

Single pass Honing Vs Multi-pass Honing of valve bodies

Sl No	Single pass Honing	Multi-pass Honing
1	<p>Honing allowance is shared by 3 to 5 tools. Each tool removes about 5 to 8 microns while the tool pierces through, causing burr on the edge of grooves in the bore!</p> <p>When tool completes about 1000 jobs, the diamond grit flattens out and it starts ploughing the material, creating a fine burr.</p>	<p>Each micron is removed by about 5 to 10 passes. Hence, material is gradually removed and there is no burr formation.</p> <p>Additional brushing dislodges even the micro burrs that may formed.</p>
2	<p>Honed surface glazes after a few thousand cycles, due to worn out abrasive tool surface.</p>	<p>Honed surface finish is consistent till the life of abrasive tool. After about 10,000 jobs, the honing ledge is replaced and abrasive surface becomes brand new. Self-sharpening effect of the abrasives, results in free cutting during the tool's entire operating life.</p>

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3	The honed surface has helical groove pattern, less suitable for oil retention.	The honed surface with cross hatch pattern provides pockets for oil retention.
4	Less suitable for longer bores ($L/D > 3$); unless there are grooves, chips do not get flushed easily.	Same honing accuracy can be achieved for a range of $L/D = 1$ to 10
5	Honing accuracy fully depends of accuracy of bore dia before honing. Camber error (banana shape) can not be corrected.	Honing accuracy depends partly on bore accuracy before honing. But correction to camber error and taper is possible.
6	Blind honing is not possible	Blind honing is possible
7	Auto-gauging is generally not used as in-process correction is not possible.	Air electronic multi-point in-process gauging automatically leads to correction of bore size