

Ring shim and centering shim

The centering shim and accompanying ring shim are used only if preload is desired.

The O.D. of the main piston centering shims are 34mm as standard for both the compression and rebound stack. The ring shim is positioned concentric to the centering shim (34mm). The O.D. of the ring shim is the same as the sealing shim. Because of the different O.D.'s of the sealing shims used on the compression and rebound side of the main piston, the ring shims also have two different O.D.'s (38mm - compression, and 36mm - rebound). Ring shims are available in .20, .25, .30 and .38mm thicknesses. Centering shims are available in thicknesses of .10, .15, .20, .25, and .30mm. These shims allow for a maximum preload of .28mm. The static preload is calculated by subtracting the thickness of the centering shim from the thickness of the ring shim. Ring shims with a 30mm I.D. and a 34mm O.D. are also available. Using these ring shims, with a smaller O.D. than the sealing shim, will result in a damping curve with a more rounded knee.

As the centering shim is an additional shim in the stack, the overall slope of the damping curve will be slightly increased when using ring shims. To minimize this side effect, the same static preload can be achieved by using a thinner centering shim and a thinner ring shim, which equals the same preload. If you require a higher preload than .28mm, a secondary ring shim combination can be used. To do this, another shim with the same O.D. as the sealing shim must be used as a divider between the two ring shims. It is not necessary that both ring shim combinations are identical. The total preload can be calculated by combining the individual preload at each ring shim.

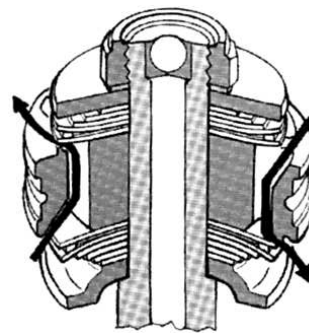
Preload shim

A preload shim is just as the name suggests –always preloaded– even in its static position. The preloading force produced by the preloading shims is the result of their spring rate multiplied by the distance they are pre-bent. As the ring shim must be followed by a shim of the same O.D., the first preload shim will always have the same O.D. as the ring shim. Then comes a variable quantity of shims of various thickness and diameters. All the shims following the ring shim will be pre-bent when the shaft nut is tightened because their centers will be clamped solidly to the centering shim and their edges will rest on the thicker ring shim. The numerical amount of static preload is only accurate for shims of the same O.D. as the ring shim. All smaller diameter preload shims are bent less as their diameters get smaller. This is why changing a larger shim has more effect than changing a smaller one. Quite often the majority of shims in the stack are in the preload category.

For pre-loaded compression shim stacks, please note the following. If you are working with a C25 stack and want to use a pre-load shim, please number the stack as follows.*

Ring shim	Centering shim	Stack No.
1120-02	.15-34	C125
1125-02	.15-34	C225
1130-02	.15-34	C325
1120-02	.20-34	C425
1125-02	.20-34	C525
1130-02	.20-34	C625

* Please note that Öhlins has implemented a new lettering system to indicate the amount of preload in a shim stack. This new identification system is outlined in our X-Stacks catalog and will eventually replace the numbering system you see above.



Cross section of compression and rebound shim stacks with a ring shim combination. The preload in this diagram is exaggerated.

Washer →

Clamp shim →

Preload shims →

Centering shim →

Ring shim →

Sealing shim →

Main piston →