

## General Shim and Shim Kit Information

### Shim Qualities

- All shims are made from A2 tool steel, the highest quality steel for this application.
- All shims are hardened to an Rc 58 to 62. This is very hard, much harder than Ducati OEM shims, resulting in excellent wear and impact qualities.
- The physical design of EMS shims are similar to Ducati OEM shims. The 7 mm closer shims are slightly different to work optimally with MBP retainers. The slight difference has no affect when using the stock Ducati OEM half rings.
- All shims are made in USA using the latest in turning machine technology.
- All shims are 100% inspected.
- The design and material have been extensively tested on the road and on the track. EMS shims are used all over the world in race and street bikes. Some Ducati dealers in the US are now using EMS shims.
- EMS closer shims do not deform over time, where the stock Ducati OEM shims do deform down in the groove where the retainers reside. The “dishing” that occurs contributes to increased valve clearances.

### Shim Application

- There are two basic shim designs for Ducati Motorcycles, one for 7 mm diameter valve stems and one for 8 mm diameter valve stems. There are two shims per valve, an opener shim which sits on top of the valve stem and a closer shim which slips over the valve stem and is constrained by two half rings.
- The 8 mm diameter valve stems were used on all the earlier 2V Ducatis. When the 851 came along, 7 mm dia valve stems were used with a new shim design.
- The “4V” shim design was then used on all the 4V bikes, 888, 916, 996, 748, 998, 999, 749, 1098, 848, etc.
- The 749S and later model 999R and 1098R models use 6 mm diameter valve stems and a completely different shim design.
- The 7 mm shims are used on all 2V and 4V Ducatis from 2007 and later.
- See the Valve Shim Application Chart to find out which shim is used each model of Ducati.
- The 7 mm closer shims were redesigned when the 1098 was introduced. The chamfer on the outside was moved toward the bottom of the shim for clearance with adjacent cams. All EMS 7 mm closer shims fit either the older 4V bikes and the newer ones (1098, 848).

### Shim Kit Design

- 1) 8 mm Shim Kit (2V)
  - a) This shim kit is designed for all 8 mm valve stem bikes. It includes the older bikes (Grand Canyon, older supersports, Paso, etc.)
  - b) The range of shims needed for the two valve bikes is greater than for the newer 4V bikes. Therefore to make the kit affordable, the increment between shim sizes is .10 mm (.0039 in). 8 mm shims in half sizes (.05 mm increments) are available but not included in this kit.
- 2) 7 mm Shim Kit (4V)
  - a) The range of shims needed in the bikes using the 7 mm dia shims is smaller than the 8 mm valve bikes. Therefore, .05 mm increments are used on the 7 mm Shim Kit.