



weights and properties of grinding media

The degree of hardness is one of the most important properties of grinding media influencing their resistance to wear.

May we draw your attention to the fact that the comparison of the hardness of the alloys offered and above all, the control of these, cannot be carried out by the system BRINELL.

The BRINELL test consists of submitting the metal to a determined pressure by means of a hard steel ball also of a determined diameter. The diameter of the impression left by the ball is then measured.

Thus, the result may be falsified by the deformation of the ball itself when it contacts a very hard metal.

On the other hand, the ROCKWELL C hardness test is carried out by means of an indeformable diamond cone of 120° and the hardness is determined by the difference in penetration under a light initial load, and under a test load of 150 kg.

Thus, above a certain degree of hardness, only the ROCKWELL C test is valid, and a **corresponding** BRINELL hardness may only be **estimated** (notably graphically).

Moreover, the comparison between the hardness of materials and their tensile strength expressed in kg/mm² is usually unreliable. It is only valid for ordinary annealed steel, having a C content of less than 0.5 %, i.e., a Brinell hardness of less than 175.

DIMENSIONS		UNITARY	UNITARY	NUMBER	WEIGHT	UNITARY	EXPOSED
in	in	VOLUME	WEIGHT	OF MEDIA	PER M ³	SURFACE	SURFACE
mm	inches	in dm ³	in kg	per m. tonne	in m. tonne	in dm ²	in m ² per m. tonne
BALLS							
Ø 17	5/8	0,003	0,020	51.179	± 5 T.	0,09	46,4
Ø 20	3/4	0,004	0,032	31.434		0,13	39,5
Ø 23	7/8	0,006	0,048	20.666		0,17	34,3
Ø 25	1	0,008	0,062	16.091		0,20	31,6
Ø 30	1 1/4	0,014	0,107	9.312		0,28	26,3
Ø 40	1 1/2	0,033	0,255	3.929		0,50	19,7
Ø 50	2	0,065	0,497	2.011		0,79	15,8
Ø 60	2 1/2	0,113	0,859	1.164		1,13	13,2
Ø 70	2 3/4	0,180	1,364	733		1,54	11,3
Ø 80	3 1/4	0,268	2,036	491		2,01	9,9
Ø 90	3 1/2	0,382	2,899	345		2,54	8,8
Ø 100	4	0,523	3,977	251	3,14	7,9	
Ø 110	4 1/2	0,697	5,294	189	3,80	7,2	
Ø 125	5	1,022	7,768	129	4,91	6,3	
CYLPEBS							
12 × 12	1/2	0,001	0,010	97.000	± 4 T.	0,07	65,8
13 × 13	1/2	0,002	0,013	76.294		0,08	60,7
16 × 16	5/8	0,003	0,024	40.922		0,12	49,3
20 × 20	3/4	0,006	0,048	20.956		0,19	39,5
22 × 22	7/8	0,008	0,064	15.742		0,23	35,9
25 × 25	1	0,012	0,093	10.727		0,29	31,6
32 × 32	1 1/4	0,026	0,195	5.115		0,48	24,7

Balls and cylpebs of the same dimensions are in the relation 3 to 2, with regard both to their surface and volume. The exposed surface is thus the same, per ton, in the two cases.