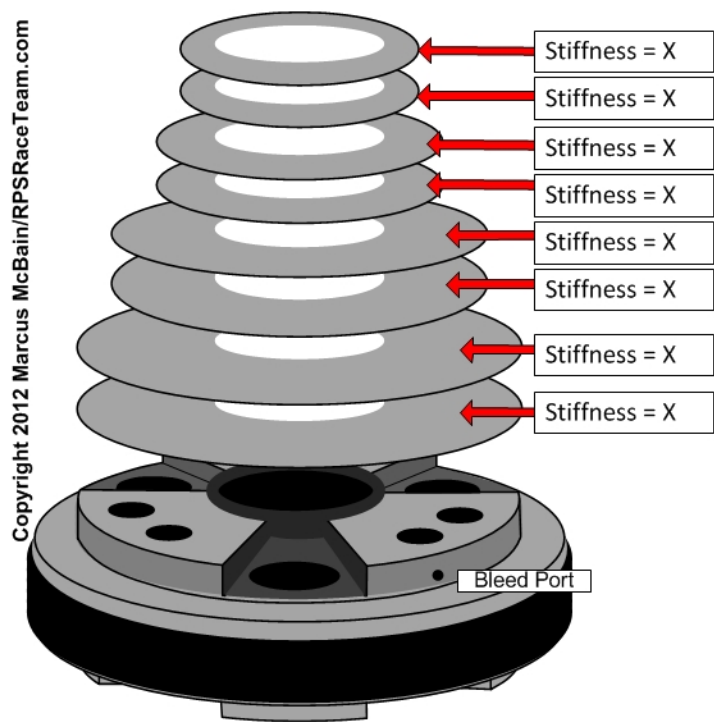


Three examples are provided in regards to "rebound stack" action. "X" represents a thickness value in each diagram, while "X+1" provides a value of "one shim thickness higher" within the range of the manufacturer's selection. So if "X" is .008", "X+1" would be .010", X+2 would be .012", and so on.

The total number of shims in a "stack" can vary from 4 to 15 depending on the manufacturer and tuner. The examples provided are for reference for this article. In most cases, this will not be a "shim by shim" EXACT representation, but rather for academic discussion. RPSRaceTeam.com uses variable numbers of shims in the stack(s) according to the performance desired.

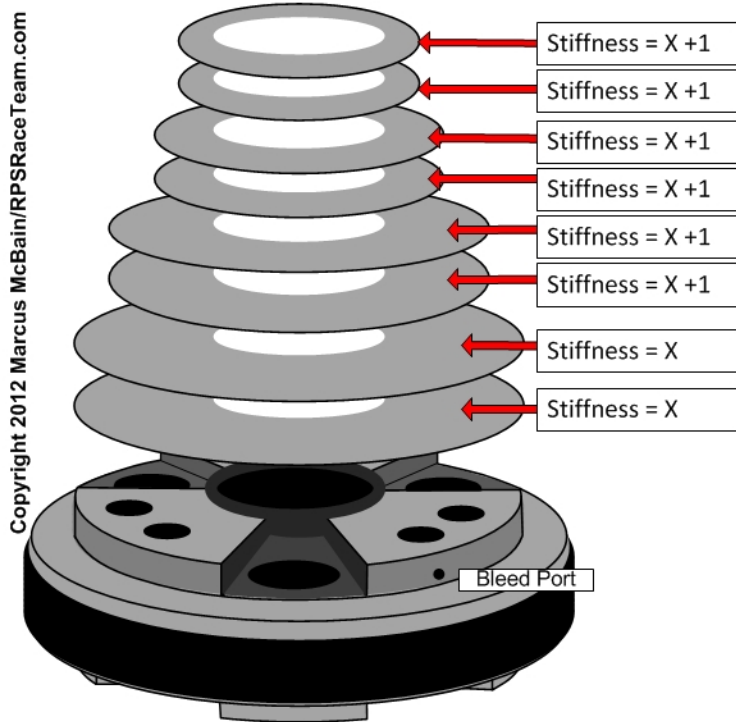
All notes provided are from actual RPSRaceTeam.com race winning builds and experience.

Linear shim stack design



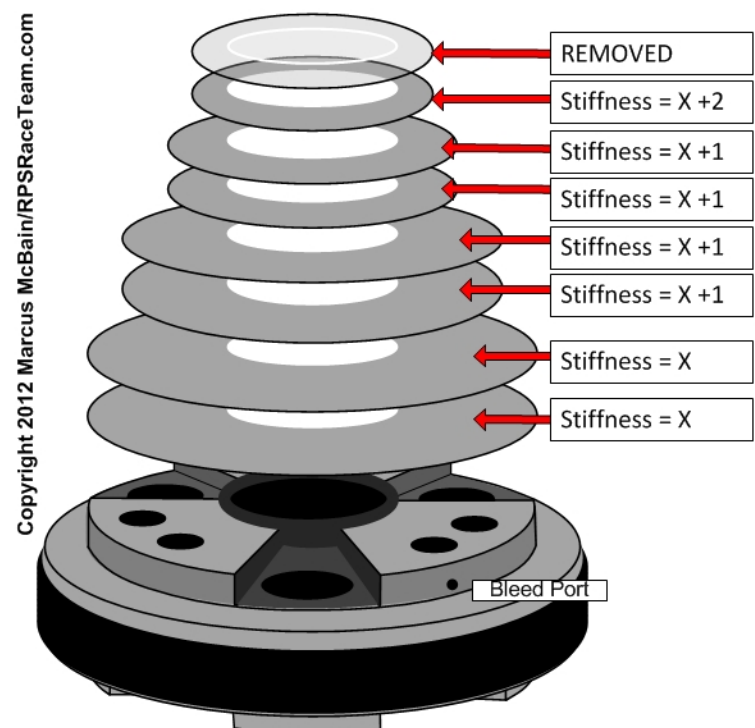
The shim stack is "linear". What this entails is that shim stack will provide mostly "flat rate" damping performance. This is generally a "standard" valving solution made for a diverse range of operation where track conditions and rider skill may range widely, but still provides acceptable performance for all scenarios.

Shim stack with slight progression



This valving solution is similar to several of the standard race RPSRaceTeam.com stacks. This stack provides for the ability to "soak up bumps" as the two shims against the piston are not overly stiff. The remainder of the stack has been "stiffened" by going up to the next shim thickness. The effects is that stack will open as needed, BUT the remainder of the shims being stiffer will keep the stack from "flying open".

Progressive shim stack



This is the RPSRaceTeam.com "aggressive" racing stack. This provides for the ability to soak up bumps, but will not create a "runaway velocity" situation as the base shim has been increased by two sizes in thickness. The removal of the second base shim is necessitated as putting too stiff of a base shim setup will cause the stack to close too quickly and a "hitch" in the rebound stroke of the shock.

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