

GREASE CLASSIFICATION GUIDE

Look for the NLGI Certification Marks every time you buy grease



The National Lubricating Grease Institute (NLGI) Certification Marks identify Service Classification for Automotive Chassis and Wheel Bearing Greases. These five classifications are in conformance with ASTM Designation D-4950 and SAE J-310.

The symbol's letter "L" prefix indicates a Chassis Grease and the "G" prefix indicates a Wheel Bearing Grease. NLGI identifies the two highest performance levels as GC and LB. The combination, GC-LB represents the highest performance in the multipurpose category.

NLGI CONSISTENCY GRADES

NLGI Grade	Worked Penetration at 25°C (77°F) mm/10
000	445 to 475
00	400 to 430
0	355 to 385
1	310 to 340
2	265 to 295
3	220 to 250
4	175 to 205
5	130 to 160
6	85 to 115

Always refer to the equipment or vehicle's manual regarding correct grade and performance level requirements.

LA - Service typical of chassis components and universal joints in passenger cars, trucks and other vehicles – under mild duty only. Mild duty will be encountered in vehicles operated with frequent relubrication in noncritical applications.

LB - Service typical of chassis components and universal joints in passenger cars, trucks and other vehicles – under mild to severe duty. Severe duty will be encountered in vehicles operated under conditions which may include prolonged relubrication intervals, high loads, severe vibration, exposure to water or other contaminants, etc.

GA - Service typical of wheel bearings operating in passenger cars, trucks and other vehicles – under mild duty. Mild duty will be encountered in vehicles operated with frequent relubrication in noncritical applications.

GB - Service typical of wheel bearings operating in passenger cars, trucks and other vehicles – under mild to moderate duty. Moderate duty will be encountered in most vehicles operated under normal urban, highway and off-highway service.

GC - Service typical of wheel bearings operating in passenger cars, trucks and other vehicles – under mild to severe duty. Severe duty will be encountered in certain vehicles operated under conditions resulting in high bearing temperatures. This includes vehicles operated under frequent stop-and-go service (buses, taxis, urban police cars, etc.), or under severe braking service (trailer towing, heavy loading, mountain driving, etc.).

Do not purchase grease without an NLGI rating.



DENNIS K. BURKE INC.

THE EMISSIONS EXPERTS

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Superior Performance

GREASE APPLICATIONS AND SERVICE REQUIREMENTS

Choosing the right lubricant for the job.

Selecting a lubricant for a specific application is resolved by matching the characteristics of either oils or greases, with the service requirements.

Because of their consistency, greases are more easily applied in bearing housings. When seals are deteriorated, a grease is more likely to remain in place, while an oil may leak out. This is a distinct advantage when contamination must be avoided, as in food processing equipment. Grease forms a barrier between contaminants and components, and often used to lubricate open gears and chains.

Since grease provides greater resistance to motion, low-torque/high-speed operation dictates the choice of oils.

Proper lubrication of rolling-element bearings requires smaller quantities of grease than of oil. Oil, however, is more easily dispensed to all moving machine parts – and easier to handle when draining or refilling bearing wells and enclosed gear cases. Oil also performs a cooling function. Grease's semi-fluid consistency, is poorly equipped for dissipating heat and should not be the sole lubricant in applications involving high speeds and excessive friction.

The American Society of Testing and Materials (ASTM) classifies automotive greases as defined in ASTM D 4950.

Wheel Bearings – These are the most critical grease-lubricated components of an automotive vehicle. Rolling-element bearings are used – mostly tapered roller bearings – and they must operate under very severe conditions of speed and load in tough conditions (mud, water, snow, dust, etc.). They are also subjected to severe shock loads and high temperatures during braking. It is very important that wheel-bearing grease does not bleed or soften excessively – the resulting leakage could lead to braking failure.

All of the usual causes of bearing failure also apply to wheel bearings. These bearings may be exposed to fretting (a condition usually not found in rolling bearings in other applications). Fretting or "false brinelling" is a special type of bearing damage that can be caused by subjecting a loaded bearing to small-magnitude vibration for a relatively long time (i.e., wheel bearings of autos shipped over long distances by rail or truck). Fretting can also occur, under certain operating conditions – frequent driving over very rough roads, for example. Grease often turns reddish-brown due to the formation of a red iron oxide as a result of fretting. Iron oxide is abrasive and may rapidly wear depressions in the rolling elements. Jacking up the vehicle

during long-distance hauling or prolonged storage (removing the load on the wheel bearings is the only cure for the problem). Anti-wear properties do not guarantee protection against fretting. However, base-oil viscosity, consistency, bleeding characteristics, and additives – do have an effect. A softer grease (with a low-viscosity base oil and greater tendency to bleed) may provide better protection than a harder grease, depending on the additives present.

The life of wheel bearings is unpredictable. Even when properly maintained, a bearing may fail at any time. For optimum bearing life, use the type of grease and repacking interval recommended by the vehicle manufacturer.

Universal Joint Grease – Grease for universal joints is capable of high load-carrying capacity and possess the other properties listed above. Certain wheel bearing greases are often used in this application.

Chassis Grease – Chassis grease is applied with grease guns through grease fittings at equipment manufacturer's suggested intervals. A grease with a relatively high viscosity at high shear rates may be required for heavy-duty service.

Extended Lubrication Interval (ELI) Chassis Grease – These greases are used in suspensions, drivelines, and steering systems having sealed joints – prepacked during manufacture or assembly – that normally do not require relubrication for comparatively long intervals.

Multipurpose Grease – These greases meet the performance requirements for chassis, wheel-bearing, and universal-joint lubrication, and many other miscellaneous automotive uses, such as fifth-wheel service. Some ELI chassis lubricants are satisfactory as Multipurpose Greases.

Extreme Pressure (EP) Greases – Although not a designation by usage, this term applies to greases with high load-carrying capacity as determined by the Timken or Four-Ball machines.

Track Roller Lubricants – These are soft or semi-fluid (low thickener content) greases designed for lubricating track assemblies on crawler tractors or other track-laying vehicles. These lubricants must provide a good seal against abrasive contaminants, good load-carrying capacity, protect against wear, under high-load and shock operation, and resist water washing. They are used extensively in front idlers, track-support idlers, and track rollers in all older model tractors – where seal leakage can be a problem.



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