LE Products manufactured under an ISO 9001:2000 Certified Quality System

1601-1609 DUOLEC®
Vari-Purpose Gear Lubricants

A high-performance line of industrial & automotive gear oils from ISO VG 46 to 1000

DUOLEC® Vari-Purpose Gear Lubricants are a high-performance line of industrial and automotive gear oils from ISO VG 46 to 1000. These products are designed for use in any industrial gear or bearing application that requires a thermally stable, extreme pressure lubricant. They also meet the requirements for use in many hypoid gear applications employed in heavy-duty mobile equipment. In addition, these products are fortified with a shear stable tackifier to provide adhesion to the metal during use. They contain DUOLEC, LE's proprietary dual acting wear-reducing and extreme pressure additive.

BENEFICIAL PROPERTIES:

- Formulated using blends of high quality paraffinic and synthetic base fluids which have been found to provide excellent oxidation resistance, thermal stability, and film strength.
- Contains a highly shear stable tackiness system that allows these products to adhere to metal components, yet remain tacky and within viscosity grade during high shear use or filtration.
- Unique blend of base fluids and thermally stable extreme pressure additives that resist sludge formation in high temperature gear and bearing applications.
- Separates readily from water to provide effective lubrication when moisture is present. Ordinary gear oils will emulsify and foam, causing increased frictional heat and poor lubrication.
- Contains non-silicone defoaming additives which resist removal during oil filtration.
- Contains DUOLEC, LE's proprietary dual acting liquid wear-reducing and extreme pressure additive.
- Contains no solids.

WHAT IS DUOLEC®?

DUOLEC is LE's proprietary additive incorporating revolutionary technology designed specifically for use in LE gear lubricants. It is a temperature activated, dual acting, liquid additive that imparts special properties and synergies to the LE Products in which it is used. DUOLEC increases lubricant film strength and protects metal surfaces outperforming conventional lubricant additives at greater temperatures and loads.

Lubrication Engineers®, Inc.
Leaders in Lubricants
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LI30095
08-09

1601-1609 TECHNICAL DATA

PHYSICAL CHARACTERISTICS–TYPICAL:

	1601	1602	1603	1604	1605	1606	1607	1608	1609
ISO VG	46	68	100	150	220	320	460	680	1000
SAE Grade	75W	80	85	90	110	140	190	250	250
AGMA Grade	1 EP	2 EP	3 EP	4 EP	5 EP	6 EP	7 EP	8 EP	8A EP
Gravity, °API	30.2	29.8	29.5	29.3	28.4	27.9	27.7	27.4	27.0
Sp. Gravity	0.880	0.882	0.884	0.885	0.890	0.887	0.889	0.890	0.898
Viscosity,									
cSt @ 40°C	44.15	70.75	104.0	156.0	229.0	332.5	480.0	707.5	1015.0
cSt @ 100°C	6.98	9.44	12.31	16.42	21.20	27.90	37.00	47.50	62.10
Viscosity Index	116	111	110	111	110	113	118	116	120
Color	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple
Flash Point, °F (°C)	410 (210)	410 (210)	410 (210)	410 (210)	410 (210)	410 (210)	415 (213)	420 (216)	415 (213)
Pour Point, °F (°C)	-27 (-33)	-17 (-27)	-11 (-24)	-11 (-24)	-11 (-24)	-6 (-21)	-6 (-21)	5 (-15)	5 (-15)

PERFORMANCE TEST RESULTS:

Timken OK Load, lbs (kgs)	75 (34)	75 (34)	75 (34)	75 (34)	75 (34)	75 (34)	75 (34)	75 (34)	75 (34)
4-Ball Wear, mm	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
4-Ball Weld Pt, kg	400	400	400	400	400	400	400	400	400
Load Wear Index, LWI	77.2	77.2	77.2	77.2	77.2	77.2	77.2	77.2	77.2
Copper Corrosion @ 121°C	1b	1b	1b	1b	1b	1b	1b	1b	1b
Rust Prevention,									
Syn Sea Water	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Foam Seq I, II, III	0,0,0	0,0,0	0,0,0	0,0,0	0,0,0	0,0,0	0,0,0	0,0,0	0,0,0
FZG Fail Stage	14+	14+	14+	14+	14+	14+	14+	14+	14+

MEETS THE PERFORMANCE OF:

AGMA 9005 E02
API GL-5
USDA H2
MIL-L-2105E

US Steel 224
DIN 51517 Part 3
AGMA 250.04
ISO 12925 Type CKD

David Brown Type E
Bucyrus International, Inc.

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