

## Guidelines for Valve and Valve-guide Installation

1. Check roundness, straightness and correct diameter of valve guide bore after assembling in cylinder head. Correct errors by reaming to proper shape and diameter. Clean guide bore thoroughly with clean bottlebrush.
2. Check valves for damage, indentations, valve seat run-out and excessive stem surface roughness.
3. Check proper alignment of seat insert/valve centreline.
4. Do not insert valves into valve guides in dry condition. i.e. Lubricate valve stem prior to installation.
5. Machine seat inserts only after valve guides are checked / reconditioned or replaced.
6. Do not grind valve seats with abrasive paste after machining of valve seat in cylinder head. Grinding will eliminate differential angle which is necessary for proper heat transfer. After correct machining of seat insert, profile will match with seat zone on valve head. Paste constituents may also cause inter-crystalline corrosion on valve seat material and may enter into valve guide bore.
7. Always use new, correct oil stem seals on new valves to prevent from dry operation condition or oil consumption. Use protection caps on stem end of valves for oil seal installation to protect seals from damage on inner lip.
8. Assemble and align collets, spring retainer and valve spring correctly to avoid cross forces and bending stress. Never reuse worn parts.
9. Check contact faces of tappets / followers / rocker arms for wear before reuse.
10. Safeguard proper alignment and lubrication of valve train components to prevent irregular cross forces on valve stem and guide.

Valve to guide clearance of .001" to .0015" (0.025 to 0.038mm) is recommended where O.E. spec is not available.

Common practice is to allow .0005" (0.013mm) more clearance for the exhaust guide.