

Problems

1. A Rockwell hardness measurement is made on a ductile iron (80-55-06 as cast) and the obtained Rockwell hardness R scale is 13 HRC. Predict the tensile and yield strengths of this material.
2. A Brinell hardness measurement is made on a ductile iron (120-90-02, Oil-quenched) using a 10-mm-diameter sphere of tungsten carbide. A load of 3,000 kg produces a 3.52-mm-diameter impression in the iron surface.
 - a. Calculate the BHN of this alloy. (The correct units for the Brinell equation are kilograms for load and millimeters for diameters.)
 - b. Predict the tensile and yield strengths
3. Suppose that a ductile iron (100-70-03, air-quenched) has a tensile strength of 800 MPa. What diameter impression would you expect the 3,000-kg load to produce with the 10-mm-diameter ball?