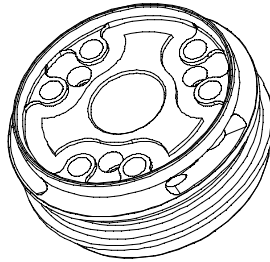


# **PENSKE**

## **RACING SHOCKS**

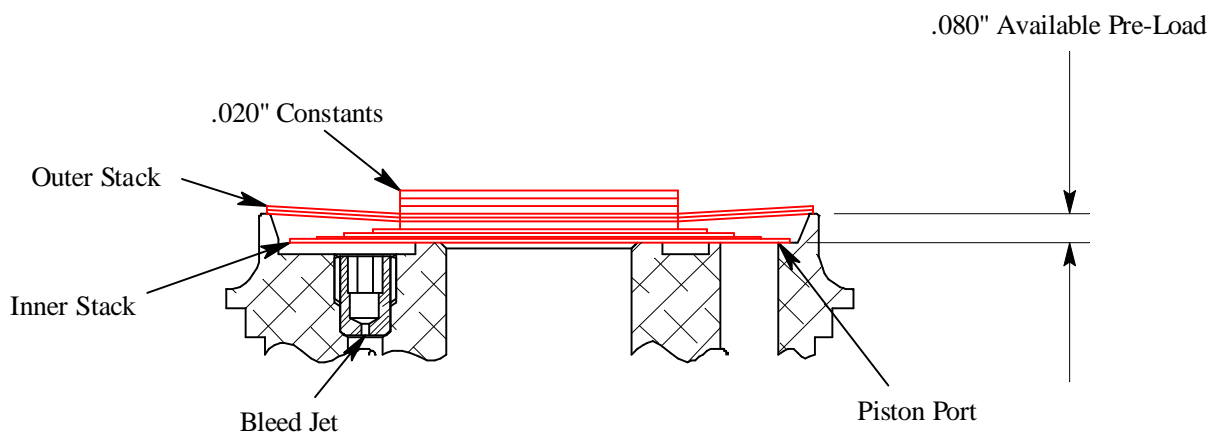
### Variable Bleed Piston



The Variable Bleed Piston from Penske Racing Shocks offers the user more versatility than any other piston in our range. The piston can produce curves like those found on linear, digressive and VDP pistons and offers a very flexible way of controlling bleed.

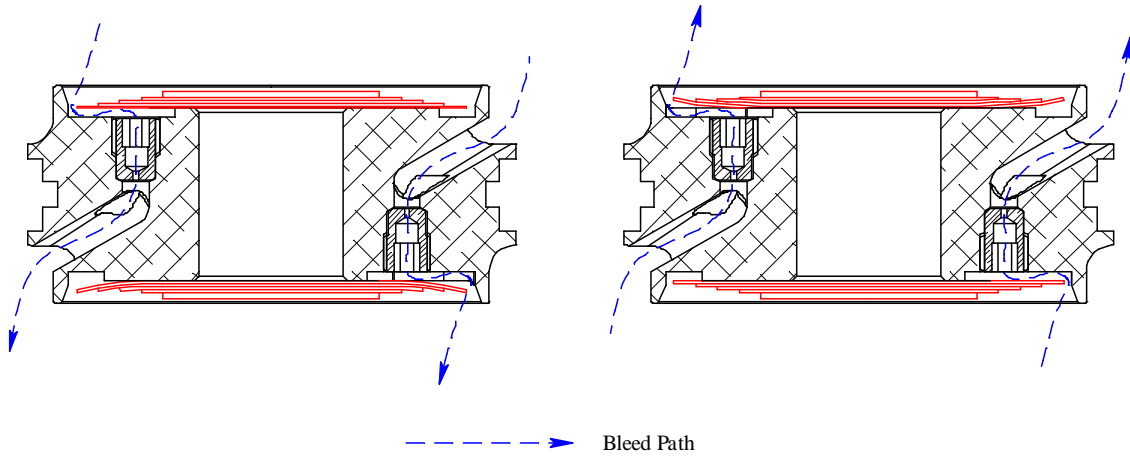
The piston makes use of six small bleed jets (three on each side of the piston), which are easily installed or removed using a 5/64" hex drive. The jets themselves are drilled through to give the desired amount of bleed – anywhere from a zero bleed to  $\text{Ø}0.078$ ". Leaving the jet out completely gives a  $\text{Ø}0.092$ " bleed orifice.

The piston can make use of up to two separate shim stack on each side. The inner (linear) stack uses a  $\text{Ø}1.350$ " base shim which unlike the VDP base shims, completely covers the ports. However the bleed jets, being recessed, are not covered by the base shims and are free to bleed past the inner stack. The outer (digressive) stack uses a  $\text{Ø}1.475$ " base shim and will offer a restriction to the bleed coming through the jets.



