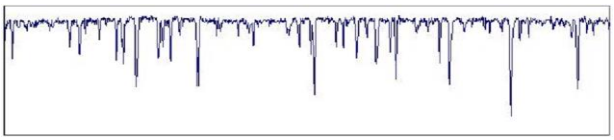
systemseals

SURFACE FINISH SPECIFICATION

To maximize seal performance and durability, System Seals recommends the following finishing values for hydraulic seals.



Metric (DIN/ISO specification)

Surface Roughness	Ra	Rt
Sliding Surface	0.05 – ≤0.3 µm	≤3.0
Groove Root	≤1.8 µm	≤10.0µm
Groove Sides	≤3.0µm	≤16.0µm

Inch

Surface Roughness	RMS
Sliding Surface	8
Groove Root	64
Groove Sides	125

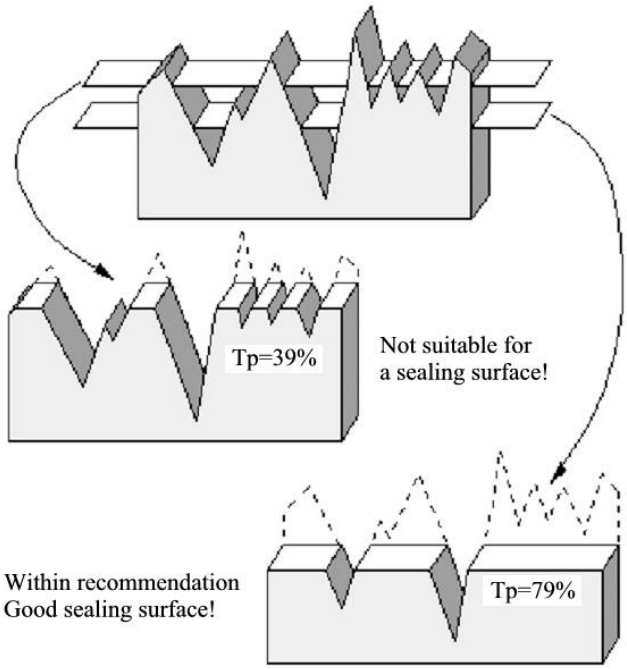
Machining recommendations:
Rods: Ground with non-oriented finish or roller burnishing
Barrels: Honing and roller burnishing

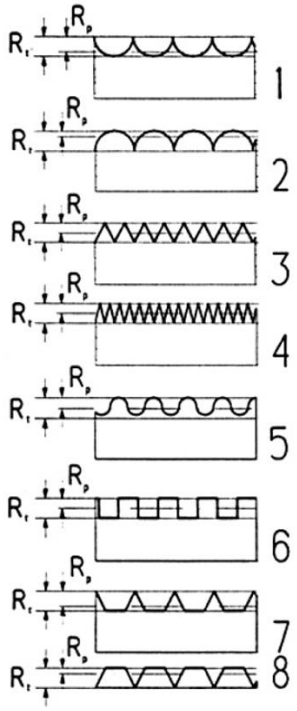
Hardness:
Heat treat to 45-60HRC to a minimum depth of 0.5mm.

Corrosion Protection:
Hard chrome overlay with coating thickness 30-50µm.

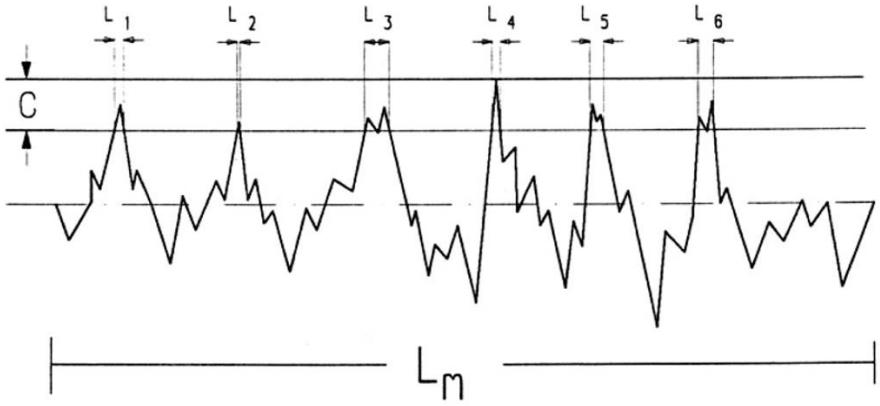
System Seals, Inc. recommends to not only rely on the above information, but to also measure Rz as well as the profile bearing area ratio "Tp". Knowing the profile bearing area ratio will ensure a surface quality that is optimum for hydraulic seals. The recommendation is as follows:

Rz recommendation (DIN specification): Rz=0.40 to 1.60
Tp should be between 50-90% of the average height value "C=Rz/2" with reference line at C_{ref}=0.





	R_t	R_p	R_a	t_p (%)			
	um	um	um	0.25	0.5	0.75 Rt	=C
1	1	0.785	0.188	3.5	14	35	
2	1	0.215	0.188	65	86	96.5	
3	1	0.5	0.25	25	50	75	
4	1	0.5	0.25	25	50	75	
5	1	0.5	0.39	43	50	57	
6	1	0.5	0.5	50	50	50	
7	1	0.75	0.28	12.5	25	37.5	
8	1	0.25	0.28	62.5	75	87.5	



$$t_p = \frac{1}{L_m}(L_1 + L_2 \ldots + L_n) \cdot 100[\%]$$

t_p = Profile Bearing Ratio

Recommendation:

t_p > 50% for C= 0.5 x Rt