

Rockwell Hardness Testing Reference Guide

ASTM E18 contains a listing of all regular Rockwell scales and typical materials for which these scales are applicable. Use these tables in selecting the scale that is appropriate for your application.

Scale Symbol	Typical Application
B	Copper alloys, soft steel aluminum alloys, malleable iron, etc.
C	Steel, hard cast irons, pearlitic malleable iron, titanium, deep case-hardened steel and other materials harder than B 100
A	Cemented carbides, thin steel and shallow case-hardened steel
D	Thin steel and medium case-hardened steel and pearlitic malleable iron
E	Cast iron, aluminum and magnesium alloys, bearing metal
F	Annealed copper alloys, thin soft sheet metals
G	Phosphor bronze, beryllium copper, malleable irons, upper limit G 92 to avoid possible flattening of ball
H	Aluminum, zinc lead
K, L, M, P R, S, V	Bearing metals and other very soft or thin materials including plastics. Use smallest ball and heaviest load that prevent an "anvil effect"

Scale Symbol	Indenter	Load (kgf)
A	Diamond	60
B	1/16" Ball	100
C	Diamond	150
D	Diamond	100
E	1/8" Ball	100
F	1/16" Ball	60
G	1/16" Ball	150
H	1/8" Ball	60
K	1/8" Ball	150
L	1/4" Ball	60
M	1/4" Ball	100
P	1/4" Ball	150
R	1/2" Ball	60
S	1/2" Ball	100
V	1/2" Ball	150

Regular Rockwell Testing

In this test method, the minor (preload) is always 10 kgf. The major load may be any of the following loads: 60 kgf, 100 kgf, or 150 kgf.



VERSITRON® Rockwell Hardness Tester

Scale Symbol	Indenter	Load (kgf)
15N	N Diamond	15
30N	N Diamond	30
45N	N Diamond	45
15T	1/16" Ball	15
30T	1/16" Ball	30
45T	1/16" Ball	45
15W	1/8" Ball	15
30W	1/8" Ball	30
45W	1/8" Ball	45
15X	1/4" Ball	15
30X	1/4" Ball	30
45X	1/4" Ball	45
15Y	1/2" Ball	15
30Y	1/2" Ball	30
45Y	1/2" Ball	45

Superficial Rockwell Testing

In this test method, the minor (preload) is always 3 kgf. The major load may be any of the following loads: 15kgf, 30 kgf, or 45 kgf.

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Hardness Testing



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