

# *Lubricant* REFERENCE GUIDE

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## **INTERNATIONAL VERSION**

*LE products are sold in more than 60 countries worldwide.*

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LE's high-performance lubricants, made of highly refined or synthetic base oils and proprietary additives, far exceed the performance of conventional lubricants in a wide variety of applications.



**The Lubrication Reliability Source™**

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Wichita, KS • Fort Worth, TX • USA

LE operates under an ISO 9001 Certified Quality System.

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# Lubrication Reliability Programme Checklist

Lubrication Engineers is the one source that you can rely on for all your lubrication reliability needs. By offering all of the products and services listed below, we make it easy for you to take care of your company's valuable assets while still growing the bottom line.

- ✓ Professional, onsite equipment reliability assessment
- ✓ Comprehensive lubricant line (industrial oils, engine oils and greases)
- ✓ Web-based oil analysis, with results reviewed by experts
- ✓ Storage systems, including stackable bulk units
- ✓ Visual identification, including tags, labels, colour-coding and wall charts
- ✓ Handling and transfer equipment, including portable transfer containers, clear grease guns, wire rope lubricators, grease pumps and lube reels
- ✓ Single- and multi-point automatic grease lubricators and lubricating systems
- ✓ Contamination exclusion and removal tools, including oil reservoir sight glasses, desiccant breathers and filtration equipment
- ✓ Local, factory-trained specialist available 24/7



*LE's manufacturing and technology centre in Wichita, Kan.*

# LE Introduction

With our highly trained consultants, enhanced lubricants, and comprehensive line of reliability products and services to keep your lubricants clean and dry, Lubrication Engineers can create solutions for any of your lubrication needs. Our diverse worldwide customer base includes water & wastewater treatment, power generation, transportation, agriculture, cement, construction, food, manufacturing, drilling, mining, and more.

## Highly Trained Sales Consultants & Technical Support

We deliver our message of enhanced lubricants and reliability through a network of highly trained consultants who are either certified or studying to be certified through STLE and/or ICML. Your local LE lubrication reliability consultant will work closely with you to learn about your specific equipment and lubrication needs.

## Equipment Reliability Assessment

It starts with an onsite assessment of all equipment requiring lubrication. Your consultant will provide you with a detailed report recommending lubricants, application methods, usage amounts, and drain or lube intervals.

## Recommendation, Implementation & Support

Your lubrication consultant – with expert technical support and troubleshooting from LE's corporate office – will help you initiate and maintain an

effective Lubrication Reliability Programme that will provide the equipment protection and enhanced profits you are seeking.



## Enhanced Lubricants

We manufacture our own high-performance lubricants, which are formulated with highly refined base oils and proprietary additives. They vastly outperform conventional oils and greases in a wide variety of applications. Chosen correctly, these technologically advanced lubricants will reduce friction and wear, enabling your equipment to operate longer and more efficiently.

Our advanced Technology Centre continually develops and improves LE lubricants and additives to ensure that LE products remain the finest available.

## Reliability Products & Services

To ensure the effectiveness of your programme, your LE consultant can offer you a full line of lubrication reliability products and services. These include solutions for oil analysis, storage, handling & transfer, contamination exclusion (breathers), contamination removal (sight glasses & filters), and education & training.



# Proprietary Additives

LE has developed four high-performance additives for exclusive use in our lubricants.

**Almasol**® solid wear-reducing additive is able to withstand extremely heavy loads, chemical attack and temperatures up to 1,900°F (1,038°C). It is attracted to metal surfaces, forming a microscopic layer but not building on itself or affecting clearances. Almasol minimizes metal-to-metal contact and the resulting friction, heat and wear.

**Monolec**® wear-reducing additive creates a single molecular lubricating film on metal surfaces, vastly increasing oil film strength without affecting clearances. An invaluable component in LE's engine oils, industrial oils and many of our other lubricants, Monolec allows opposing surfaces to slide by one another, greatly reducing friction, heat and wear.

**Duolec**® dual-acting additive imparts synergistic properties to lubricants, providing both wear-reducing and extreme pressure protection. The result of revolutionary technology designed specifically for use in LE gear lubricants, Duolec increases oil film strength and is temperature-activated to provide a protective layer that smooths metal surfaces and minimizes the effects of any contact, thereby reducing friction and preventing surface wear.

**Quinplex**® impact-resistant additive contributes to outstanding water resistance, tackiness and enhanced mechanical stability, and helps to form a barrier against corrosion.



# Greases

Product	NLGI Grade	Base	Dropping Point °F (°C)	Operating Temp. °F (°C)	Timken OK Load lb (kg)	
<b>Almatek® General Purpose Lubricant</b> 1232	2	Lithium 12-Hydroxy	350 (177)	0 to 300 (-18 to 149)		15.9 kg 54.4 kg 190.5 kg
<b>Almatek® General Purpose Lubricant</b> 1233	2	Lithium 12-Hydroxy	350 (177)	0 to 300 (-18 to 149)		15.9 kg 54.4 kg 190.5 kg
1235	1	Lithium 12-Hydroxy	350 (177)	0 to 300 (-18 to 149)		15.9 kg 54.4 kg 190.5 kg
<b>Almasol® High Temperature Lubricant</b> 1250	2½	Inorganic	None	0 to 450 (-18 to 232)		15.9 kg 54.4 kg 190.5 kg
1251	1	Inorganic	None	-20 to 450 (-29 to 232)		15.9 kg 54.4 kg 190.5 kg
<b>Almaplex® Industrial Lubricant</b> 1274	1½	Aluminium Complex	450 (232)	-20 to 350 (-29 to 177)	45 (20.4)	15.9 kg 54.4 kg 190.5 kg
1275	2	Aluminium Complex	450 (232)	-10 to 400 (-23 to 204)	45 (20.4)	15.9 kg 54.4 kg 190.5 kg
<b>Monolec® Extend EM Grease</b> 1282	2	Polyurea	520 (271)	-10 to 400 (-23 to 204)	50 (22.7)	15.9 kg
<b>Almaplex® Ultra-Syn Lubricant</b> 1295	000	Aluminium Complex	–	-60 to 400 (-51 to 204)	55 (25)	15.9 kg 54.4 kg 190.5 kg
1298	1	Aluminium Complex	523 (273)	-40 to 450 (-40 to 232)	55 (25)	15.9 kg 54.4 kg 190.5 kg
1299	2	Aluminium Complex	523 (273)	-40 to 450 (-40 to 232)	55 (25)	15.9 kg 54.4 kg 190.5 kg
<b>Almamoly™ HD Grease</b> 1488	1	Calcium Sulfonate Complex	600 (316)	-40 to 350 (-40 to 177)	60 (27.2)	15.9 kg 54.4 kg 190.5 kg
<b>Monocal™ GP Grease</b> 1499	2	Calcium Sulfonate Complex	600 (316)	-15 to 400 (-26 to 204)	60 (27.2)	15.9 kg 54.4 kg 190.5 kg
<b>Almagard® Vari-Purpose Lubricant</b> 3750	0	Lithium Complex	425 (218)	-20 to 350 (-29 to 177)	70 (31.8)	15.9 kg 54.4 kg 190.5 kg
3751	1	Lithium Complex	500 (260)	0 to 350 (-18 to 177)	70 (31.8)	15.9 kg 54.4 kg 190.5 kg
3752	2	Lithium Complex	540 (282)	20 to 400 (-7 to 204)	70 (31.8)	15.9 kg 54.4 kg 190.5 kg
<b>Monolec® Multiplex Lubricant</b> 4622	2	Lithium Complex	510 (266)	-40 to 400 (-40 to 204)	60 (27.2)	15.9 kg 54.4 kg 190.5 kg
<b>Monolec® Industrial Lubricant</b> 4700	00	Aluminium Complex	375 (191)	-40 to 300 (-40 to 149)	45 (20.4)	15.9 kg 54.4 kg 190.5 kg
4701	1	Aluminium Complex	450 (232)	-30 to 300 (-34 to 149)	45 (20.4)	15.9 kg 54.4 kg 190.5 kg
4702	0	Aluminium Complex	425 (218)	-20 to 300 (-29 to 149)	45 (20.4)	15.9 kg 54.4 kg 190.5 kg
<b>Syntemp® Synthetic Lubricant</b> 9102	0/2*			-40 to 400 (-40 to 204)	50 (22.7)	Case of 12 aerosols

\*NLGI 0 when applied; NLGI 2 when diluent evaporates.

