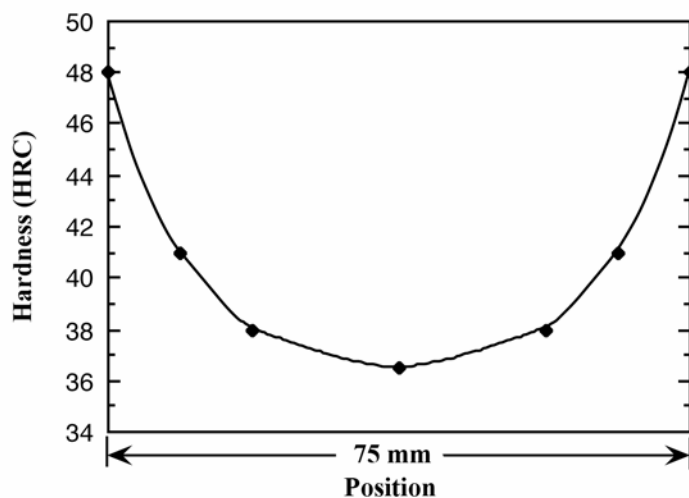


11.28 (a) This part of the problem calls for us to construct a radial hardness profile for a 75 mm (3 in.) diameter cylindrical specimen of an 8640 steel that has been quenched in moderately agitated oil. In the manner of Example Problem 11.1, the equivalent distances and hardnesses tabulated below were determined from Figures 11.14 and 11.17(b).

<u>Radial Position</u>	<u>Equivalent Distance, mm</u>	<u>HRC Hardness</u>
Surface	13	48
$3/4 R$	18	41
Midradius	22	38
Center	26	36

The resulting hardness profile is plotted below.



(b) The radial hardness profile for a 50 mm (2 in.) diameter specimen of a 5140 steel that has been quenched in moderately agitated oil is desired. The equivalent distances and hardnesses tabulated below were determined using Figures 11.14 and 11.17(b).

<u>Radial Position</u>	<u>Equivalent Distance, mm</u>	<u>HRC Hardness</u>
Surface	7	51
$3/4 R$	12	43
Midradius	14	40
Center	16	38.5