



Bel-Ray Company, Inc.

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BEL-RAY 100 GEAR OIL

Bel-Ray 100 Gear Oil represents a significant advancement in multi-service gear oil technology, resulting in extremely cost-effective, high performance gear oil. It is produced in a broad range of viscosity grades to meet most typical industrial and mining enclosed gears and some anti-friction bearing applications under severe service conditions.

Applications

- ◆ All industrial applications where an extreme pressure gear oil is recommended or required, e.g., gear drives/reducers, worm gears, differentials and transmissions. Typical applications are bevel, herringbone, planetary and spur gears
- ◆ Mining equipment - draglines, drills and shovels where heavy loads demand a higher viscosity. Grades of 200, 250, 350 and 500 are available
- ◆ Electric wheel motor service - an excellent alternative to high cost synthetic oils
- ◆ May be used in anti-friction and journal bearings

Features and Benefits

- | | |
|--------------------------------------|---|
| ◆ Reduced friction | Provides a reduction in energy consumption, operating temperature and noise level. |
| ◆ Reduced wear | Extended equipment life, longer life of gears and bearings, reducing maintenance costs. |
| ◆ Broad spectrum of viscosity grades | Available in ten viscosity grades to meet OEM recommendations, equipment condition and temperature variables. |

General Description

Bel-Ray 100 Gear Oil is a multi-purpose gear lubricant formulated with highly refined, high Viscosity Index paraffinic base oils. It is blended with proprietary advanced generation extreme pressure and anti-wear additives, along with select corrosion, rust, oxidation and foam inhibitors, resulting in certified laboratory test passing the 100 pound Timken load, the 12 loading stages of the FZG Test and 4500 pounds on the Falex EP tests.

Product No. 2140, 2142, 2144, 2146, 2147, 2148, 2150, 2152, 2153, 2159

BEL-RAY 100 GEAR OIL

TYPICAL PROPERTIES

| <u>Product No.</u> | <u>2140</u> | <u>2142</u> | <u>2144</u> |
|---|--------------------|--------------------|--------------------|
| Grade | 50 | 75/80 | 90 |
| ISO Grade | -- | 150 | 220 |
| SAE Grade | 80W | 80W-90 | 90 |
| AGMA | - | 4 | 5 |
| Viscosity, ASTM D445 | | | |
| @ 40°C, cSt | 52.5 | 137 | 222 |
| @ 100°C, cSt | 8.81 | 14.1 | 19.2 |
| Viscosity, ASTM D2161 | | | |
| @ 100°F, SUS | 268 | 718 | 1173 |
| @ 210°F, SUS | 55.3 | 76 | 97.7 |
| Viscosity Index, ASTM D2270 | 147 | 100 | 98 |
| Pour Point, ASTM D97 | | | |
| °C (°F) | -33 (-27) | -30 (-22) | -21 (-5) |
| Copper Strip Corrosion, ASTM D130 | | | |
| 3 hrs @ 100°C, rating | 1b | 1b | 1b |
| Foam Test, ASTM D892, Sequence I, II, III | Nil | Nil | Nil |
| Falex EP Test, ASTM D3233 | | | |
| Method A, Nonseizure load, lbf | 4500 | 4500 | 4500 |
| Method B, Nonseizure load, lbf | 3500 | 3500 | 3500 |
| 4-Ball EP Test, ASTM D2783 | | | |
| Weld Load, kg | 315 | 400 | 400 |
| Load Wear Index, kg | -- | 64 | 66 |
| Timken EP Test, ASTM D2782, OK Load, kg (lb) | 45.4 (100) | 45.4 (100) | 45.4 (100) |
| FZG Test, DIN 51 354, A, Stages Passed | -- | 12+ | 12+ |
| Demulsibility, ASTM D1401, 1 hr | 40/40/0 | 40/40/0 | 40/40/0 |
| Color | Red | Red | Red |

