

PHI - mm CONVERSION $\phi = \log_2 (d \text{ in mm})$ $1 \mu\text{m} = 0.001\text{mm}$		Fractional mm and Decimal inches	SIZE TERMS (after Wentworth, 1922)	SIEVE SIZES		Intermediate diameters of natural grains equivalent to sieve size	Number of grains per mg		Settling Velocity (Quartz, 20°C)		Threshold Velocity for traction cm/sec	
ϕ	mm			ASTM No. (U.S. Standard)	Tyler Mesh No.		Quartz spheres	Natural sand	Spheres (Gibbs, 1971) cm/sec	Crushed	(Nevin, 1946)	(modified from Hjulstrom, 1939)
-8	256	10.1"	BOULDERS ($\geq -8\phi$) COBBLES									
-7	128	5.04"										
-6	64.0	2.52"	PEBBLES	2 1/2"								
-5	53.9	1.26"		2.12"	2"							
-4	45.3			1 1/2"	1 1/2"							
-3	33.1	0.63"		1 1/4"	1 1/4"							
-2	32.0			3/4"	.742"							
-1	26.9	0.32"		5/8"	.525"							
0	22.6			1/2"	.371"							
1	17.0	0.16"		3/8"	3							
2	16.0			5/16"	4	4						
3	13.4	0.08" inches		5/16"	5							
4	11.3		4	6	6							
5	9.52	mm	3	7								
6	8.00		2	8	8							
7	6.73	1	1	10								
8	5.66		12	12	12							
9	4.76	1/2	14	14								
10	4.00		16	16	16							
11	3.36	1/4	18	18	1.2	.72	.6					
12	2.83		20	20	20							
13	2.38	1/8	25	24	.86	2.0	1.5					
14	2.00		30	28	28							
15	1.63	1/16	35	32	.59	5.6	4.5					
16	1.41		40	35	35							
17	1.19	1/32	45	42	.42	15	13					
18	1.00		50	48	48							
19	.840	1/64	60	60	.30	43	35					
20	.707		70	65	65							
21	.545	1/128	80	80	.215	120	91					
22	.420		100	100	100							
23	.354	1/256	120	115	.155	350	240					
24	.297		140	150	150							
25	.250	1/512	170	170	.115	1000	580					
26	.210		200	200	200							
27	.177	1/1024	230	250	.080	2900	1700					
28	.149		270	270	270							
29	.125		325	325								
30	.105		400	400								
31	.088											
32	.074											
33	.062											
34	.053											
35	.044											
36	.037											
37	.031											
38	.02											
39	.016											
40	.01											
41	.008											
42	.005											
43	.004											
44	.003											
45	.002											
46	.001											

Note: Some sieve openings differ slightly from phi mm scale

Note: Sieve openings differ by as much as 2% from phi mm scale

Note: Applies to subangular to subrounded quartz sand (in mm)

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Stokes Law ($R = 6\pi r\eta v$)

Note: The relation between the beginning of traction transport and the velocity depends on the height above the bottom that the velocity is measured, and on other factors.