

LNPT™ COMPOUNDS WEAR AND FRICTION SOLUTIONS BEARINGS, BUSHINGS, CAMS AND SLIDERS

At the push of a button, windows move, doors lock, copies get made, and HVAC comes to life. These electromotive actions require gears, bearings, bushings and other wear surfaces to provide smooth, reliable, actuation forces. LUBRICOMP™ and LUBRILOY™ compounds can help deliver the high quality performance required.



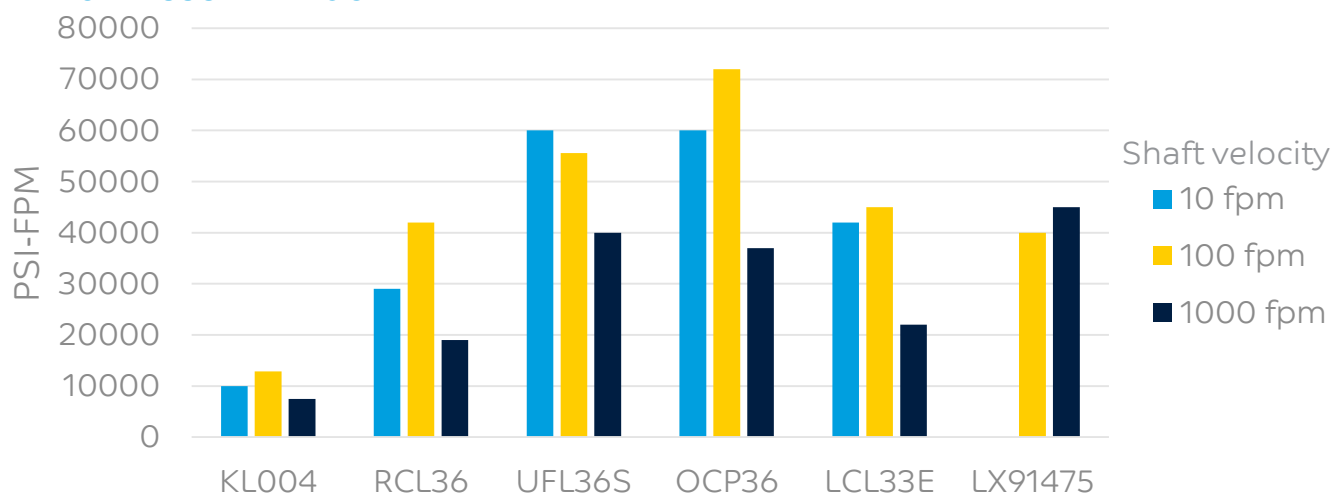
THERMOPLASTIC BEARINGS

While resistance to wear is important for thermoplastic bushings/bearings, low friction can be more important. Heat generated from friction is often the limiting factor in plastic bearing applications. The operating load (P) and speed (V) of the application can be compared to the allowable, or “Limiting PV” of a candidate material. The data shown below was generated using a cylindrical half bearing test configuration, but modern thrust washer testers can be used to develop PV maps as well.

INTERNALLY LUBRICATED COMPOUNDS

The addition of an internal lubricant to a thermoplastic material can improve the wear resistance and reduce the coefficient of friction in plastic parts. Traditional lubricants like MoS₂, PTFE and PTFE/Si blends are common, with reinforcements like glass and carbon fiber adding strength and modulus. High temperature resins are sometimes required to resist deformation from friction generated heat.

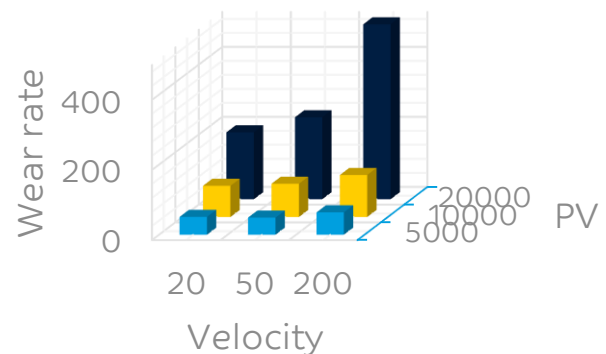
LIMITING PRESSURE-VELOCITY



WEAR AND FRICTION SOLUTIONS

BEARINGS, BUSHINGS, CAMS AND SLIDERS

In addition to the journal bearing test described earlier, material performance data can be generated by doing thrust washer wear testing at multiple loads (P) and speeds (V). Plotting the results for wear rate, COF and temperate can give insight into the performance window of a particular grade. Data shown at left is multipoint wear rate data for LUBRICOMP UFL36S.



Thermoplastic Gearing solutions

Grade	Description	Features
LUBRICOMP LX91475	PEEK, carbon fiber, graphite, PTFE	FM: 10.3 GPa, HDT: 335C, chemical resistance, superior bearing performance, UL94-V0@0.720mm
LUBRICOMP LCL33E	PEEK, 15% carbon fiber, 15% PTFE	FM: 14.7 GPa, HDT: >240C, low wear and friction, UL94-V0@1.5mm
LUBRICOMP OCP36	PPS, 30% carbon fiber, 15% PTFE/Si	FM: 33.9 GPa, HDT: 266C, chemical resistance, excellent wear/bearing performance, UL94-V0@0.94mm
LUBRICOMP UFL36S	PPA, 30% glass fiber, 15% PTFE	FM: 11.2 GPa, HDT: 255C, Good balance of cost and performance, low wear and COF
LUBRICOMP JX91198	PES, carbon fiber, graphite, PTFE	FM: 9.24 GPa, HDT: 228C, tight dimensional tolerance, superior wear and bearing performance
LUBRICOMP RCP36	PA66, 30% carbon fiber, 15% PTFE/Si	FM: 21.3 GPa, chemical resistant, superior wear and bearing performance
LUBRICOMP RLF36S	PA66, 30% glass fiber, 15% PTFE	FM: 9.7 GPa, Baseline grade for structural applications, low wear and COF, good chemical resistance
LUBRICOMP RAL22	PA66, 10% aramid fiber, 10% PTFE	Good wear against aluminum and in abrasive environments, low wear and COF
LUBRICOMP RN001S	PA66, MoS ₂ lubricated	Traditional bushing grade. Some reduction in slip-stick behavior. Good chemical resistance
LUBRICOMP KN001	POM, MoS ₂ lubricated	Traditional bushing grade. Some reduction in slip-stick behavior. Good chemical resistance
LUBRICOMP KP004	POM, 20% PTFE/Si	Very low wear and COF, good chemical resistance

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