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 R_T = Maximum roughness depth (peak to valley) along I_m

R_A = Arithmetic roughness average



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Roughness Parameters - The finer irregularities in the surface texture which are inherent in the production process. These are a measure of the vertical characteristics of the surface.

Sampling Length-

- The area selected for assessment and evaluation of the roughness parameter having the cutoff wavelength.
- Any surface irregularities spaced farther apart than the samplinglength are considered waviness. Also known as cutoff length.

Surface Texture-

 The topography of a surface composed of certaindeviations that are typical of the real surface. It includes roughness and waviness.

Ra - Arithmetical mean deviation

The average roughness or deviation of all points from a plane fit to the test part surface. Available for profile and areal data.

Ra -Arithmetical mean deviation



- **Rq** Root-mean-square (rms) roughness
- (rms)
- . The average of the
- measured height deviations taken within the evaluation
- length or area and measured from the mean linear
- surface. Available for profile and areal data. Rq is the
- rms parameter corresponding to Ra.

Root-mean-square (rms) roughness (rms)



Rmax

- Maximum peak-to-valley profile height
- The greatest peak-to-valley distance within any one sampling length

Rmax

Maximum peak-to-valley profile height

. The greatest peak-to-valley distance within any one sampling length

Rp(Peak)

Highest peak. The maximum distance between the mean line and the highest point within the sample. It is the maximum data point height above the mean line through the entire data set. Available for profile and areal data.

EFFECT OF A TECHNOLOGY

Roughness height rating micrometres, µm (microinches, µin) AA														
Process	50 (2000)	25 (1000) (12.5 500)	6.3 (250)	3.2 (125)	1.6 (63)	0.80	0.4	i0 0. 5) (i	20 0. B) (10 0. 4) (05 0.	025 1)	0.012 (0.5)
Flame cutting Snagging Sawing Planing, shaping	22 27 22				772	22								
Drilling Chemical milling Elect. discharge man Milling	ch	2222				777 777 777								
Broaching Reaming Electron beam Laser Electrochemical Boring, turning Barrel finishing		7777	22		772 772 772 772									
Electrolytic grinding Roller burnishing Grinding Honing				ezz		222	2 2 2/2	17 11110						
Electropolish Polishing Lapping Superfinishing						222								
Sand casting Hot rolling Forging Perm mold casting	ZZ			772 772 772										
Investment casting Extruding Cold rolling, drawin Die casting	9		222		777 777 777 777									
The ranges shown a Higher or lower value	bove a les ma	are typic y be obt	al of t	the pro	cesses r specia	listed al cone	l. dition	Ke Is.	ey ZZZ	Av ZZI Le	verage ss frec	applic juent a	atio	n ication

Extracted from General Motors Drafting Standards, June 1973 revision