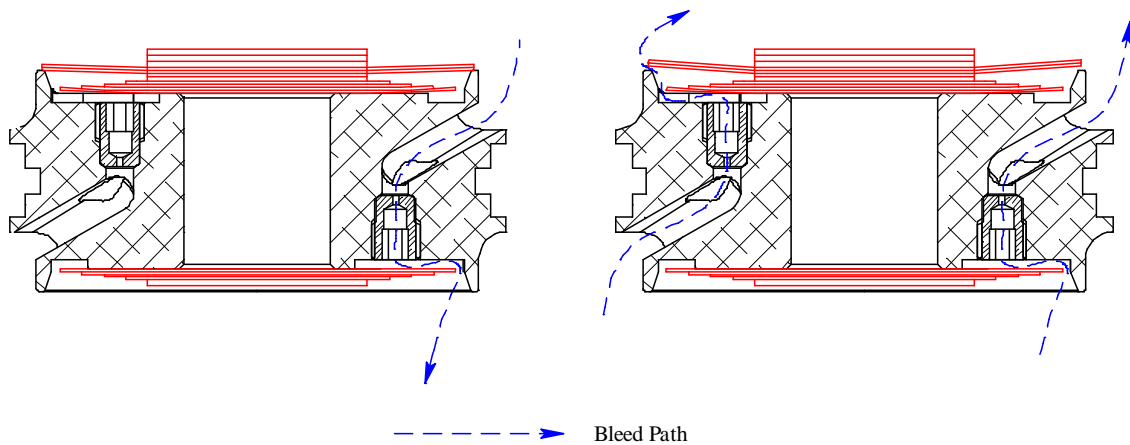
## Linear/Linear Curve

By running only an inner stack on both sides of the piston, a linear shape curve will be produced with all six jets bleeding in both directions.



## Split-Bleed Linear Curve

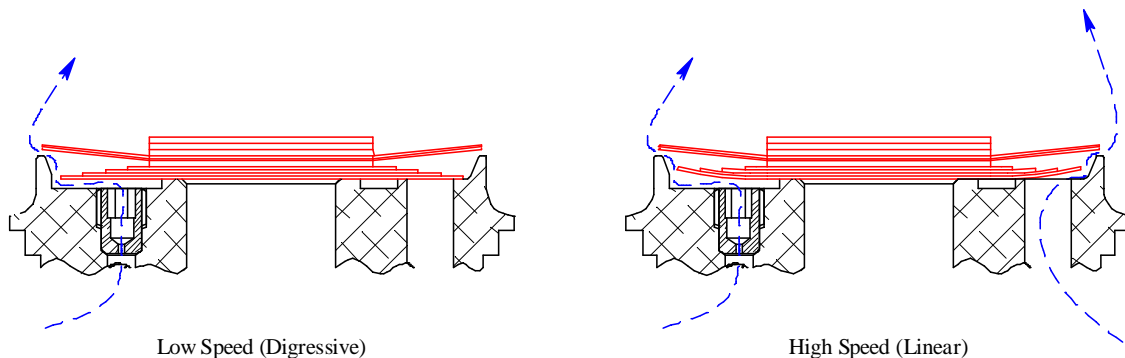
By using a thin, lightly pre-loaded outer shim on one side of the linear/linear arrangement shown above, the amount of bleed in each direction can be different. This outer shim acts as a “flapper” valve allowing only three jets to flow in one direction but all six to flow in the opposite direction.



Do not use .004” shims for a flapper valve, as they are too compliant. Use two or three .006” shims with about .003” pre-load.

## VDP Curve

This type of curve can be achieved by running a pre-loaded outer stack; although you will need more pre-load than on a regular VDP because of the larger OD of the base shim. The bleed jets on this side of the piston now serve a different function – They feed the outer (digressive) shim stack at lower shaft speeds until choking off enough to open the inner stack. The shaft speed at which the inner stack opens can now be controlled by the size of the orifices used – A standard type VDP can be achieved by using no jets at all (three Ø.092” bleed holes).



## Digressive Curve

A digressive type curve can be achieved by using no inner stack at all, purely a pre-load outer stack. At this point the bleed shim on this face will be of no consequence and can be left out.

## Other Useful Hints

1. The inner face of the piston has a 1° Dish.
2. The .080” available pre-load depth is measured to the edge of the Ø.500 through hole.
3. The jets are made from Brass and seal on the small radius on the bottom edge of the jet. This seals against the taper on the threaded hole.
4. It is recommended to use Loctite 571 or similar thread sealant on the jet threads. This will ensure a good seal and also reduces the chance of them coming loose.
5. The jets should be tightened firmly with a 5/64 hex drive.
6. It will be possible to split the bleeds on VDP/Linear and Digressive/Linear configurations with the use of a notched shim as the outer base shim. These are not currently available but will be soon depending on demand.
7. For any further questions, please contact:

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