

11.29 We are asked to compare the effectiveness of quenching in moderately agitated water and oil by graphing, on a single plot, the hardness profiles for 75-mm (3-in.) diameter cylindrical specimens of an 8640 steel that had been quenched in both media.

For moderately agitated water, the equivalent distances and hardnesses for the several radial positions [Figures 11.17(a) and 11.15] are tabulated below.

<u>Radial Position</u>	<u>Equivalent Distance, mm</u>	<u>HRC Hardness</u>
Surface	3	56
3/4 <i>R</i>	8	53
Midradius	13	47
Center	17	42.5

While for moderately agitated oil, the equivalent distances and hardnesses for the several radial positions [Figures 11.17(b) and 11.15] are tabulated below.

<u>Radial Position</u>	<u>Equivalent Distance, mm</u>	<u>HRC Hardness</u>
Surface	13	47
3/4 <i>R</i>	19	41.5
Midradius	22	38
Center	25	36

These data are plotted here.

