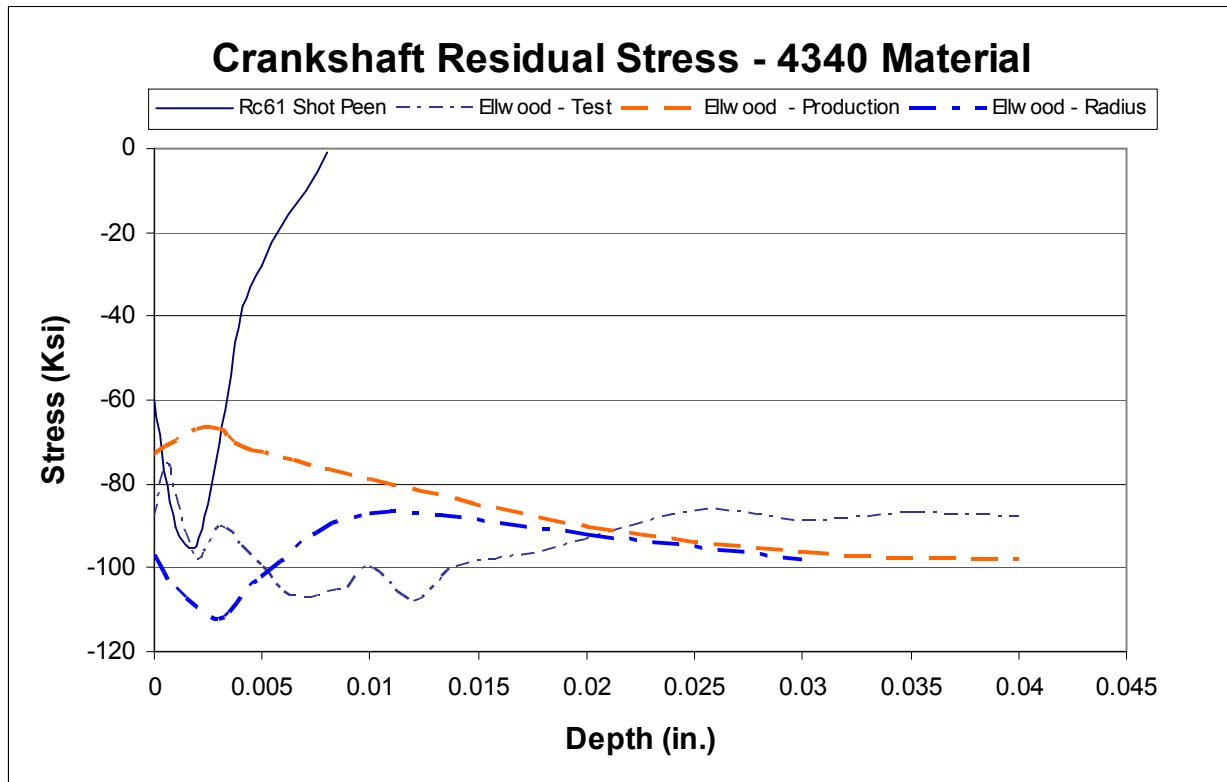




Ellwood Surface Peening Treatment

Ellwood Crankshaft Group utilizes a patented surface and impact treatment process that enhances fatigue life of crankshafts and varying steel forged components. The treatment induces surface residual compressive stress that improves the fatigue life of the workpiece.

The Ellwood Surface Peening Treatment process is able to achieve 3 to 5 times the effective depth as standard shot peening procedures. The below graph shows actual test results comparing typical shot peened surfaces with three surfaces (test diameter, production diameter, and production radius) that experienced the enhanced surface peening procedure. As viewed below, the Ellwood procedure induces a greater, deeper stress. The depth reaches .040" while the shot peen stress turns tensile at .010" deep. The Ellwood procedure was performed on both a diameter and a radius made from 4340 alloy steel.



The depth versus residual stress testing was performed using X-Ray Diffraction analysis at a third party lab. This testing allows for the radii to be sectioned to test and determine the induced stress and achieved penetration depth values.



ELLWOOD CRANKSHAFT GROUP

The equipment utilized in the Ellwood Peening Process offers increased control of peening parameters. Peening intensity and frequency are easily specified using the electrical control box while the peening pin diameter is flexible and interchangeable.

The photo below shows the surface treating technician reviewing clearance and alignment in preparation to treat a main bearing journal radius on a diesel marine crankshaft. The surface treatment process is usually utilized while the workpiece is in a lathe, though the treatment can be performed manually by the technician.



The next photos below show both diameter and radius surfaces that have been processed using the Ellwood Surface Peening Treatment method. The surfaces below are as treated, light polishing operations can follow the treatment if desired.

