Dynamic Hardware Surfaces

The finish of the surface over which the OmniSeal must slide greatly influences the relative wear of the cover material. Mating surfaces that are too rough can create leak paths and be abrasive to the seal.

The transfer of a thin film of PTFE from the OmniSeal cover to the mating dynamic surface will improve seal life. Dynamic surfaces with relatively rough finishes wear the jacket material too rapidly. Extremely smooth dynamic surfaces result in insufficient material transfer to form a thin film. The graph below illustrates the effect of surface finish on seal wear.

Static Hardware Surfaces

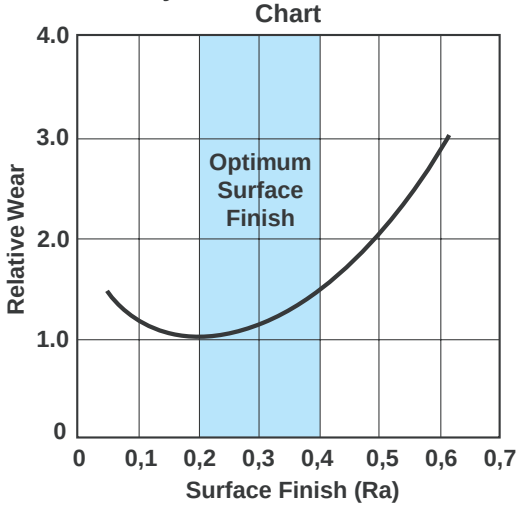
In most static sealing applications, better overall sealing performance can be achieved with a smoother sealing surface finish. With OmniSeal the recommended optimum surface finish for most static sealing applications is 0,8 Ra or better. The “lay” on surfaces for static face seals must be concentric.

Hardware Surface Finish Recommendations

Fluid Belting Sealed	Surface Finish	
	Dynamic Surface	Static Surface
Cryogenics Helium Gas Hydrogen Gas Freon	0,1 to 0,2 Ra	0,1 to 0,2 Ra
		0,15 to 0,3 Ra
Air Nitrogen Gas Argon Gas Natural Gas Fuel (Aircraft, Automotive)	0,15 to 0,3 Ra	0,3 to 0,8 Ra
Water Hydraulic Oil Crude Oil Sealants	0,2 to 0,4 Ra	0,4 to 0,8 Ra

Consult Technical Support for proper surface finish of gland and shaft, and media recommendations.

Dynamic Surface Finish Chart



Dynamic Hardware Sealing Surface Hardness

As a general rule, the higher the sealing surface smoothness the better the overall seal performance can be expected. Better smoothness reduces wear and increases seal life. A 40 Rockwell C or greater is recommended for slow to moderate reciprocating motion.

The ideal hardness is 60 to 70 Rockwell C. Hardness in this range is recommended for moderate to high speed linear or rotary motion. Hard anodized surface must be polished after anodizing.

Gland Design

Consideration of proper gland geometry in the early stages of design can eliminate unnecessary installation problems.

The use of split or separable glands in piston and rod seal applications is always desirable to eliminate stretching or compressing the OmniSeal during installation into the gland. Split glands also eliminate the need for special installation tools.

To minimize stretching or distortion during assembly in non-split glands, the gland side wall on the pressure side can be reduced to provide a partial shoulder to retain the seal.

If stretching into a full groove is unavoidable, consult our technical department. (see inside back cover) Assembly of the seal over sharp corners, threads, keyways, etc., should be avoided, or protective tooling should be used when these conditions exist.