

DUREZZA - ROCKWELL - VICKERS - BRINELL



COSTRUTTORI STRUMENTI DI MISURA E CONTROLLO

VIA PALAZZOLO, 41 - 25037-PONTOGLIO (BS) ITALY - TEL. +39 030 737252 • FAX +39 030 7376742

<http://www.bocchicontrol.it> • e-mail: info@bocchicontrol.it

ROCKWELL							VICKERS	BRINELL 30	RESISTENZA A TRAZIONE N/mm ²
C	A	D	G	15-N	30-N	45-N			
80	92.0	86.5	-	96.5	92.0	87.0	1865	-	-
79	91.5	85.5	-	-	91.5	86.5	1787	-	-
80	91.0	84.5	-	96.0	91.0	85.5	1710	-	-
77	90.5	84.0	-	-	90.5	84.5	1633	-	-
76	90.0	83.0	-	95.5	90.0	83.5	1556	-	-
75	89.5	82.5	-	-	89.0	82.5	1478	-	-
74	89.0	81.5	-	95.0	88.9	81.5	1400	-	-
73	88.5	81.0	-	-	88.0	80.5	1323	-	-
72	88.0	80.0	-	94.5	87.0	79.5	1245	-	-
71	87.0	79.5	-	-	86.5	78.5	1160	-	-
70	86.5	78.5	-	94.0	86.0	77.5	1076	-	-
69	86.0	78.0	-	93.5	85.0	76.5	1004	-	-
68	85.5	77.0	-	-	84.5	75.5	942	-	-
67	85.0	76.0	-	93.0	83.5	74.5	894	-	-
66	84.5	75.5	-	92.5	83.0	73.0	854	-	-
65	84.5	74.5	-	92.0	82.0	72.0	820	-	-
64	83.5	74.0	-	-	81.0	71.0	789	-	-
63	83.0	73.0	-	91.5	80.0	70.0	763	-	-
62	82.5	72.5	-	91.0	79.0	69.0	739	-	-
61	81.5	71.5	-	90.5	78.5	67.5	716	-	-
60	81.0	71.0	-	90.0	77.5	66.5	695	614	-
59	80.5	70.0	-	89.5	76.5	65.5	675	600	2420
58	80.0	69.0	-	-	75.5	64.0	655	587	2330
57	79.5	68.5	-	89.0	75.0	63.0	636	573	2240
56	79.0	67.5	-	88.5	74.0	62.0	617	560	2160
55	78.5	67.0	-	88.0	73.0	61.0	598	547	2070
54	78.0	66.0	-	87.5	72.0	59.5	580	534	2010
53	77.5	65.5	-	87.0	71.0	58.5	562	522	1950
52	77.0	64.5	-	86.5	70.5	57.5	545	509	1880
51	76.5	64.0	-	86.0	69.5	56.0	528	496	1820
50	76.0	63.0	-	85.5	68.5	55.0	513	484	1760
49	73.5	65.0	-	85.0	67.5	54.0	498	472	1700
48	73.0	61.0	-	84.5	66.5	52.5	485	460	1640
47	74.0	60.5	-	84.0	66.0	51.5	471	448	1580
46	73.5	60.0	-	83.5	65.0	50.0	458	437	1520
45	73.0	59.0	-	83.0	64.0	49.0	446	526	1480
44	72.5	58.5	-	82.5	63.0	48.0	435	415	1430
43	72.0	57.5	-	82.0	62.0	46.5	424	404	1390
42	71.5	57.0	-	81.5	61.5	45.5	413	393	1340
41	71.0	56.0	-	81.0	60.5	44.5	403	382	1300
40	70.5	55.5	-	80.5	59.5	43.0	393	372	1250
39	70.0	54.5	-	80.0	58.5	42.0	383	362	1220
38	69.5	54.0	-	79.5	57.5	41.0	373	352	1180
37	69.0	53.0	-	79.0	56.5	39.5	363	342	1140
36	68.5	52.5	-	78.5	56.0	38.5	353	332	1110
35	68.0	51.5	-	78.0	55.0	37.0	343	322	1080
34	67.5	50.5	-	77.0	54.0	36.0	334	313	1050
33	67.0	50.0	-	76.5	53.0	35.0	325	305	1030
32	66.5	49.0	-	76.0	52.0	33.5	317	297	1010
31	66.0	48.5	-	75.5	51.5	32.5	309	290	970
30	65.5	47.5	92.0	75.0	50.5	31.5	301	283	950
29	65.0	47.0	91.0	74.5	49.5	30.0	293	276	930
28	64.5	46.0	90.0	74.0	48.5	29.0	285	270	900
27	64.0	45.5	89.0	73.5	47.5	28.0	278	265	880
26	63.5	44.5	88.0	72.5	47.0	26.5	271	260	860
25	63.0	44.0	87.0	72.0	46.0	25.5	264	255	850
24	62.5	43.0	86.0	71.5	45.0	24.0	257	250	830
23	62.0	42.5	84.5	71.0	44.0	23.0	251	245	810
22	61.5	41.5	83.5	70.5	43.0	22.0	246	240	790
21	61.0	41.0	82.5	70.0	42.5	20.5	241	235	770
20	60.5	40.0	81.0	69.5	41.5	19.5	236	230	760

