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Surface Conversion Chart

Surface Finish conversion chart or roughness between selected industry standard units.

Ra = Roughness, average in micro-meters & micro-inches

RMS = Root Mean Square in micro-inches

CLA = Center Line average in micro-inches

Rt = Roughness, total in microns

N = New ISO (Grade) Scale numbers

Cut-Off Length = Length required for sample.

Conversion math at bottom --

Surface Roughness Conversion Chart							
Ra micro- meters	Ra micro- inches	RMS	CLA (N)	Rt	N	Cut-Off Length	
						in.	mm
0.025	1	1.1	1	0.3	1	0.003	0.08
0.05	2	2.2	2	0.5	2	0.01	0.25
0.1	4	4.4	4	0.8	3	0.01	0.25
0.2	8	8.8	8	1.2	4	0.01	0.25
0.4	16	17.6	16	2	5	0.01	0.25
0.8	32	32.5	32	4	6	0.03	0.8
1.6	63	64.3	63	8	7	0.03	0.8
3.2	125	137.5	125	13	8	0.1	2.5
6.3	250	275	250	25	9	0.1	2.5
12.5	500	550	500	50	10	0.1	2.5
25	1000	1100	1000	100	11	0.3	8
50	2000	2200	2000	200	12	0.3	8

Conversions (math):

CLA (micro inches) = Multiply Ra(μm) x 40

RMS * (acceptable 1.1 - 1.7 factor) = Multiply CLA x 1.1

Parameter Conversion Formula

To convert a known Ra value to a different parameter, use the following formula:

Ra x Parameter Factor = Desired Parameter

Example:

Ra to Rt:

1.0 micrometer Ra x 8.7 (Rt Factor) = 8.7 micrometer Rt

40 microinch Ra x 8.7 (Rt Factor) = 348 microinch Rt