

DUREZZA - ROCKWELL - VICKERS - BRINELL



BOCCHI

COSTRUTTORI STRUMENTI DI MISURA E CONTROLLO

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ACCAI INDURITI										
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	81.5	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	75.5	62.0	-	85.0	67.5	54.0	498	472	1700	-
48	75.0	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	426	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	-

ACCAI NON INDURITI									
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	79.5	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	40.0	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	66.5	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	-