



Rockwell Hardness Testing Machine

3. ROCKWELL HARDNESS TEST

Ex. No.: 1

Date: 07.05.2018

AIM

To measure the hardness of different materials like mild steel, brass, copper and aluminium

BASIC CONCEPT

The hardness number is read directly from an indicator on the machine having two scales B & C. The term hardness of a material may be defined as the resistance to deformation due to indentation, abrasion, scratching & machining.

APPARATUS

1. Rockwell hardness tester
2. Diamond cone penetrator
3. 1.58 mm diameter steel ball point penetrator

PROCEDURE

1. Clean the test piece and place on the special anvil (work table) of the machine. Turn the capston wheel to elevate the test specimen to contact the indenter point.
2. Further turn the wheel (3 rotations) to force the test specimen against the indenter. This will ensure that the minor load of 10 kg has been applied on specimen.
3. Push forward the lever and apply the major load.
4. As soon as the pointer in the dial comes to rest-reverse the lever direction which will release the major load. The pointer will rotate in the reverse direction.
5. The rockwell hardness is read on the appropriate scale dial directly.

TABULATION

Table 1: To determine the rockwell hardness number for different materials

Sl.No.	Material	Scale	Dial	Indentor	Total load (kg)	Minor load (kg)	Major load (kg)	Rockwell hardness number	
								Trial	Mean
1	Mild steel	C	Black	Diamond cone	150	10	140		
2	Brass	B	Red	1.58 mm dia steel ball	100	10	90	72; 76; 70	72.7
3	Copper	B	Red	1.58 mm dia steel ball	100	10	90	94; 90; 96;	96.67
4	Aluminium	B	Red	1.58 mm dia steel ball	100	10	90	20; 18; 19;	19.0

RESULT

The Rockwell hardness number for:

Mild steel	=	-na-	HRC
		96.67	
Brass	=	-----	HRB
		19.00	
Copper	=	-----	HRB
		32.67	
Aluminum	=	-----	HRB

INFERENCE

Successfully found the Rockwell Hardness Number of the given specimens experimentally.