



Lubene^{notes}:

Design Engineer's Guide to Selecting a Lubricant

Damping Greases

Design tools for free motion control and noise reduction. A damping grease is a cost-efficient way to control free motion, achieve a "quality" feel, reduce noise, and enable fine tuning by hand in most any mechanical and electromechanical device. Damping greases are typically applied to the focusing mechanisms of optical instruments to control coasting and ensure smooth, virtually silent operation. On electronic controls such as potentiometers, they make possible very precise settings that could not otherwise be made by hand. They also control motion and reduce noise in gear trains, gear motors, appliance controls, electric switch mechanisms, outdoor recreation equipment, laser controls, television tuners, surveying instruments, stepper motors, and in many hand-actuated automotive applications — where "quality feel" usually indicates the presence of a damping grease. Because of their consistency, damping greases also help to keep moisture, dust or other pollutants out of a device. And because they prevent much of the actual mating of moving parts, they also reduce wear and extend product life.

Selecting a damping grease. Both objective and subjective criteria are used to match a damping grease to a specific application. Objectively, damping greases must retain their damping qualities throughout the temperature range of the application. Synthetic hydrocarbon greases are often suitable for -40°C to 120°C. For temperatures lower than -40°C, silicone-based damping greases are available, some of which can damp at room temperature and still be operable at -60°C. (Because of potential contamination problems, silicone-based greases are not usually recommended for many optical and electrical applications.) Subjectively, damping greases are selected for the "feel" the designer wants to achieve. Generally, the more delicate the device, the lighter the grease. To achieve the right feel, testing various amounts of the candidate grease(s) at the lowest expected operating temperature is recommended.

Nye damping greases. Nye has four families of damping greases — all non-melting, shear-stable, and plastic compatible. General purpose damping greases have a long history of use in optical instruments, home appliances, and other traditional applications. Low-torque, low-temperature damping greases offer improved viscosity-temperature characteristics. They are widely used in the automotive industry. Wide-temperature damping greases, often used in industrial and chemical process controls, can withstand temperatures from -54°C to 250°C. Shear-stable damping greases are designed to control motion and noise in components with high shear rates, like tilt-steering columns and automotive suspension systems, or with prolonged shear time, like small gears in printers and copiers. Because they are thickened with PTFE, these high-shear damping greases are also used to impart a "silky feel" to low-shear switches.

Selecting the right grease for your application. Following is a partial list of popular Nye damping greases. You may send us your device (with assembly instructions, temperature, and "feel" requirements), and we will return it fully greased with the damping grease we recommend. For technical specifications, evaluation samples, questions about any Nye products, or to discuss a lubricant *custom-designed* for your application — call us at (508) 996-6721 or visit our Web site at www.nyelubricants.com.

General Purpose Damping Greases	Viscosity	Temp Range (°C)	Typical Application
<u>NyoGel® 779</u>	Light	-40 to 125	Automotive Rotary Dimmer Switch
<u>NyoGel® 795A</u>	Light	-34 to 125	Automotive Sunroof Mechanism
<u>NyoGel® 773A</u>	Medium	-18 to 125	Home Light Dimmer Switch
<u>NyoGel® 767A</u>	Heavy	0 to 125	Microscope Focusing Knobs
<u>PG-44A</u>	Extra Heavy	+20 to 120	Binocular Focusing Heads

Low Torque/Low Temp Damping Greases	Viscosity	Temp Range (°C)	Typical Application
<u>NyoGel® 774VL</u>	Very Light	-50 to 120	Automotive Glove Box Latch
<u>NyoGel® 774L</u>	Light	-40 to 120	Automotive HVAC Controls
<u>NyoGel® 774</u>	Medium	-30 to 120	Automotive Power Window Switch
<u>NyoGel® 774H</u>	Heavy	-20 to 120	Automotive Steering Column
<u>NyoGel® 774VH</u>	Very Heavy	-10 to 120	Pen Screw Mechanism

Wide Temp Damping Greases	Viscosity	Temp Range (°C)	Typical Application
<u>UniFlor™ 8612</u>	Medium	-20 to 250	Industrial Control Valves
<u>UniFlor™ 8322</u>	Heavy	-20 to 250	Chemical Process Controls
<u>Fluorocarbon Gel 823A-1</u>	Very Heavy	-54 to 200	Potentiometer Controls

Shear-Stable Damping Greases	Viscosity	Temp Range (°C)	Typical Application
<u>Fluorocarbon Gel 868VL</u>	Very Light	-45 to 125	Document and photo printers; "return keys"
<u>Fluorocarbon Gel 868L</u>	Light	-40 to 125	Auto dimmer switches; starter motor solenoids
<u>Fluorocarbon Gel 868</u>	Medium	-40 to 125	Manual seat controls; refrigerator temp controls
<u>Fluorocarbon Gel 868H</u>	Heavy	-30 to 125	Stereo volume controls; surveying equipment
<u>Fluorocarbon Gel 868VH</u>	Very Heavy	-20 to 125	Auto suspension systems; tilt-steering columns; focusing mechanisms; medical devices