ROCKWELL									BRINELL
B	F	E	K	A	H	15-T	30-T	45-T	
41	80.5	81.5	56.5	31.0	-	74.0	43.5	13.5	75
40	79	81.0	55.5	-	-	73.5	43.0	12.5	-
39	79.0	80.0	54.5	30.5	-	-	42.0	11.0	74
38	78.5	79.5	54.0	30.0	-	73.0	41.5	10.0	73
37	78.0	79.0	53.0	29.0	-	72.5	40.5	9.0	72
36	77.5	78.5	52.0	29.0	100	-	40.0	8.0	-
35	77.0	78.0	51.5	28.5	99.5	72.0	39.5	7.0	71
34	76.5	77.0	50.5	28.0	99.0	71.5	38.5	6.0	70
33	75.5	76.5	49.5	-	-	-	38.0	5.0	69
32	75.0	76.0	48.5	27.5	98.5	71.0	37.5	4.0	-
31	74.5	75.5	48.0	27.0	98.0	-	36.5	3.0	68
30	74.0	75.0	47.0	26.5	-	70.5	36.0	2.0	67
29	73.5	74.0	46.0	26.0	97.5	70.0	35.5	1.0	-
28	73.0	73.5	45.0	25.5	97.0	-	34.5	-	66
27	72.5	73	44.5	25.0	96.5	69.5	34.0	-	-
26	72.0	72.5	43.5	24.5	-	69.0	33.0	-	65
25	71.0	72.0	42.0	-	96.0	-	32.5	-	64
24	70.5	71.0	41.5	24.0	95.5	68.5	32.0	-	-
23	70.0	70.5	41.0	23.5	-	68.0	31.0	-	63
22	69.5	70.0	10.0	23.0	95.0	-	30.5	-	-
21	69.0	69.5	39.0	22.5	94.5	67.5	29.5	-	62
20	68.5	68.5	38.0	22.0	-	-	29.0	-	-
19	68.0	68.0	37.5	21.5	94.0	67.0	28.5	-	61
18	67.0	67.5	36.5	-	93.5	66.5	27.5	-	-
17	66.5	67.0	35.5	21.0	93.0	-	27.0	-	60
16	66.0	66.5	35.0	20.5	-	66.0	26.0	-	-
15	65.5	65.5	34.0	20.0	92.5	65.5	25.5	-	59
14	65.0	65.0	33.0	-	92.0	-	25.0	-	-
13	64.5	64.5	32.0	-	-	65.0	24.0	-	58
12	64.0	64.0	31.5	-	91.5	64.5	23.5	-	-
11	63.5	63.5	30.5	-	91.0	-	23.0	-	-
10	63.0	62.5	29.5	-	90.5	64.0	22.0	-	57
9	62.0	62.0	29.0	-	-	-	21.5	-	-
8	61.5	61.5	28.0	-	90.0	63.5	20.5	-	-
7	61.0	61.0	27.0	-	89.5	63.0	20.0	-	56
6	60.5	60.5	26.0	-	-	-	19.5	-	-
5	60.0	60.0	25.5	-	89.0	62.5	18.5	-	55
4	59.5	59.0	24.5	-	88.5	62.0	18.0	-	-
3	59.0	58.5	23.5	-	88.0	-	17.0	-	-
2	58.0	58.0	23.0	-	-	61.5	16.5	-	54
1	57.5	57.5	22.0	-	87.5	61.0	16.0	-	-
0	57.0	57.0	21.0	-	87.0	-	15.0	-	53

