

ABSTRACT

Linear pistons create a general characteristic that has increasing force with increasing shock velocity. Port sizes from the compression side of the piston to rebound side are different to allow for built-in asymmetry that is common with shock absorber damping requirements (i.e. generally, rebound forces are higher than compression forces for most situations and reduced piston flow on rebound helps maintain reasonable shim thicknesses for desired rebound force targets). Linear pistons have the standard orientation direction indicated on the piston near the piston band gland, usually with an "R" designating the rebound side (as shown below).

COMPONENT VIEW (COMPRESSION FACE)



COMPONENT VIEW (REBOUND FACE)

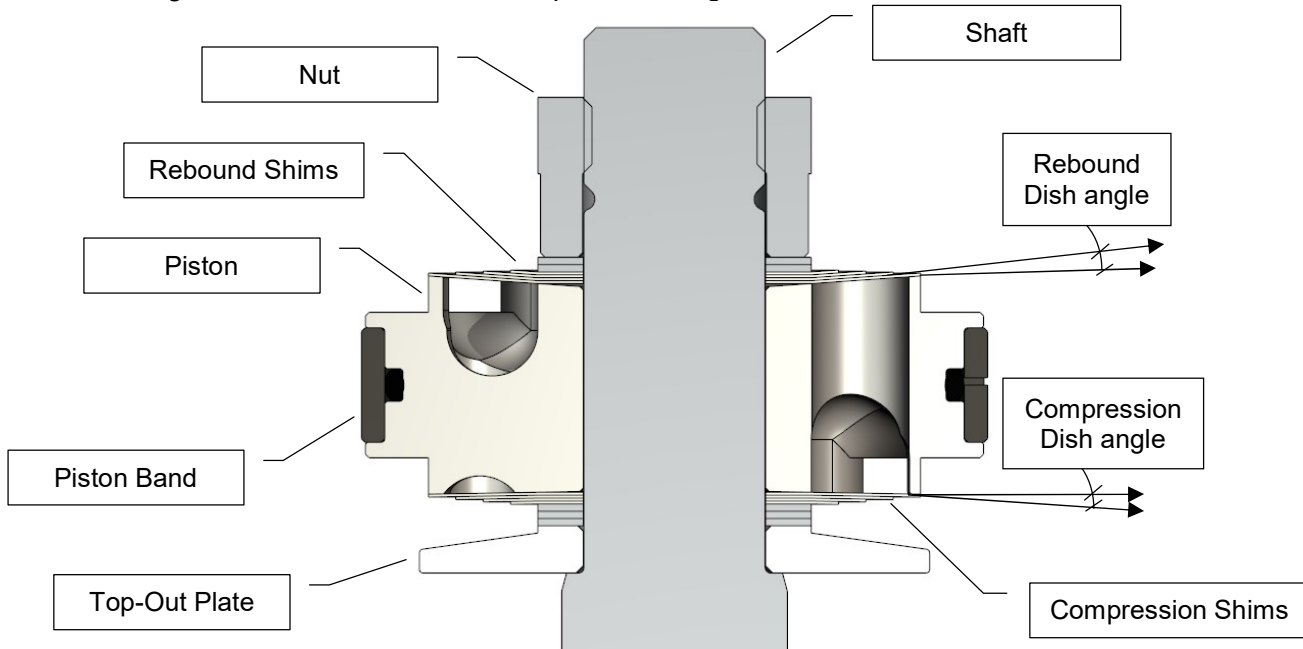


BLEED OPTIONS

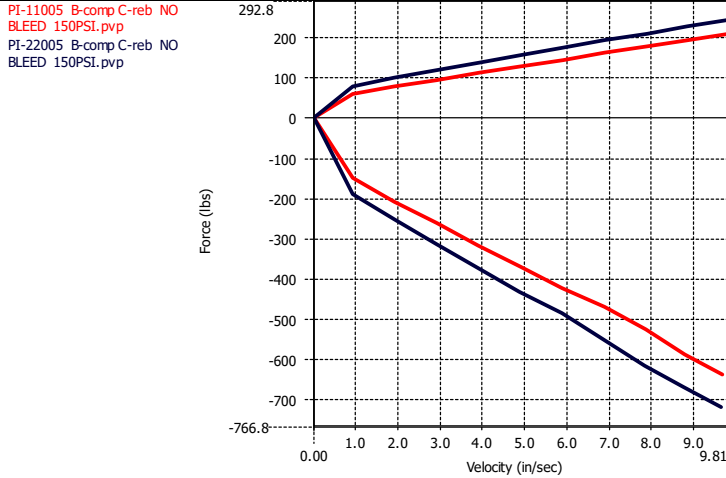
Bleed or small orifice flow can be added to linear pistons in two ways: (1) with one or three notch bleed shims (ports are oriented at 120 degree intervals) or (2) by drilling holes into the piston at a perpendicular orientation to the port centerlines. Be sure to deburr any drilled holes before use.

DISH & PRELOAD OPTIONS

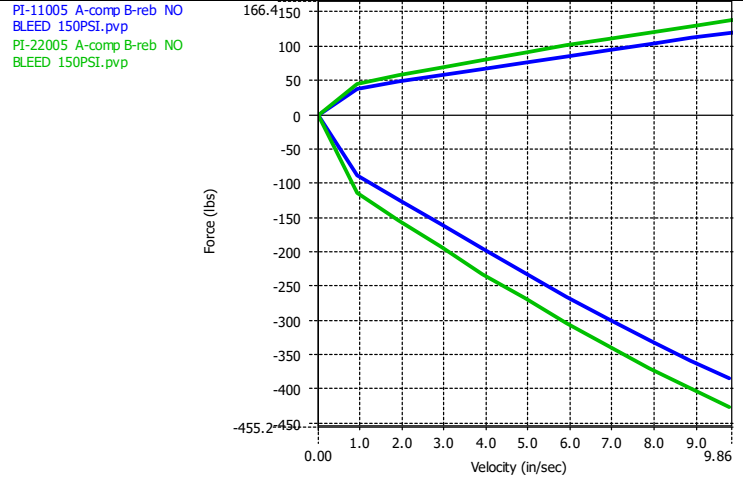
Linear pistons have a concave machine detail on the face if specified with any dish above a zero degree (zero degree pistons are flat). This concavity adds static preload to the valve washer when assembled. The purpose of dish is to delay the point at which the shim opens to allow fluid flow. The part number of the piston indicates what dish each face has. For instance, a PI-11005-4032 has a one degree dish angle on compression and one degree on rebound. Similarly, a PI-21005 has a two degree dish angle on compression and a one degree on rebound. The higher the dish number = more preload = higher forces.