<b>Container Sizes</b> <small>(All grades, unless marked otherwise)</small>	<b>Uses   Specs   Comments</b>
Case of 40 tubes	For plain and anti-friction bearings, chassis points, other grease-lubricated applications. Semitacky, resists wash-out, pound-out and shock loading. Contains Almasol.
Case of 40 tubes	Versatile, tacky grease is specially formulated to give superior protection and long service life. Withstands shock loading, pound-out and water washout in friction and anti-friction bearings, chassis points and other grease-lubricated applications. Contains Almasol and Quinplex.
Case of 40 tubes	Recommended for any applications requiring a high-temperature grease, such as kiln car bearings, oven conveyors, asphalt plants and soot blowers. Contains Almasol.
Case of 40 tubes (75)	EP lubricant for industrial or fleet use in severe conditions caused by moisture or high temperatures. Seals out dirt, water and prevents corrosive wear. Great for electric motors and central lubrication systems. Contains Almasol.
Case of 40 tubes	Formulated with polyurea thickener and designed for use in electric motor bearings or where polyurea grease is recommended. Offers superior mechanical and structural stability for long service life. Features low bleed characteristics, excellent pumpability and great oxidation resistance. Contains Monolec.
Case of 40 tubes (99)	Engineered to provide optimum performance capabilities under extreme equipment operating conditions. Provides excellent performance in the presence of water. Exhibits low-temperature pumpability down to 30°F (-1°C), as well as superior high-temperature functionality. Contains Almasol and Quinplex.
Case of 40 tubes	High-performance, calcium sulfonate-thickened grease contains Almasol® and 5 percent moly solid lubricant additives, making it suitable for use in severe conditions such as high temps, heavy loads and water. Provides long-lasting protection in heavy-duty mobile equipment.
Case of 40 tubes	Versatile general purpose formula contains calcium sulfonate complex thickener and Monolec® additive – a premium combination suitable for severe conditions such as high temperatures, heavy loads and water (including salt water). Especially effective on bearings in a warm, moist environment.
Case of 40 tubes (51, 52)	Multifunctional EP lubricant for extended service under extreme conditions in on- and off-road vehicles and in many plant applications. Very tacky, excellent water resistance, will not pound out. Rust- and corrosion-inhibited. Contains Almasol and Quinplex.
Case of 40 tubes	Lithium complex EP grease meets NLGI GC-LB specification. For plain and anti-friction bearings. Excellent low-temperature pumpability. Good mechanical stability, high dropping point, corrosion resistance. Contains Monolec.
Case of 40 tubes (01, 02)	Formulated for central lubrication systems. Has EP characteristics, water and high heat resistance, low separation or “bleed,” excellent mechanical stability. Easily pumpable. Contains Monolec.
	For use on small open gears, chains, cables, sprockets, slides and other applications. Clean and easy to apply. Very tacky and water-resistant. Resists high temperatures. Contains Monolec.

See page L14 for **Open Gear Greases** and **Food Grade Greases**, and page L16 for **Wire Rope Greases**.  
See page L22 for **NLGI Grease Consistency Numbers**.

# Industrial Oils

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>All-Purpose Turbine Oil</b>									
4941	--	32	5.4	32	95	435 (224)	-22 (-30)	--	18.9 L 208.2 L
4943	--	68	8.7	68	95	465 (240)	-11 (-24)	--	
4945	--	150	14.61	151	95	525 (274)	0 (-18)	--	
4946	--	220	19.1	225	95	535 (280)	5 (-15)	--	
<b>Monolec® Paper Machine Lubricant</b>									
6190	--	220	19.3	230	95	515 (268)	10 (-12)	--	18.9 L 208.2 L
6140	--	320	24.6	335	95	515 (268)	10 (-12)	--	
<b>Monolec® Centrifugal Compressor Oil</b>									
6260	--	32	5.4	31.9	100	430 (222)	-33 (-36)	--	208.2 L
<b>Monolec® Rock Drill Lubricant</b>									
6301	--	32	5.7	32.3	95	410 (210)	-38 (-39)	55 (25)	18.9 L 208.2 L
6303	30	100	11.5	98	95	450 (232)	-17 (-27)	55 (25)	
6305	50	220	19.3	220	95	450 (232)	0 (-18)	55 (25)	
<b>Monolec® Way Lubricant</b>									
6315		220	20.2	226	95	440 (227)	0 (-18)	--	18.9 L 208.2 L
<b>Monolec® R &amp; O Compressor / Turbine Oil</b>									
6401	--	32	5.3	31.9	95	410 (210)	-22 (-30)	--	18.9 L 208.2 L
6402	--	46	6.7	45.2	95	420 (216)	-11 (-24)	--	
6403	20	68	8.6	67.6	95	435 (224)	-11 (-24)	--	
6404	30	100	11.4	98	95	460 (238)	5 (-15)	--	
6405	40	150	15.0	150	95	475 (246)	10 (-12)	--	
6406	50	220	19.7	226	95	470 (244)	10 (-12)	--	
6407	60	320	25.1	326	95	475 (246)	10 (-12)	--	
<b>Monolec® Refrigeration Oil</b>									
6723	--	68	7.4	70.5		360 (182)	-22 (-30)	--	208.2 L
<b>Heat Transfer Oil</b>									
6733	--	--	6.4	41.8	95	410 (210)	5 (-15)	--	18.9 L 208.2 L
<b>H1 Machine Oil</b>									
6751	40	150	13.1	150	75	405 (208)	-6 (-21)	--	18.9 L 208.2 L
<b>LE Transformer Oil</b>									
6760	--	--	2.4	9.6		306 (152)	-76 (-60)	--	18.9 L 208.2 L
<b>Multilec® Industrial Oil</b>									
6801	--	32	5.5	32.4	95	410 (210)	-27 (-33)	--	18.9 L 208.2 L
6802	--	46	6.8	45.2	95	435 (224)	-33 (-36)	--	
6803	20	68	8.6	64.7	95	425 (218)	-11 (-24)	--	
6804	30	100	11.3	99	95	435 (224)	-17 (-27)	--	
6805	40	150	14.8	150	95	435 (224)	-11 (-24)	--	
6806	50	220	18.9	217	95	425 (218)	-11 (-24)	--	
6807	60	320	25.0	335	95	420 (216)	-6 (-21)	--	



