

Table 1 — Rockwell scales

Rockwell hardness scale	Hardness symbol ^a	Type of indenter mm	Preliminary test force F_0 N	Additional test force F_1 N	Total test force F N	Field of application (Rockwell hardness test)
A	HRA	Diamond cone	98,07	490,3	588,4	20 HRA to 88 HRA
B	HRB	Ball 1,587 5 mm	98,07	882,6	980,7	20 HRB to 100 HRB
C	HRC	Diamond cone	98,07	1 373	1 471	20 HRC to 70 HRC
D	HRD	Diamond cone	98,07	882,6	980,7	40 HRD to 77 HRD
E	HRE	Ball 3,175 mm	98,07	882,6	980,7	70 HRE to 100 HRE
F	HRF	Ball 1,587 5 mm	98,07	490,3	588,4	60 HRF to 100 HRF
G	HRG	Ball 1,587 5 mm	98,07	1 373	1 471	30 HRG to 94 HRG
H	HRH	Ball 3,175 mm	98,07	490,3	588,4	80 HRH to 100 HRH
K	HRK	Ball 3,175 mm	98,07	1 373	1 471	40 HRK to 100 HRK
15N	HR15N	Diamond cone	29,42	117,7	147,1	70 HR15N to 94 HR15N
30N	HR30N	Diamond cone	29,42	264,8	294,2	42 HR30N to 86 HR30N
45N	HR45N	Diamond cone	29,42	411,9	441,3	20 HR45N to 77 HR45N
15T	HR15T	Ball 1,587 5 mm	29,42	117,7	147,1	67 HR15T to 93 HR15T
30T	HR30T	Ball 1,587 5 mm	29,42	264,8	294,2	29 HR30T to 82 HR30T
45T	HR45T	Ball 1,587 5 mm	29,42	411,9	441,3	10 HR45T to 72 HR45T

^a For the scales using the ball indenters, the hardness symbol is to be completed with "S", if the steel ball indenter is used and with "W", if the hardmetal ball is used.

Table 2 — Symbols and designations

Symbol	Designation	Unit
F_0	Preliminary test force	N
F_1	Additional test force	N
F	Total test force	N
S	Scale unit, specific to the scale	mm
N	Number, specific to the scale	mm
h	Permanent depth of indentation under preliminary test force after removal of additional test force (permanent indentation depth)	mm
HRA HRC HRD	Rockwell hardness = $100 - \frac{h}{0,002}$	
HRB HRE HRF HRG HRH HRK	Rockwell hardness = $130 - \frac{h}{0,002}$	
HRN HRT	Rockwell hardness = $100 - \frac{h}{0,001}$	