**DYNO CHARACTERISTIC 001**



**DYNO CHARACTERISTIC 002**



**DYNO EXAMPLE 001 BUILD INFORMATION**

Piston	PI-11005-4032 / PI-22005
Compression Stack	B
Rebound Stack	C
Bleed	.000
Pressure	150 psi
Oil	5 wt

With all other components and shim stacks the same, the difference between the pistons can be seen with the piston with the 2 degree dish producing more force than the 1 degree.

**DYNO EXAMPLE 002 BUILD INFORMATION**

Piston	PI-11005-4032 / PI-22005
Compression Stack	A
Rebound Stack	B
Bleed	.000
Pressure	150 psi
Oil	5 wt

With all other components and shim stacks the same, the difference between the pistons can be seen with the piston with the 2 degree dish producing more force than the 1 degree.

**RELATED PART NUMBERS**

- PI-00005-4032
- PI-11005-4032
- PI-12005
- PI-21005
- PI-22005

**COMPATIBLE PARTS**

- PB-55
- OR-2028-B

**HANDLING CHARACTERISTICS**

All applications are different but the general characteristic of this piston is one of comfort and gradual roll-on of force build-up. During extremely bumpy track conditions or curbing situations, linear pistons may feel slightly harsh. Additionally, linear pistons will not create as much low-speed damping or "nose" as other piston types. The linear piston is an excellent choice for the beginner or for smooth track conditions.

**REVISION HISTORY**

REV	DESCRIPTION	INITIALS	DATE
1	INITIAL RELEASE	JMA	JUN-23-2020