SOMMARIO DEI SIMBOLI

DUREZZE ROCKWELL			DUREZZE ROCKWELL SUPERFICIALI		
Scala	Penetratore	Carico	Scala	Penetratore	Carico
C	diamante 120°	150 Kg	15-N	diamante 120°	15 Kg
A	diamante 120°	60 Kg	30-N	diamante 120°	30 Kg
D	diamante 120°	100 Kg	45-N	diamante 120°	45 Kg
B	sfera 1/16"	100 Kg	15-T	sfera 1/16"	15 Kg
E	sfera 1/18"	100 Kg	30-T	sfera 1/16"	30 Kg
F	sfera 1/16"	60 Kg	45-T	sfera 1/16"	45 Kg
G	sfera 1/16"	150 Kg			
H	sfera 1/8"	60 Kg			
K	sfera 1/8"	150 Kg			
DUREZZE BRINELL			DUREZZE VICKERS		
30= 3000 Kg peso - Sfera 10 mm			Diamante a piramide tetragonale 136°		
5= 500 Kg peso - Sfera 10 mm			10 Kg peso.		
			Misura al microscopio di due diagonali.		
			Durezza calcolata da formula.		

GHISE - METALLI NON FERROSI												
ROCKWELL									VICKERS	BRINELL		RESISTENZA A TRAZIONE N/mm ²
B	F	G	E	K	A	15-T	30-T	45-T		5	30	
100	-	82.5	-	-	61.5	93.0	82.0	72.0	240	201	240	800
99	-	81.0	-	-	61.0	92.5	81.5	71.0	234	195	234	785
98	-	79.0	-	-	60.0	-	81.0	70.0	228	189	228	750
97	-	77.5	-	-	59.5	92.0	80.5	69.0	222	184	222	715
96	-	76.0	-	-	59.0	-	80.0	68.0	216	179	216	705
95	-	74.0	-	-	58.0	91.5	79.0	67.0	210	175	210	690
94	-	72.5	-	-	57.5	-	78.5	66.0	205	171	205	675
93	-	71.0	-	-	57.0	91.0	78.0	65.0	200	167	200	650
92	-	69.0	-	100.	56.5	90.5	77.5	64.5	195	163	195	635
91	-	67.5	-	99.5	56.0	-	77.0	63.5	190	160	190	620
90	-	66.0	-	98.5	55.5	90.0	76.0	62.5	185	157	185	615
89	-	64.0	-	98.0	55.0	89.5	75.5	61.5	180	154	180	605
88	-	62.5	-	97.0	54.0	-	75.0	60.5	176	151	176	590
87	-	61.0	-	96.5	53.5	89.0	74.5	59.5	172	148	172	580
86	-	59.0	-	95.5	53.0	88.5	74.0	58.5	169	145	169	570
85	-	57.5	-	94.5	52.5	-	73.5	58.0	165	142	165	565
84	-	56.0	-	94.0	52.0	88.0	73.0	57.0	162	140	162	560
83	-	54.0	-	93.0	51.0	87.5	72.0	56.0	159	137	159	550
82	-	52.5	-	92.0	50.5	-	71.5	55.0	156	135	156	530
81	-	51.0	-	91.0	50.0	87.5	71.0	54.0	153	133	153	505
80	-	49.0	-	90.5	49.5	86.5	70.0	53.0	151	130	151	495
79	-	47.5	-	89.5	49.0	-	69.5	52.0	147	128	147	485