BEL-RAY 100 GEAR OIL

TYPICAL PROPERTIES

| <u>Product No.</u> | <u>2146</u> | <u>2147</u> | <u>2148</u> |
|---|-------------|-------------|-------------|
| Grade | 90/140 | 85W-140 | 140 |
| ISO Grade | 320 | 320 | 460 |
| SAE Grade | 140 | 85W-140 | 140 |
| AGMA | 6 | 6 | 7 |
| Viscosity, ASTM D445 | | | |
| @ 40°C, cSt | 341 | 321 | 445 |
| @ 100°C, cSt | 25.0 | 24.4 | 29.7 |
| Viscosity, ASTM D2161 | | | |
| @ 100°F, SUS | 1818 | 1708 | 2384 |
| @ 210°F, SUS | 134.4 | 121.1 | 146 |
| Viscosity Index, ASTM D2270 | 95 | 97 | 95 |
| Pour Point, ASTM D97 | | | |
| °C (°F) | -12 (10) | -24 (-10) | -8 (18) |
| Copper Strip Corrosion, ASTM D130 | | | |
| 3 hrs @ 100°C, rating | 1b | 1b | 1b |
| Foam Test, ASTM D892, Sequence I, II, III | Nil | Nil | Nil |
| Falex EP Test, ASTM D3233 | | | |
| Method A, Nonseizure load, lbf | 4500 | 4500 | 4500 |
| Method B, Nonseizure load, lbf | 3500 | 3500 | 3500 |
| 4-Ball EP Test, ASTM D2783 | | | |
| Weld Load, kg | 400 | 400 | 400 |
| Load Wear Index, kg | 68 | 68 | 69 |
| Timken EP Test, ASTM D2782, OK Load, | | | |
| kg (lb) | 45.4 (100) | 45.4 (100) | 45.4 (100) |
| FZG Test, DIN 51 354, A, Stages Passed | 12+ | 12+ | 12+ |
| Demulsibility, ASTM D1401, 1 hr | 40/40/0 | 40/40/0 | 40/40/0 |
| Color | Red | Red | Red |

BEL-RAY 100 GEAR OIL

TYPICAL PROPERTIES

| <u>Product No.</u> | <u>2150</u> | <u>2152</u> | <u>2153</u> | <u>2159</u> |
|---|-------------|-------------|-------------|-------------|
| Grade | 200 | 250 | 350 | 500 |
| ISO Grade | 680 | 1000 | 1500 | -- |
| SAE Grade | 140 | 250 | 250 | -- |
| AGMA | 8 | 8A | 9 | 10 |
| Viscosity, ASTM D445 | | | | |
| @ 40°C, cSt | 688 | 984 | 1402 | |
| @ 100°C, cSt | 36.5 | 47.7 | 56.5 | |
| Viscosity, ASTM D2161 | | | | |
| @ 100°F, SUS | 3736 | 5364 | 7725 | TBD |
| @ 210°F, SUS | 178 | 232 | 275 | 509 |
| Viscosity Index, ASTM D2270 | 87 | 92 | 87 | 107 |
| Pour Point, ASTM D97 | | | | |
| °C (°F) | -4 (25) | -0 (32) | 5 (41) | 0 (32) |
| Copper Strip Corrosion, ASTM D130 | | | | |
| 3 hrs @ 100°C, rating | 1b | 1b | 1b | 1b |
| Foam Test, ASTM D892, Sequence I, II, III | Nil | Nil | Nil | Nil |
| Falex EP Test, ASTM D3233 | | | | |
| Method A, Nonseizure load, lbf | 4500 | 4500 | 4500 | 4500 |
| Method B, Nonseizure load, lbf | 3500 | 3500 | 3500 | 3500 |
| 4-Ball EP Test, ASTM D2783 | | | | |
| Weld Load, kg | 400 | 400 | 400 | 400 |
| Load Wear Index, kg | 73 | 75 | 75 | 76 |
| Timken EP Test, ASTM D2782, OK Load, | | | | |
| kg (lb) | 45.4 (100) | 45.4 (100) | 45.4 (100) | 45.4 (100) |
| FZG Test, DIN 51 354, A, Stages Passed | 12+ | 12+ | 12+ | 12+ |
| Demulsibility, ASTM D1401, 1 hr | 40/40/0 | 40/40/0 | 40/40/0 | 40/40/0 |
| Color | Red | Red | Red | Red |