

Single- Pass The Process



Single-pass honing/bore finishing process involves a series of pre-set diamond coated tools that get passed through a bore with a single in-and-out stroke movement while the tool, part, or both are rotating. The number of tools that are used will vary depending upon the amount of stock to be removed, surface finish requirement, geometrical requirements, and material make up. Generally each tool is set progressively larger in diameter, in ever-reducing increments, while the size of the diamond particles is also reduced. This arrangement allows tools with larger diamond particles that remove relatively large amounts of material, and tools with smaller diamond particles that have finer surface finish capabilities, to be used progressively for maximum efficiency.

The single-pass process is in contrast to conventional honing where the tool or part is reciprocated many times while the abrasive portion of the tool is gradually expanded, then contracted during each cycle.

Another difference is in the abrasive bond of the tool. With the single-pass process, a single layer of diamond is permanently plated onto the tool with approximately 50% of each diamond particle protruding from the bond. The benefits of this are twofold: greater diamond exposure allows for faster cutting/stock removal rates, and because the only wear that occurs on the

plated tool comes from the diamond, tool size can be held for extremely long periods of time without adjustment. Conventional honing tools normally utilize stones that have abrasive particles scattered throughout a specific depth in the bond. This type of tool requires the bond to wear so that new abrasive particles can be exposed, and provide a much smaller amount of chip clearance