<b>Container Sizes</b> (All grades, unless marked otherwise)	<b>Uses   Specs   Comments</b>
1,041 L disposable tank	Rust- and oxidation-inhibited turbine oil, offers excellent water-separating characteristics. Excellent for turbine systems operating in highly contaminated environment, or where high lubricant consumption is a concern. Nonfoaming in service.
1,041 L disposable tank	Minimizes deposits caused by steam heat. Excellent thermal and oxidation stability and rust and corrosion protection for long life. Excellent detergency prevents carbon deposit build-up and coking to minimize oil system plugging and premature bearing failures. Excellent wear protection. Contains Monolec.
1,041 L disposable tank	A high-quality compressor oil designed specifically for use in centrifugal air compressors. Formulated with select paraffinic base stocks synergistically blended with additives that offer excellent corrosion protection, superior thermal stability, good water separation, anti-foaming performance and oxidation oil requirements of Ingersoll-Rand Centac Centrifugal Compressors. Contains Monolec.
1,041 L disposable tank	For use with all pneumatic equipment. Protects against high speeds and shock loads. Secondary anti-wear EP additives prevent galling and welding. Contains Monolec.
1,041 L disposable tank	For machine ways and other sliding surfaces. Excellent lubricity and good adhesive properties. Very stable for long-term use. Approved for Cincinnati Milacron P-50 specification. Excellent for centralized lubrication systems. Contains Monolec.
1,041 L disposable tank	Rust- and oxidation-inhibited oil for reciprocating and rotary compressors, steam turbo generators, smaller industrial turbines, gears, bearings and circulating systems. Separates readily from water and prevents corrosive wear. Extremely long-lasting and nonfoaming. Contains Monolec.
1,041 L disposable tank Case of six 1-gal cans	For use with refrigeration systems and with most refrigerants. Special additives prevent sludge, ensure low-temperature fluidity and provide longer life. Contains Monolec.
1,041 L disposable tank	Synergistic blend of highly refined base oil and additives designed to provide low volatility, oxidation resistance and cleanliness in heat exchange systems. Formulated to provide long service life and excellent thermal efficiency.
1,041 L disposable tank	For use in Manzel Lubrication Systems of Angelus seamers. Ashless additive completely suspends water in oil. Superior anti-rust and excellent anti-wear properties. Resists foaming. NSF H1 certified for food processing equipment.
1,041 L disposable tank	Highly oxidation-resistant electrical transformer oil for all types of electrical service. Designed for use as an insulating cooling medium for electrical cooler operation and longer life. Meets all specifications of ASTM D3487 Type II. Suitable for use in all types of oil-filled electrical devices, including transformers, switches, circuit breakers and capacitors. Can also be used in submersible pumps with oil-filled electric motors requiring a dielectric oil.
1,041 L disposable tank	Multifunctional, heavy-duty, anti-wear oil for air compressors, hydraulics, bearings and R&O gear applications. Rust- and oxidation-inhibited. Great lubricity. Excellent water separation ability. Combats acid hydrolysis in rotary screw compressors. Contains Monolec.

# Industrial Oils

continued

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Monolec® Synthetic Industrial Oil</b>									
9032	--	32	6.0	32.1	130	475 (246)	-71 (-57)	--	18.9 L 208.2 L
9046	--	46	8.0	46.8	130	480 (248)	-60 (-51)	--	
9068	--	68	10.6	68.8	130	470 (244)	-49 (-45)	--	
9100	--	100	14.5	99	130	470 (244)	-44 (-42)	--	
9150	--	150	20.1	151	130	470 (244)	-38 (-39)	--	
<b>Monolec® Synthetic Industrial Lubricant</b>									
9220	--	220	26.3	219	140	470 (244)	-27 (-33)	--	18.9 L 208.2 L
9320	--	320	35.5	319	145	470 (244)	-17 (-27)	--	
9460	--	460	47.5	459	145	465 (240)	-11 (-24)	--	
<b>Synolec® Lubricant</b>									
9963	40		14.3	82.0	180	505 (262)	-29 (-34)	--	18.9 L 208.2 L

## Hydraulic Oils

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>All-Purpose Hydraulic Oil</b>									
4932	--	32	5.3	32.0	95	430 (222)	-27 (-33)	--	18.9 L 208.2 L
4933	--	46	6.8	46.5	95	445 (230)	-22 (-30)	--	
4934	--	68	8.7	68.1	95	470 (244)	-17 (-27)	--	
<b>Monolec® Hydraulic Oil</b>									
6105	--	22	4.7	21.9	95	380 (193)	-27 (-33)	--	18.9 L 208.2 L
6107	--	32	5.2	30.3	95	430 (221)	-22 (-30)	--	
6110	--	46	7.0	47.1	95	450 (232)	-17 (-27)	--	
6120	--	68	8.7	68.0	95	460 (238)	-11 (-24)	--	
6520	5W-20		6.2	31.3	135	385 (196)	-44 (-42)	--	
<b>Monolec® Hydraulic Oil</b>									
6115	--	15	4.9	15.7	200	220 (104)	-81 (-63)	--	18.9 L 208.2 L
<b>Low Tox® Hydraulic Oil</b>									
6601	--	32	5.7	32.8	95	420 (216)	0 (-18)	--	18.9 L 208.2 L
6602	--	46	6.9	46.1	95	444 (230)	10 (-12)	--	
6603	--	68	9.2	68.6	95	515 (268)	10 (-12)	--	

## Turbine Oils

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>All-Purpose Turbine Oil</b>									
4941	--	32	5.4	31.7	95	435 (224)	-22 (-30)	--	18.9 L 208.2 L
4943	--	68	8.7	67.9	95	465 (240)	-11 (-24)	--	
4946	--	220	19.1	225	95	535 (280)	5 (-15)	--	
<b>Low Tox® Turbine Oil</b>									
6411	--	32	5.5	31.4	95	400 (204)	-6 (-21)	--	18.9 L 208.2 L
6412	--	46	6.9	45.6	95	455 (235)	0 (-18)	--	
6413	20	68	9.0	68.6	95	462 (239)	5 (-15)	--	
6414	30	100	11.4	98	95	500 (260)	5 (-15)	--	

<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
	1,041 L disposable tank	For use with reciprocating and rotary compressors, vacuum pumps, hydraulic systems, high-temperature non-EP gear drives, low-temperature fluid power drives. Reduces carbon deposits. Contains Monolec.
	1,041 L disposable tank	For use with heavily loaded bearings and gears. Excellent thermal stability and oxidation resistance. Contains Monolec.
	1,041 L disposable tank	Chains, conveyors, sealed bearings in high temperatures. Dissipates slowly, leaves no residue. Cleans oil deposits. Spray, drip or brush application. Rust- and oxidation-inhibited. Contains Monolec.

<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
	1,041 L disposable tank	Offers rust protection, anti-wear properties, thermal stability and oxidation resistance. For hydraulic systems operating in highly contaminated environments or where high lubricant consumption is a concern. Nonfoaming in service.
	1,041 L disposable tank (110, 120, 520)	Offers superior anti-wear performance and rust and oxidation resistance. Water-resistant, nonfoaming. High-temperature stability, long life, uniform power flow. Contains Monolec.
	1,041 L disposable tank	Specially designed for hydraulic systems requiring excellent low-temperature properties and high dielectric strength such as bucket trucks for electrical service. Contains Monolec.
	1,041 L disposable tank	Low-toxicity hydraulic oil with advanced product technology. Performs equivalent to premium hydraulic fluids, yet has low toxicity for environmental concerns compared to standard commercial hydraulic oils and biodegradable hydraulic fluids.

<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
	1,041 L disposable tank	Rust- and oxidation-inhibited turbine oil offers water-separating characteristics. For turbine systems operating in highly contaminated environment, or where high lubricant consumption is a concern. Nonfoaming in service.
	1,041 L disposable tank	Exceeds performance of premium turbine oils. Low toxicity for environmental concerns, compared to standard commercial turbine oils and biodegradable turbine oils. Meets or exceeds OEM requirements for many generators, turbine and governors.

# Turbine Oils

continued

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Monolec® Turbine Oil</b>									
6461	--	32	5.1	29.7	95	442 (228)	-22 (-30)	--	18.9 L (61)
6462	--	46	6.8	46.1	95	455 (234)	-22 (-30)	--	208.2 L
6463	--	68	8.8	69.1	95	460 (238)	-11 (-24)	--	
<b>Monolec® Turbine Oil</b>									
6471	--	32	5.6	32.5	100	419 (215)	-22 (-30)	--	208.2 L
6472	--	46	6.9	46.5	100	428 (220)	-22 (-30)	--	
<b>Monolec® EP Turbine Oil</b>									
6476	--	32	5.9	34.7	100	419 (215)	-38 (-39)	--	208.2 L

# Gear Oils

For AGMA numbers, see the **Viscosity Equivalent Chart** on p. L23.

