

# FLATNESS REFERENCE CHART

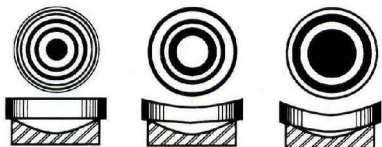
CONVERSION TABLE			
Number of Bands	Microinches (Millionths of an Inch)	Inches	Millimeters
0.1	1.2	.000012	.000029
0.2	2.3	.000023	.000059
0.3	3.5	.000035	.000088
0.4	4.6	.000046	.000118
0.5	5.8	.000058	.000147
0.6	6.9	.000069	.000176
0.7	8.1	.000081	.000206
0.8	9.3	.000093	.000235
0.9	10.4	.000104	.000264
1.0	11.6	.000116	.000294
2.0	23.1	.000231	.000588
3.0	34.7	.000347	.000881
4.0	46.3	.000463	.001175
5.0	57.8	.000578	.001469
6.0	69.4	.000694	.001763
7.0	81.0	.000810	.002056
8.0	92.5	.000925	.002350
9.0	104.1	.001041	.002644
10.0	115.7	.001157	.002938
11.0	127.2	.001272	.003232
12.0	138.8	.001388	.003525
13.0	150.4	.001504	.003819
14.0	161.9	.001619	.004113
15.0	173.5	.001735	.004407
16.0	185.1	.001851	.004700
17.0	196.6	.001966	.004994
18.0	208.2	.002082	.005288
19.0	219.8	.002198	.005582
20.0	231.3	.002313	.005876

Millimeters or inches is wavelength dependent. We are assuming in this reference  $\lambda = 588\text{nm}$ .

Convex surface: finger pressure at edges.



Concave surface: finger pressure at center.



**One microinch = one millionth of an inch = .000001 in.**

The term "microinch" is simply a more convenient way of saying "one millionth of an inch." Although popularly introduced in connection with surface finish measurement, the word is not restricted to that field. In surface finish specifications, however, it usually is an average value. (So-called root-mean-square average.) In this section, microinch and millionth of an inch are used interchangeably.

For many purposes, it is sufficient to take 1 band –10 microinches or 0.0003mm. To make a true test, both parts being tested, the work and optical flat must be allowed to acclimate the surrounding temperatures at the time of the test. Testing two flats, one at a different temperature, will result in an untrue reading.

SOURCE: UNIVERSAL PHOTONICS