78	-	46.0	-	88.5	48.5	86.0	69.0	51.0	144	126	144	475
77	-	44.0	-	88.0	48.0	85.5	68.0	50.0	141	124	141	460
76	-	42.5	-	87.0	47.0	-	67.5	49.0	139	122	139	455
75	99.5	41.0	-	86.0	46.5	85.0	67.0	48.5	137	120	137	450
74	99.0	39.0	-	85.0	46.0	-	66.0	47.5	135	118	135	440
73	98.5	37.5	-	84.5	45.5	84.5	65.5	46.5	132	116	132	435
72	98.0	36.0	-	83.5	45.0	84.0	65.0	45.5	130	114	130	425
71	97.5	34.5	100	82.5	44.5	-	64.0	44.5	127	112	127	420
70	97.0	32.5	99.5	81.5	44.0	83.5	63.5	43.5	125	110	125	415
69	96.0	31.0	99.0	81.0	43.5	83.0	62.5	42.5	123	109	123	410
68	95.5	29.5	98.0	80.0	43.0	-	62.0	41.5	121	107	121	405
67	95.0	28.0	97.5	79.0	42.5	82.5	61.5	40.5	119	106	119	395
66	94.5	26.5	97.0	78.0	42.0	82.0	60.5	39.5	117	104	117	385
65	94.0	25.0	96.0	77.5	-	-	60.0	38.5	116	102	116	
64	93.5	23.5	95.5	76.5	41.5	81.5	58.5	37.5	114	101	114	
63	93.0	22.0	95.0	75.5	41.0	81.0	58.5	36.5	112	99	112	
62	92.0	20.5	94.5	74.5	40.5	-	58.0	35.5	110	98	110	
61	91.5	19.0	93.5	74.0	40.0	80.5	57.0	34.5	109	96	109	
60	91.0	17.5	93.0	73.0	39.5	-	56.5	33.5	107	95	107	
59	90.5	16.0	92.5	72.0	39.0	80.0	56.0	32.0	106	94	106	
58	90.0	14.5	92.0	71.0	38.5	79.5	55.0	31.0	104	92	104	
57	89.5	13.0	91.0	70.5	38.0	-	54.5	30.0	103	91	103	
56	89.0	11.5	90.5	69.5	-	79.0	54.0	29.0	101	90	101	
55	88.0	10.0	90.0	68.5	37.5	78.5	53.0	28.0	100	89	100	
54	87.5	8.5	89.5	68.0	37.0	-	52.5	27.0		87		
53	87.0	7.0	89.0	67.0	36.5	78.0	51.5	26.0		86		
52	86.5	5.5	88.0	66.0	36.0	77.5	51.0	25.0		85		
51	86.0	4.0	87.5	65.0	35.5	-	50.5	24.0		84		
50	85.5	2.5	87.0	64.5	35.0	77.0	49.5	23.0		83		
49	85.0	-	86.5	63.5	-	76.5	49.0	22.0		82		
48	84.5	-	85.5	62.5	34.5	-	48.5	20.5		81		
47	84.0	-	85.0	61.5	34.0	76.0	47.5	19.5		80		
46	83.0	-	84.5	61.0	33.5	75.5	47.0	18.5		-		
45	82.5	-	84.0	60.0	33.0	-	46.0	17.5		79		
44	82.0	-	83.5	59.0	32.5	75.0	45.5	16.5		78		
43	81.5	-	82.5	58.0	32.0	74.5	45.0	15.5		77		
42	81.0	-	82.0	57.5	31.5	-	44.0	14.5		76		
41	80.5	-	81.5	56.0	31.0	74.0	43.5	13.5		75		