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Almasol® Pure Mineral Gear Lubricant</b>									
401	90	220	20.9	239	95	535 (280)	-0 (-18)	--	15.9 kg 54.4 kg 190.5 kg
<b>Almasol® Worm Gear Lubricant</b>									
460	--	460	38.2	474	115	545 (285)	-6 (-21)	--	15.9 kg 190.5 kg
680	--	680	48.3	659	115	558 (292)	-6 (-21)	--	
<b>Monolec® Gear Lubricant</b>									
703	80W-90	--	15.1	155	95	390 (198)	-17 (-27)	70 (31.8)	15.9 kg
704	85W-140	--	28.3	404	95	400 (204)	5 (-15)	70 (31.8)	181.4 kg
<b>Duolec® Industrial Lubricant</b>									
1302	80	68	9.4	70.6	111	405 (207)	-17 (-27)	75 (34)	15.9 kg 54.4 kg 181.4 kg
<b>Duolec® Vari-Purpose Gear Lubricant</b>									
1601	75W	46	7.1	45.0	117	410 (210)	-27 (-33)	75 (34)	15.9 kg 54.4 kg 181.4 kg
1602	80	68	9.7	71.9	114	410 (210)	-17 (-27)	75 (34)	
1603	85	100	12.3	104	110	410 (210)	-11 (-24)	75 (34)	
1604	90	150	16.4	156	111	410 (210)	-11 (-24)	75 (34)	
1605	110	220	21.2	229	110	410 (210)	-11 (-24)	75 (34)	
1606	140	320	27.9	333	113	410 (210)	-6 (-21)	75 (34)	
1607	190	460	37.0	480	118	415 (213)	-6 (-21)	75 (34)	
1608	250	680	47.5	708	116	420 (216)	5 (-15)	75 (34)	
1609	250	1000	62.1	1,015	120	415 (213)	5 (-15)	75 (34)	
1610	250	1500	81.3	1,423	126	419 (215)	0 (-18)	75 (34)	
<b>Synpag® Gear Lubricant</b>									
9705	--	220	41.9	227	242	537 (281)	-38 (-39)	75 (34)	15.9 kg
9706	--	320	61.6	339	252	527 (275)	-44 (-42)	75 (34)	54.4 kg
9707	--	460	83.0	477	262	527 (275)	-22 (-30)	75 (34)	190.5 kg
<b>Synolec® Gear Lubricant</b>									
9815	--	150	20.6	156	153	444 (229)	-34 (-37)	70 (31.8)	15.9 kg
9822	--	220	26.7	227	151	464 (240)	-35 (-37)	70 (31.8)	54.4 kg
9832	--	320	35.4	324	154	466 (241)	-27 (-33)	70 (31.8)	181.4 kg
9846	--	460	47.9	472	160	464 (240)	-20 (-29)	70 (31.8)	

<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
	1,041 L disposable tank	A high-quality turbine oil line formulated using select base oils coupled with synergistic mix of additives. Provides excellent performance in mainline steam, gas and hydroelectric turbine applications. Contains Monolec.
	1,041 L disposable tank	A high-quality turbine oil line formulated using select base oils coupled with synergistic mix of additives. Specifically designed for use in combustion turbines. Contains Monolec.
	1,041 L disposable tank	A premium quality R & O and anti-wear oil designed specifically for use in gas, steam and hydroelectric mainline turbines driven with or without reduction gears. Made from high quality hydrotreated paraffinic base oil and additives to provide maximum oxidation resistance. Contains Monolec.

<b>Container Sizes</b>		<b>Uses   Specs   Comments</b>
	954 kg disposable tank	Provides highest level of wear reduction possible without EP additives. API GL-1. Contains rust and oxidation inhibitors, metal adhesive additives. Nonfoaming. Contains Almasol.
	954 kg disposable tank	Designed to protect worm gears and bronze parts. For use in all worm gearboxes that require a compounded worm gear lubricant. 460-AGMA 7C, 680-AGMA 8C. Contains Almasol.
	909 kg disposable tank Case of 24 quarts (703)	Multi-viscosity EP oil. Exceeds requirements for all types of differentials and transmissions in highway fleets and off-road equipment. For Rockwell, Eaton axles, heavily loaded industrial enclosed gearboxes. Nonfoaming. Rockwell approved. Contains Monolec.
	909 kg disposable tank Case of 24 quarts	An ISO VG 68 high-performance undyed industrial oil. Designed for use in any industrial gear or bearing application that requires thermally stable, EP lubricant. Also meets requirements for use in many machine tool ways, journal bearings in blower fans and water pumps. Contains Duolec.
	954 kg disposable tank Case of 24 quarts (05)	High-performance line of industrial automotive gear oils acceptable for use in any gear or bearing application that requires high thermal stability, EP lubricant. Also meets requirements for use in many hypoid gear applications employed in heavy-duty mobile equipment. Fortified with a shear stable tackifier to provide adhesion to metal during use. Contains Duolec.
	954 kg disposable tank	Synthetic Polyalkylene Glycol (PAG), base gear lubricant. Especially known for EP characteristics and ability to prevent micropitting. Formulated for corrosion resistance, wear protection and thermal stability. Excellent for worm gear lubrication. Contains Duolec.
	909 kg disposable tank	Engineered with 100% synthetic base fluid to give excellent low- and high-temperature performance. Will flow at exceptionally low temperatures to provide the highest degree of protection. Contains Duolec.

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Synolec® All-Climate Gear Lubricant</b> 9919	75W-90	--	16.0	115	140	414 (212)	-60 (-51)	65 (29.5)	15.9 kg 54.4 kg 181.4 kg
<b>Synolec® Gear Lubricant</b> 9920	75W-140	--	24.8	180	165	370 (188)	-49 (-45)	65 (29.5)	15.9 kg 54.4 kg 181.4 kg

## Open Gear Greases

Product	NLGI Grade	Base	Dropping Point °F (°C)	Operating Temp. °F (°C)	Timken OK Load lb (kg)	
<b>Pyroshield® Syn Open Gear Grease</b>						
5180	2*	Bentonite Clay	Non-Melt	0 to 450 (-18 to 232)	90 (40.8)	13.6 kg** (82)
5182	2	Bentonite Clay	Non-Melt	40 to 450 (4 to 232)	90 (40.8)	15.9 kg (80, 82)
5100 Aerosol	2*	Bentonite Clay	Non-Melt	40 to 450 (4 to 232)	90 (40.8)	54.4 kg (80, 82)
<b>Almasol® Syntemp® Lubricant</b> 9901	2	Bentonite Clay	Non-Melt	30 to 450 (-1 to 232)	45 (20.4)	15.9 kg 54.4 kg

\* in service

\*\* 13.6 kg pail contains 60 1/2 - lb (227 - g) bags

## Open Gear Oils

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Pyroshield® Syn Hvy Open Gear Lubricant</b> 9000	--	--	880	28,980	190	385 (196)	54 (12)	95 (43.2)	15.9 kg 54.4 kg 181.4 kg
<b>Pyroshield® Syn XHvy Open Gear Lubricant</b> 9011	--	--	1,104*	36,070*	190*	235 (112)	32 (0)	95 (43.2)	15.9 kg 54.4 kg 181.4 kg

\* without diluent

## Food Grade Greases (H1)

Product	NLGI Grade	Base	Dropping Point °F (°C)	Operating Temp. °F (°C)	Timken OK Load lb (kg)	
<b>H1 Quinplex® Food Machinery Lubricant</b>						
4022	00	Aluminium Complex	--	-15 to 300 (-26 to 149)	40 (18.1)	15.9 kg (22-25)
4023	0	Aluminium Complex	417 (214)	-15 to 300 (-26 to 149)	40 (18.1)	54.4 kg (23-25)
4024	1	Aluminium Complex	450 (232)	0 to 350 (-18 to 177)	50 (22.7)	181.4 kg (24-25)
4025*	2	Aluminium Complex	493 (256)	30 to 400 (-1 to 204)	50 (22.7)	

\*also available in aerosol

Container Sizes (All grades, unless marked otherwise)		Uses   Specs   Comments
	909 kg disposable tank	Specially formulated heavy-duty synthetic gear lubricant for industrial and automobile applications. Made with 100% synthetic base fluid for excellent low- and high-temperature performance. Contains Monolec.
	907.2 kg disposable tank	Heavy-duty synthetic lubricant for over-the-road and stop-and-go vehicles and off-road equipment. Excellent low- and high-temperature performance. Also for industrial gearboxes. Contains Monolec.

