



LONG-LIFE™ HEAVY DUTY GEAR OILS

Sure Protection For Vehicles Under A Broad Range Of Conditions

PRODUCT DESCRIPTION

Today's heavy duty trucks, construction, and farm equipment place high demands on gear lubricants used in transmissions and axles. Longer working hours, higher horsepower engines and aerodynamically styled tractors, which reduce airflow for cooling, cause transmissions to operate at higher temperatures. Heavier loads and higher speeds place increasing demands on gear oils to protect against wear and shock loading which can damage bearings, gears, and differentials in axles. PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS exceed the latest requirements of commercial equipment manufacturers who require API GL-5, API MT-1, and/or Mack GO-J quality lubricants in their equipment.

PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are formulated for use in universal duty hypoid or spiral bevel gear differentials or axles in heavy duty truck, agricultural or construction equipment. They may also be used in heavy duty truck or bus manual transmissions that allow the use of API MT-1 lubricants. PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are blended with new thermally stable sulfur-phosphorus additive technology that provides the latest in "Clean Gear" performance (MT-1). "Clean Gear" performance can help reduce loss of lubricant due to seal degradation as the gear oils are less likely to form harmful deposits that can degrade seals.

PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are formulated with all the performance additives necessary for outstanding protection of gears and bearings. Thermally stable extreme pressure agents protect against shock loading and wear, even when contaminated with water, which can happen in construction or agricultural applications. Foam inhibitors protect against oil aeration, which can rupture the lubricant film and cause wear due to lack of lubrication. Special rust inhibitors are used to protect against corrosion than can result from condensation. Oxidation inhibitors are included to enhance the excellent oxidation stability of the high quality, high viscosity index paraffinic base stocks used in the products.

Although PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are classified as multi-viscosity gear oils, they do not contain viscosity index improvers that artificially boost viscosity. This means that the lubricants will retain their "body" and will not shear down during use, maintaining a strong, stable, protective film, even under heavy loads and high speeds. PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OIL SAE 80W-90 gives the full protection of SAE 90 under high temperatures and hard driving conditions, while still providing the fast flow characteristics of SAE 80W when cold. Similarly, the PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OIL SAE 85W-140 gives the full protection of SAE 140 under high temperatures and loads while providing the fast flow characteristics of an SAE 85W. Both products offer maximum lubrication and gear protection over a wide temperature range.

PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are compatible with other gear oils under a wide range of operating and storage conditions.

APPLICATION

PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are recommended for use in hypoid or spiral bevel gear axles of trucks, buses, construction or agricultural equipment where API Service GL-5 product is specified. They are also recommended for use in heavy duty Mack truck or bus transmissions that require an MT-1 lubricant. Examples of agricultural equipment which might use PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS include final drives, wheel hubs, front axles and wheel ends of tractors; transmissions in skid steers; gear reduction units in balers; feeder and lower unloader gear cases in combines. Examples of agricultural equipment which might use PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS include final drives and winches in crawler tractors or excavators; transmissions in forklifts; rear axles in tree skidders; front and rear axles in trenchers; final drives in wheel loaders. *You should consult the equipment manufacturer for exact fluid recommendations; the specified fluid for the application might be different than one of the examples. Fluid recommendations can and do change, depending on model and manufacturer.*

Suitable for mixed fleet applications, PENNZOIL® LONG-LIFE™ HEAVY DUTY GEAR OILS are also recommended for use in limited-slip differentials of cars, pick up trucks, and sports utility vehicles, in addition to construction and agricultural equipment. These gear oils are designed to reduce or eliminate "chatter" that can occur in these types of differentials, and can be used as makeup or refill fluid, or in rebuilt units.

BENEFITS

- Combats rust, corrosion and wear for long equipment life
- Resists formation of deposits for improved seal life
- Inhibits oil oxidation
- Helps eliminate wear due to aeration by preventing the formation of foam
- Good compatibility with other gear oils facilitates lubricant top-off and changeovers
- Suitable for mixed fleets

TYPICAL PHYSICAL AND CHEMICAL PROPERTIES PENNZOIL[®] LONG-LIFE[™] HEAVY DUTY GEAR OILS

TEST	METHOD	TYPICAL RESULTS	
SAE Grade		80W-90	85W-140
API Service		GL-5 & MT-1	GL-5 & MT-1
Gravity, °API	ASTM D-287	26	25
Viscosity			
@ 40°C, cSt		140	352
@ 100°C, cSt		14.5	26.5
@ 100°F, SUS		733	1873
@ 210°F, SUS		77.6	131
Viscosity Index		100	100
Brookfield Viscosity	ASTM D-2983		
@ <150,000 cP, °C(°F)		-26(-15)	-12(10)
Pour Point, °C(°F)	ASTM D-97	-26(-15)	-15(5)
Flash Point, °C(°F)	ASTM D-92	210(410)	210(410)
Timken OK Load, lbs.	ASTM D-2782	70	70
MSDS Number		13325	13325
Material Number			
Bulk		4920	4140
35 Pound Plastic Pail		4924	4144
120 Pound Drum		4925	4145
400 Pound Drum		4926	4146