



**SPECIFICATION FOR  
ENCLOSED GEARCASE LUBRICANT  
SD4722** *(June 26, 2006)*

Applicable to Models 33HR, 35HR, 37HR, 39HR, 49HR and 59HR Rotary Blasthole Drills.

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**SCOPE:**

This specification covers the requirements for “Enclosed Gearcase Lubricant” used on models 33HR, 35HR, 37HR, 39HR, 49HR and 59HR Rotary Blasthole Drills.

The materials furnished under this specification are intended to lubricate spur and helical gears as well as anti-friction bearings at the interior of enclosed planetary and non-planetary type gearcases (Propel, Rotary, Pull Down and Pump Drive).

This specification covers “Enclosed Gearcase Lubricants” that may be applied in service at temperatures ranging from  $-50^{\circ}\text{C}$  ( $-58^{\circ}\text{F}$ ) to the highest ambient temperature conditions.

**GUIDELINES FOR SELECTING AN APPROVED LUBRICANT:**

Step #1

Using Table 1, determine the recommended oil type (Mineral or Synthetic) based upon the anticipated ambient temperature range.

**AMBIENT TEMPERATURE RANGE:**

Ambient Temperature: The ambient temperature is defined as the air temperature in the immediate vicinity of the gearcase.

- a. Use atmospheric temperature for gearcases located outside of the machinery house (Rotary, Pull Down and Propel Gearcases).
- b. Use machinery house temperature for gearcases located inside of the machinery house (Pump Drive Gearcase) for some machines are equipped with machinery house heaters.
- c. For cold weather applications, the pour point of the lubricant must be at least  $5^{\circ}\text{C}$  ( $9^{\circ}\text{F}$ ) below the minimum ambient starting temperature. If the ambient starting temperature approaches the lubricant pour point, oil sump heaters may be required to facilitate starting and ensure proper lubrication. Use oil temperature for gearcases having oil sump heaters.



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Table 1

<b>Ambient Temperature Range</b>	<b>ISO Viscosity Grade / Oil Type</b>
14°F to 100°F (-10°C to 37°C)	ISO VG 220 / Mineral or Synthetic (poly- $\alpha$ -olefin) Oil
Less than 14°F to 120°F (Less than -10°C to 50°C)	ISO VG 220 / Synthetic (poly- $\alpha$ -olefin) Oil

**Step #2**

Select an approved lubricant for the Propel, Rotary, Pull Down and Pump Drive Gearcases from the Approved Lubricant Tables 2 & 3.

The pour point and flash point of individual brand name gear oils must be observed. Refer to the oil manufacturers technical data sheets for these properties.

**APPROVED LUBRICANTS:**

Lubricants that have been approved for use by the Gearcase manufacturers are listed in the Approved Lubricant Tables 2 & 3. The use of non-approved lubricants may invalidate the Bucyrus International, Inc. product warranty obligation.

Specific product selection is the responsibility of the equipment operator/owner and is dependent on climate, application, performance and regional/regulatory requirements.

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Table 2  
Approved Mineral Oil Lubricants (ISO VG 220)

<b>Manufacturer</b>	<b>Product Description</b>
BEL-RAY	Bel-Ray 100 Gear Oil 90
BP	Energol PM 220
	Energol GR-XP 220
	Energol GR-XF 220
CASTROL	Alpha SP 220
	Alpha MAX 220
	Optigear BM 220
	Tribol 1100/220
CHEVRON	Chevron Ultra Gear Lube 220
	Gear Compound EP 220
ESSO	Spartan EP 220 (Only Product Originating from Europe)
FUCHS	Renolin CLP 220 Plus
LE (Lubrication Engineers)	Almasol 607
MOBIL	Mobilgear XMP 220
PETRO CANADA	Ultima EP 220
SHELL	Omala F 220
TEXACO	Auriga EP 220
	Meropa 220
	Meropa WM 220
WHITMORE	Paragon 220



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Table 3  
Approved Synthetic (Poly- $\alpha$ -olefin) Oil Lubricants (ISO VG 220)

<b>Manufacturer</b>	<b>Product Description</b>
BEL-RAY	Synth. Gear Oil 6690
BP	Enersyn EP-XF 220
	Enersyn HTX 220
CASTROL	Optigear Synth. A 220
	Optigear Synth. X 220
	Alphasyn EP 220
	Alphasyn T 220
	Tribol 1510/220
	Tribol 1710/220
CHEVRON	Tegra Synth. Gear Lube 220
FUCHS	Renolin Unisyn CLP 220
MOBIL	Mobil SHC 630
	Mobilgear SHC 220
	Mobilgear SHC XMP 220
PETRO CANADA	Ultima Synth. EP 220
SHELL	Omala HD 220
TEXACO	Pinnacle EP 220
WHITMORE	Decathlon F 220

**SPECIFICATION REVISIONS:**

This specification is subject to change without notice. Please refer to the Bucyrus International, Inc. web site [www.bucyrus.com](http://www.bucyrus.com) for the latest specification.