Container Sizes (All grades, unless marked otherwise)		Uses   Specs   Comments
	181.4 kg (80, 82) Case of 12 aerosols (00) Case of 50 tubes (80, 82)	For operating in the most severe service. EP lubricant for year-round use on open gears, cams, cables, fifth wheels and other sliding mechanisms. 5100 is only available in aerosol. Contains Almasol.
	190.5 kg Case of 40 tubes	High-temperature EP synthetic lubricant. Water-resistant, will not melt or separate. For open gears, sliding surfaces, low-speed plain bearings. Contains Almasol.

Container Sizes (All grades, unless marked otherwise)		Uses   Specs   Comments
	909 kg disposable tank	Extremely heavy synthetic lubricant for ball/grinding mill applications. EP, nonasphaltic. Ideal for automatic spray systems. Can be used in bath or idler immersion lube system. Contains Almasol.
	909 kg disposable tank	Exceptionally high viscosity, 100% synthetic base oil lubricant designed for open gears in heavy-duty service. Ideal for automatic lube spray systems for intermittent application. Contains Almasol.

Container Sizes (All grades, unless marked otherwise)		Uses   Specs   Comments
	Case of 40 tubes (24-25) Case of 12 aerosols (25)	NSF H1 certified for food processing equipment. White, water-resistant, rust- and corrosion-inhibited, mechanically stable. Resists high temperatures, clings to metal. Certified Kosher-Pareve. Contains Quinplex.

## Food Grade Oils (H1)

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100° C	40° C	VI				
<b>H1 Quinplex® White Oil</b>									
4010	10	46	5.7	43.2	--	370 (188)	-33 (-36)	--	18.9 L 208.2 L
4020	20	68	7.9	66.5	--	421 (216)	-22 (-30)	--	
4030	30	100	10.8	100	--	441 (227)	-22 (-30)	--	
4040	40	150	14.9	148.9	--	430 (221)	-22 (-30)	--	
<b>H1 Quinplex® Synthetic Food Grade Oil</b>									
4032	--	32	6.1	32.1	138	450 (232)	-76 (-60)	--	18.9 L 208.2 L
4046	--	46	7.7	46.3	135	530 (276)	-65 (-54)	--	
<b>H1 Quinplex® Penetrating Oil &amp; Lubricant</b>									
4058	--	--	6.0	38.4	--	305 (152)	-33 (-36)	--	18.9 L 208.2 L
<b>H1 Quinplex® Penetrating Oil &amp; Lubricant (aerosol)</b>									
4059	30	100	10.7	100	--	400 (204)	-17 (-27)	--	Case of 12 aerosols
<b>H1 Quinplex® White Gear Lubricant</b>									
4090	90	220	19.3	217	--	393 (201)	5 (-15)	--	15.9 kg 190.5 kg
4140	140	460	29.7	459	--	391 (200)	5 (-15)	--	
4250	250	680	44.7	659	--	428 (220)	10 (-12)	--	
<b>H1 White Utility Oil</b>									
4201	--	--	3.6	18.0	--	320 (160)	-40 (-40)	--	18.9 L 208.2 L
4204	--	46	5.7	43.0	--	375 (191)	-35 (-37)	--	

For H1 Silicone Spray (804), see p. L20.

For Ovenworx™ H1 Syn Chain Lubricant (4061), see page L21

## Wire Rope Lubricants

Product	NLGI Grade	Base	Dropping Point °F (°C)			Operating Temp. °F (°C)	Timken OK Load lb (kg)		
			100° C	40° C	VI				
<b>Wirelife® Almasol® Coating Grease</b>									
451	000	Calcium	180 (82)			-20 to 170 (-29 to 77)	--	15.9 kg 54.4 kg 190.5 kg	
452	00	Calcium	180 (82)			-20 to 170 (-29 to 77)	--		
453	0	Calcium	180 (82)			-20 to 170 (-29 to 77)	--		
<b>Wirelife® Monolec® Penetrating Lubricant</b>									
2001	--	--	14.1	191	--	205 (96)	0 (-18)	60	18.9 L 208.2 L
<b>Wirelife® Almasol® Coating Lubricant</b>									
2002	--	--	--	--	--	140 (60)	49 (9)	--	15.9 kg
<b>Wirelife® Low Tox® Penetrating Lubricant</b>									
2011	--	--	18.0*	156.4*	--	284 (140)	0 (-18)	--	18.9 L 208.2 L
<b>Wirelife® Almasol® Syn Coating Lubricant</b>									
2022	--	--	1,104*	36,070*	190*	235 (112)	32 (0)	95	15.9 kg 54.4 kg 181.4 kg

\* without diluent



<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
	1,041 L disposable tank	NSF H1 certified for food processing equipment. Nonfoaming. For use where incidental food contact may occur or a clean, nonstaining lubricant is required: hydraulic systems, slides, guides, chains, valves, compressors. Certified Kosher-Pareve. Contains Quinplex.
	1,041 L disposable tank	NSF H1 certified for food processing equipment. Superior low-temperature performance, excellent load-carrying, anti-wear properties and seal compatibility. Certified Kosher-Pareve. Contains Quinplex.
	1,041 L disposable tank	Food grade penetrating oil quickly dissolves rust and frees frozen parts. Penetrates and leaves heavy film for lubrication and corrosion protection. NSF H1 certified for food processing equipment. Certified Kosher-Pareve. Contains Quinplex.
		Food grade penetrating oil quickly dissolves rust and frees frozen parts. Penetrates and leaves heavy film for additional lubrication and corrosion protection. NSF H1 certified for food processing equipment. Certified Kosher-Pareve. Contains Quinplex.
	954 kg disposable tank	NSF H1 certified for food processing equipment. Excellent load-carrying, wear-reducing and nonfoaming properties. For use in gearboxes, including worm gears where incidental food contact may occur or where a clean, nonstaining lubricant is desired. Certified Kosher-Pareve. Contains Quinplex.
	1,041 L disposable tank	Food and USP grade white mineral oil containing no additives. NSF H1 certified for general lubrication where incidental food contact may occur. Suggested for rust prevention after washdown. For textile applications where a nonstaining oil is required, including spindle oil and needle oil.

<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
		Coats all moving chain and cable parts to ensure smooth operation and long life. Tacky, water-resistant, seals out moisture. Adheres to moving parts, will not sling off. Excellent for cables and chains, as well as small, slow-turning gearboxes requiring semifluid grease. Contains Almasol.

