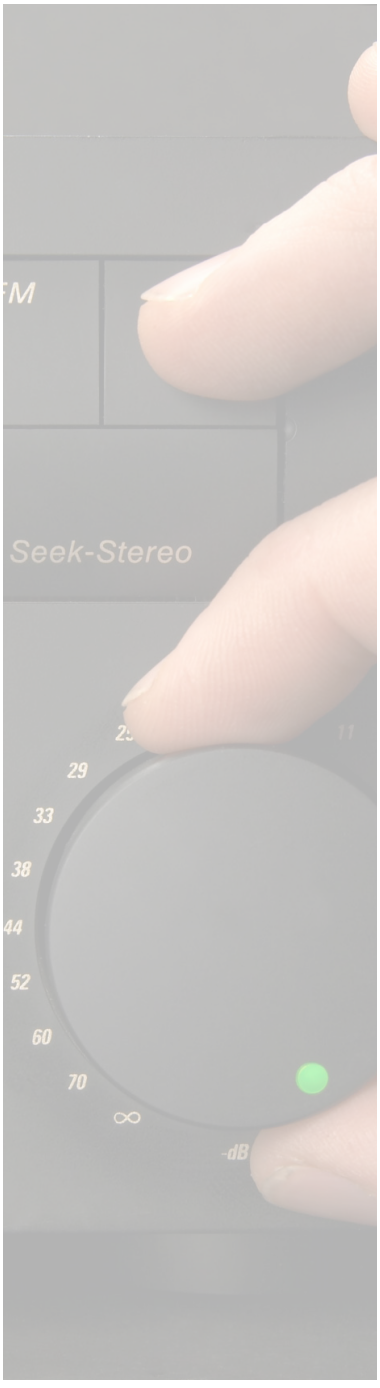
Lubenotes:

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 "silkier 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 + 1.508.996.6721 or visit our website at www.nyelubricants.com.

Contact Nye at +1.508.996.6721
or contact@nyelubricants.com

Lubenotes: Damping Greases

General Purpose Damping Greases	Grade	Temp Range (°C)	Typical Application
NyoGel® 779	Very Light	-40 to 125	Automotive Rotary Dimmer Switch
NyoGel® 795A	Light	-34 to 125	Automotive Sunroof Mechanism
NyoGel® 773A	Medium	-17 to 125	Home Light Dimmer Switch
NyoGel® 767A	Heavy	0 to 125	Microscope Focusing Knobs
PG-44A	Extra Heavy	+15 to 125	Binocular Focusing Heads

Low Torque/ Low Temp Damping Greases	Grade	Temp Range (°C)	Typical Application
NyoGel® 774VL	Ultra Light	-45 to 125	Automotive Glove Box Latch
NyoGel® 774L	Very Light	-40 to 120	Automotive HVAC Controls
NyoGel® 774	Light	-30 to 120	Automotive Power Window Switch
NyoGel® 774H	Medium	-20 to 120	Automotive Steering Column
NyoGel® 774VH	Heavy	-10 to 120	Pen Screw Mechanism

Wide Temp Damping Greases	Grade	Temp Range (°C)	Typical Application
UniFlor™ 8612	Light	-20 to 250	Industrial Control Valves
UniFlor™ 8322	Light	-20 to 250	Chemical Process Controls
Fluorocarbon Gel 823A-1	Medium	-54 to 200	Potentiometer Controls

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

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