<b>Container Sizes</b> (All grades, unless marked otherwise)		<b>Uses   Specs   Comments</b>
	Case of 12 aerosols	Penetrating lubricant supplies superior load capacity and corrosion resistance. Solvent enhances penetration. When solvent evaporates, a thin film remains to protect and lubricate each strand. Excellent for wire rope and chains. Contains Monolec.
	Case of 12 aerosols	Coating lubricant provides self-healing film to reduce wear and fretting. Contains petroleum solvent. Contains Almasol.
		Highly penetrating lubricant with excellent load-carrying capability. Designed for marine and other sensitive applications that require a low-toxicity wire rope and chain lubricant. Provides outstanding protection against rust, while having the lowest possible toxic effect on the environment.
	909 kg disposable tank	Exceptionally high-viscosity, 100% synthetic base oil lubricant designed for surface protection of wire ropes in heavy duty service in extreme environment. Contains Almasol.

# Engine Oils

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Monolec® Synthetic Engine Oil</b> 8030	30	--	11.5	75.8	130	459 (237)	-54 (-48)	--	18.9 L 208.2 L
<b>Monolec® Two-Cycle Engine Oil</b> 8104	40*	--	13.7	143.0	--	205 (96)	-22 (-30)	--	18.9 L 208.2 L
<b>Monolec® Ultrablend Engine Oil</b> 8130	10W-30	--	12.4	82.6	140	468 (242)	-38 (-39)	--	18.9 L 208.2 L
<b>Monolec® GFS Engine Oil</b> 8420 8430 8440 8450	20W 30 40 50	-- -- -- --	8.8 11.9 16.1 19.8	66.2 106.0 165.0 220.0	95 95 95 95	405 (208) 425 (218) 450 (232) 475(246)	-22 (-30) -17 (-27) -11 (-24) 0 (-18)	-- -- -- --	18.9 L (30, 40, 50) 208.2 L
<b>Monolec® Tetra-Syn™ Engine Oil</b> 8521 8531	5W-20 5W-30	-- --	8.9 10.6	44.7 58.7	171 177	421 (216) 421 (216)	-44 (-42) -44 (-42)	-- --	18.9 L 208.2 L
<b>Monolec Ultra® Engine Oil</b> 8800	15W-40	--	15.1	118.0	≥130	430 (221)	-24 (-31)	--	18.9 L 208.2 L
<b>Monolec® Engine Oil</b> 8820	20W-50	--	19.7	174	127	445 (229)	-18 (-28)	--	18.9 L 208.2 L
<b>Monolec® Natural Gas Engine Oil</b> 8845	15W-40	--	14.6	115	130	446 (230)	-17 (-27)	--	208.2 L
<b>Monolec Ultra® Syn Heavy Duty Engine Oil</b> 8854	5W-40	--	13.7	79.7	165	426 (219)	-40 (-40)	--	18.9 L 208.2 L
<b>Ultra RDE Oil</b> 8900	40	--	14.8	143.0	95	460 (238)	15 (-9)	--	208.2 L
<b>Monolec® Natural Gas Engine Oil</b> 8945	40	--	13.8	126.0	106	491 (255)	0 (-18)	--	18.9 L 208.2 L
<b>Monolec® Landfill Gas Engine Oil</b> 8947 8949	40 40	-- --	13.5 13.6	121.0 122.0	-- --	500 (260) 504 (262)	-6 (-21) -6 (-21)	-- --	208.2 L

\*before solvent dilution

Container Sizes (All grades, unless marked otherwise)		Uses   Specs   Comments
1,041 L disposable tank		Heavy-duty engine oil made from select synthetic base stock. Exceptional protection against rust and corrosion. Superior oxidation resistance and anti-foam properties. Powerful detergent. Excellent anti-wear protection and deposit control. Designed specifically for use in lower picking house unit on Sulzer Ruti weaving machines. Contains Monolec.
Case of 12 pints		Heavy-duty two-cycle oil with outstanding additives. Pre-diluted to mix with gasoline at low temperatures. Burns cleanly and completely. Minimizes heat and wear in chain saws, lawn mowers, portable generators, pumps and other two-cycle equipment. Use where SAE 30 or 40 is recommended. Contains Monolec.
1,041 L disposable tank Case of 24 quarts		For heavy-duty, long drain service in diesel and gasoline engines. Effective cold cranking at low temperatures. Exceeds requirements for Mack, Detroit Diesel, Ford and General Motors. Contains Monolec.
1,041 L disposable tank		For heavy-duty service in diesel engines. Exceeds performance requirements for Mack, Caterpillar, Cummins, Detroit Diesel, Ford and General Motors. For Allison C-4 fluid, choose 8430. Contains Monolec.
1,041 L disposable tank Case of 24 quarts		High-quality, high-performance, proprietary synthetic engine oil for gasoline engines. Exceeds the minimum standards set by American Petroleum Institute (API), providing the ultimate combination of performance, protection, endurance and efficiency. Contains Monolec.
1,041 L disposable tank Case of 24 quarts Case of three 2-gal jugs		For heavy-duty, long-drain service in diesel and gasoline engines. Improves fuel efficiency, reduces wear, provides all-season, all-weather performance. Exceeds performance requirements for Mack, Caterpillar, Cummins, Detroit Diesel, Volvo, and others. Allison C-4 transmission. Contains Monolec.
1,041 L disposable tank Case of 24 quarts		For heavy-duty, long-drain service in diesel and gasoline engines. Improves fuel efficiency, reduces wear, provides all-season, all-weather performance. Contains shear-stable viscosity modifier to achieve the higher VI required to span the SAE 20W-50 grade. Exceeds Mack, Cummins, John Deere, Allis-Chalmers, Detroit Diesel, Ford, GM, Chrysler, Caterpillar and other manufacturer's requirements. Excellent for use in motorcycle engines. Contains Monolec.
1,041 L disposable tank		Superior multigrade, low ash natural gas engine oil formulated for use in stationary and mobile natural gas engines. Contains Monolec.
1,041 L disposable tank Case of 24 quarts Case of three 2-gal jugs		Broad-range multiviscosity synthetic oil for diesel engines pays for itself with outstanding year-round performance, wear protection, fuel efficiency and extended drains. Achieves flow quickly in cold weather and maintains viscosity at operating temperatures. Meets all major OEM approvals. Contains Monolec.
1,041 L disposable tank		For use with silver alloy bearings in railroad diesel engines. Improves fuel efficiency, reduces wear and provides the highest degree of engine protection. Exceeds manufacturer's requirements for EMD, GE, LMOA and Caterpillar for railroad diesel engines.
1,041 L disposable tank		Superior, straight-grade, low ash natural gas engine oil formulated with cutting edge technology that differentiates its performance from other natural gas engine lubricants. Contains Monolec.
1,041 L disposable tank		High-performance straight-grade medium ash engine oils used for landfill gas pumping engines and generation units. Contains Monolec.

## Transmission Fluids

Product	Grade		Viscosity, cSt			Flash Point °F (°C)	Pour Point °F (°C)	Timken OK Load lb (kg)	
	SAE	ISO	100°C	40°C	VI				
<b>Synolec® SAE 50</b> 650	50	--	17.5	132	146	430 (221)	-49 (-45)	--	18.9 L 208.2 L
<b>Dexron® VI ATF</b> 1136	--	--	6.0	29.0	145	420 (216)	-60 (-51)	--	18.9 L 208.2 L
<b>Monolec® Syn Multi-Vehicle ATF</b> 1150	--	--	7.7	36.5	186	430 (221)	-54 (-48)	--	18.9 L 208.2 L
<b>Monolec® Power Fluid</b> 7500	--	--	9.8	61.3	130	433 (223)	-33 (-36)	--	18.9 L 208.2 L
<b>Power Transmission Fluid</b> 7510 7530 7550	10 30 50	-- -- --	6.5 11.9 20.4	43.2 111 241	95 95 95	445 (230) 485 (252) 500 (260)	-22 (-30) -17 (-27) 5 (-15)	-- -- --	18.9 L (30, 50) 208.2 L

## Fuel Supplements

Product	Container Sizes	Uses   Specs   Comments
<b>L-X® Heavy-Duty Chemical Supplement</b> 2300	18.9 L 208.2 L Case of 12 pints	Fuel supplement for internal combustion engines. Cleans internal engine parts, prevents carbon and gum deposits on rings, plugs, injectors, pistons, valves, carburetor and PCV valves. Reduces friction and wear. Reduces fuel consumption.
<b>BTU+ Total Treat Diesel Fuel Improver</b> 2410	18.9 L 208.2 L Case of six 1-gal cans Case of 12 pints	Complete treatment for cleaning fuel pumps, injectors and combustion chamber. Lowers pour point and cold filter plug point. Improves fuel lubricity and provides more complete combustion.
<b>BTU+ Power Supplement &amp; Cleaner Diesel Fuel Improver</b> 2420	18.9 L 208.2 L Case of six 1-gal cans Case of 12 pints	Cleans engines and provides more power. Lubricates injectors and pumps.

## Additional Products

Product	Container Sizes	Uses   Specs   Comments
<b>Heavy Duty Solvent Degreaser / Brake Cleaner</b> 802	Case of 12 aerosols	Highly effective in removing heavy greases, oil adhesives, lubricants, tar, waxes, asphalt, resins and other heavy materials.
<b>H1 Silicone Spray</b> 804	Case of 12 aerosols	Silicone-based spray for use on machine parts and equipment in locations in which there is potential exposure of the lubricated part to food. For food plant and other industrial uses. Certified NSF H1 and Kosher-Pareve.
<b>Monolec® Penetrating Oil &amp; Lubricant</b> 2059 <b>L20</b>	18.9 L 208.2 L Case of 12 aerosols	Quickly dissolves rust, gum and varnish, freeing "frozen" parts. Leaves tough film. Rust and corrosion preventative. Contains Monolec.

Container Sizes (All grades, unless marked otherwise)		Uses   Specs   Comments
1,041 L disposable tank		Full synthetic transmission fluid designed to meet extended drain and OEM warranty requirements for manual transmissions in light- to severe-duty on-and-off highway equipment. Meets or exceeds specifications of several OEMs, including Eaton Roadranger.
1,041 L disposable tank		Synthetic-based fluid for use as automatic transmission fluid in automobiles with automatic and power shift transmissions, in power steering systems, and in hydraulic pumps. Formulated to provide smooth shifting, low shudder and long-life performance in automatic transmissions.
1,041 L disposable tank Case of 24 quarts		Engineered to provide enhanced lubricant performance by using the most advanced additives on the market, blended into the highest quality synthetic base oils available. Contains Monolec.
1,041 L disposable tank Case of 24 quarts		For combination gear-hydraulic systems, hydraulic transmissions, wet brakes and torque converters. Is nonfoaming and rejects water. Allison C-4 performance. Contains Monolec.
1,041 L disposable tank		Formulated for use in transmissions, final drives and wet brakes requiring a fluid that meets the Caterpillar TO-4 or Allison C-4 specifications, Excellent friction properties, gear protection and resistance to oxidation.

## Additional Products

Product	Container Sizes	Uses   Specs   Comments
<b>Greentastic® Industrial Cleaner</b> 2110	18.9 L 208.2 L	Concentrated water-based liquid solution can be diluted with water or solvents. Powerful, environmentally friendly formula is phosphate- and phosphorus-free, and meets USDA A1 General Cleaner criteria.
<b>Almasol® Smokeless Chain Lubricant</b> 2705	18.9 L	Suitable for application to hot chains without interrupting production operations. Will not smoke at temperatures up to approximately 550°F (288°C). Contains Almasol.
<b>Almasol® Oven Chain Lubricant</b> 2710	18.9 L	Contains a blend of lubricating solids in a biodegradable carrier fluid that evaporates and leaves behind a protective, water-resistant solid film that lubricates without any accumulation of hard deposits. Reduces frictional drag over a broad temperature range. Apply below 175°F (79°C). Effectively lubricates up to 900°F (482°C). Contains Almasol.
<b>Almasol® High Temperature Oven Chain Lubricant</b> 2799	18.9 L	Chain lubricant containing Almasol and other sub-micron lubricating solids in a special high-temperature synthetic carrier. Designed to maximize lubricant penetration into the pin and bushing area of the chain. Penetrates all moving parts and leaves a protective film. No residue at high temperatures. Apply up to 475°F (246°C) without interrupting production operation.
<b>Ovenworx™ H1 Syn Chain Lubricant</b> 4061	18.9 L 208.2 L	Fully synthetic formula features robust high-viscosity base fluid and contains no solid additives to fall out of the suspension, requires no pre-mixing. Seals out water-damaging moisture, preventing corrosion. Has broad temperature range and high flash point. NSF H1 certified for food processing equipment.
<b>Almasol® Dry Film Lubricant</b> 9200	Case of 12 aerosols	For use where permanent lubrication with long wear life and low frictional properties are desired, and oil and grease cannot be used. Contains Almasol.
<b>Monolec® High Temperature Oven Chain Lubricant</b> 9965	18.9 L 208.2 L 1,041 L disposable tank	Specially formulated lubricant with excellent thermal stability and low volatility. Forms a soft carbonaceous residue that functions as a solid lubricant. Provides reduced wear, lower friction, resistance to moisture and corrosion, and reduced power consumption. Contains Monolec.

## NLGI Grease Consistency Numbers

The National Lubricating Grease Institute has established a grease consistency category based on ASTM D 217 Worked Penetration characteristics. Worked Penetration is defined as the distance that an ASTM cone under a specified load, at 25°C (77°F), penetrates in 5 seconds the smooth surface of a grease sample that has been subjected to 60 strokes in a grease worker.

The greater the number defined in terms of the cone penetration, the softer the grease and the lower the NLGI number. Since the penetration scale is not continuous with the NLGI scale, i.e., there are lapses of 15 tenths of a millimeter between NLGI numbers, it is possible to design greases to fall between NLGI numbers. When this is done, unofficial half NLGI numbers are sometimes used.

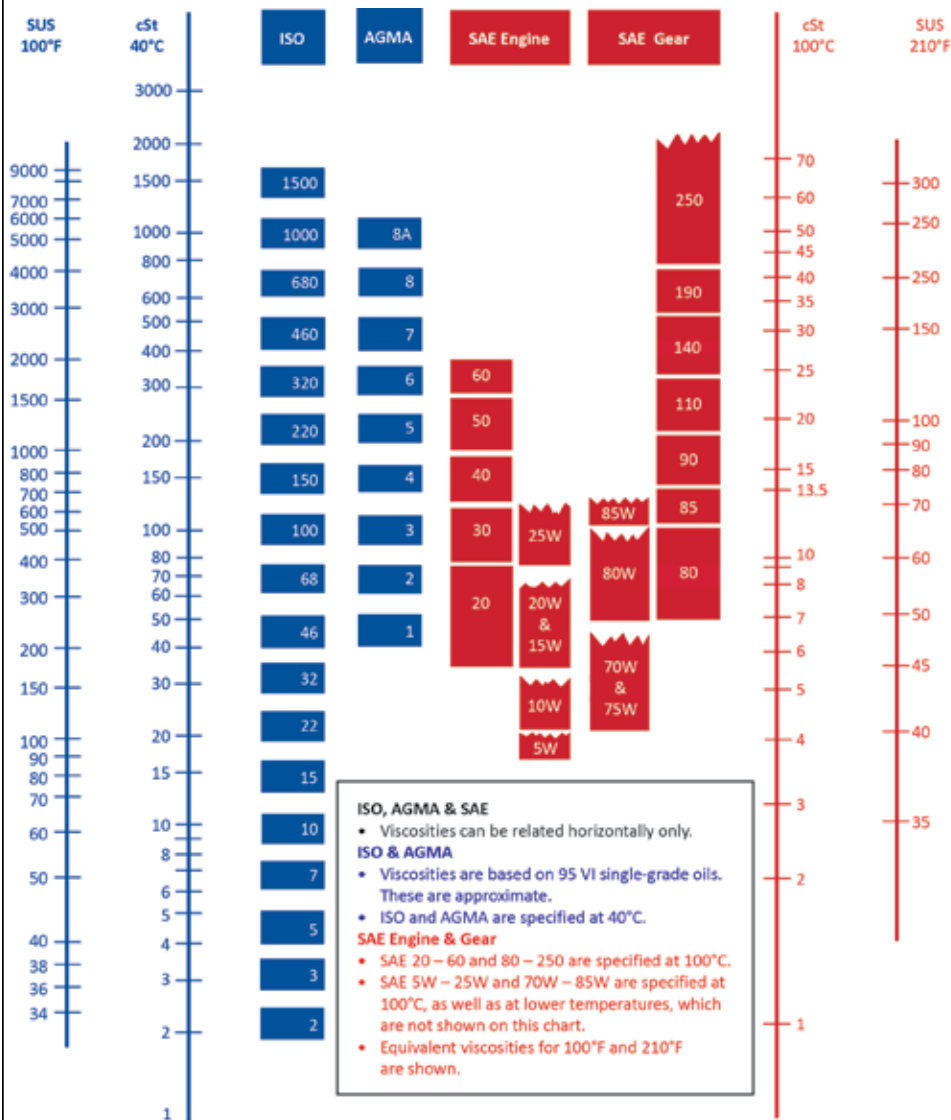
NLGI Consistency Number (Grade)	ASTM D 217 Worked (60 Strokes) Penetration at 25°C (77°F), Tenths of a millimeter
000	445 to 475
00	400 to 430
0	355 to 385
1	310 to 340
2	265 to 295
3	220 to 250
4	175 to 205
5	130 to 160
6	85 to 115

## ASTM Cone Penetration Test



*The ASTM Cone Penetration Test, which determines consistency, is the primary quality control test for lubricating greases. This test is performed on every grease processed at the LE manufacturing facility and is used to determine the NLGI grade.*

# Viscosity Equivalents



# LE's Circle of Reliability

Enhanced  
Lubricants



Equipment  
Reliability  
Assessment



Design,  
Implementation  
& Support,  
Education  
& Training

Contamination  
Removal



**Protect  
EQUIPMENT**  
*Starting  
our enhanced  
lubrication*



**Your  
MENT**  
*with  
anced  
nts*



Oil Analysis



Storage



Handling  
& Transfer



Contamination  
Exclusion





# *Reliability*

## REFERENCE GUIDE

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### **INTERNATIONAL VERSION**

*LE products are sold in more than 60 countries worldwide.*

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To complement our lubricant offering, LE offers a full line of lubrication reliability products and services, including solutions for oil analysis, storage, handling & transfer, contamination exclusion, contamination removal, and education & training.



**The Lubrication Reliability Source™**

**[www.LE-international.com](http://www.LE-international.com) • [info@LE-international.com](mailto:info@LE-international.com)**

Wichita, KS • Fort Worth, TX • USA

LE operates under an ISO 9001 Certified Quality System.

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# Reliability Introduction

LE is a one-stop shop for lubrication reliability. We will work closely with you to learn about your specific equipment and lubrication needs, and then help you create an effective lubrication reliability programme that will provide equipment protection and enhanced profits.

We start with an onsite equipment assessment. A trained, local lubrication consultant will provide a detailed report recommending lubricants, application methods, usage amounts, and drain or lube intervals.



In addition to LE's premium line of lubricants, your consultant can offer you several other best practice products and services – available through LE and our reliability partners – to ensure the effectiveness of your programme.

# RELIABILITY PRODUCTS OVERVIEW

## LE: Your One-Stop Shop for Lubrication Reliability

### Protect your equipment from contamination

Your LE consultant will work closely with you to learn about your specific equipment and lubrication needs, and then help you create an effective lubrication reliability programme that will provide equipment protection as well as enhanced profits.

By partnering with some of the best lubrication reliability companies in the industry, we can bring together all of the products and services needed to ensure your programme's success. LE is an authorized distributor for all of the companies and brands shown below.

OIL ANALYSIS	LUBRICANT STORAGE	HANDLING & TRANSFER	CONTAMINATION EXCLUSION & REMOVAL	
				
				
				
				
				
				
				

# OIL ANALYSIS

## Field-to-Lab Analysis

### Find out what your oil is telling you

A good oil analysis programme is integral to any successful lubricant reliability programme. With consistent, accurate monitoring of the condition of your oil – whether in an engine, gearbox, circulating system or mainline power generation turbine – an oil analysis programme can help you improve your bottom line with less lubricant to purchase, fewer parts to keep in inventory, less used lubricant requiring disposal, less labour and less downtime.

LE has oil analysis solutions to service your business needs, including LEAP Oil Analysis for mobile or industrial equipment, and Turbine Oil Analysis (TOA) for mainline turbines.

LE oil analysis monitors samples for mechanical, operational and environmental factors that can affect equipment and oil life. With LE, you can be confident you're testing with a company that knows lubricants and knows your equipment.

With LEAP, results are available online almost immediately after sample processing is complete. A lab consultant, LE Technical Services representative, and your LE lubrication consultant will review your reports – ensuring an unmatched level of expert support. With TOA, LE's technical experts prepare a detailed written report, explaining the data and providing recommendations for any follow-up actions.

LE can also recommend the hardware you need to take oil samples quickly, easily and accurately. As an authorized distributor of Checkfluid valves, tubes and other accessories, LE can recommend a customized solution for you based on your specific equipment needs, making your oil analysis programme simpler to manage.



### LEAP MOBILE

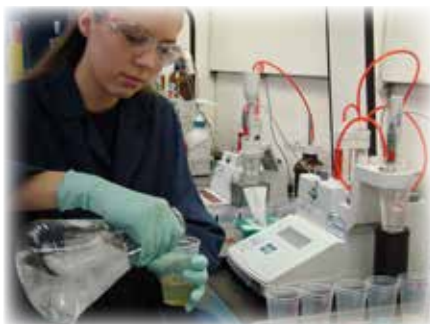
- Basic Mobile
- Advanced Mobile
- Advanced Mobile with Pore Blockage

### LEAP INDUSTRIAL

- Basic Industrial
- Basic Industrial with PQ
- Advanced Industrial
- Dry Fuel

### TURBINE OIL ANALYSIS

- Mainline Turbine Oil Analysis



# STORAGE

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## Bulk Lubricant Storage Systems

Make your lube room work for you

Contamination issues often start where the lubricants are stored. LE can help transform your lube room into a world class lubricant storage room that fits your needs and incorporates the latest in best practices. A lubricant storage upgrade is a continuous improvement project with the potential for a tremendous impact on your organization.

### Features & Benefits

- Consolidate lubricant inventory
- Reduce amount of space needed for storage
- Identify and colour-code lubricants
- Increase efficiency and reduce mistakes
- Reduce or eliminate contamination
- Eliminate spills and improve safety



*Poly Tank Storage Solutions*

### Full-Service Support

LE is an authorized distributor for Fluid Defense, Des-Case, Fluidall and IFH – all recognized leaders in lubricant storage. LE can be your one-stop shop, helping you plan, design and implement your lubricant storage upgrade. One of our trained lubrication consultants can be onsite to assist you every step of the way.



*Metal Tank Storage Solutions*

# HANDLING & TRANSFER

## Clear Grease Guns

### Clear up greasing mistakes

Place the wrong grease into an application or – even worse – mix two greases together that are not compatible, and you could cause catastrophic equipment failure costing time and money to correct. It has been estimated that 60 to 80 percent of bearing failures are lubricant-related, including grease cross-contamination.

LE offers pistol grip, lever style and battery-powered Clear Grease Guns for a simple, cost-effective solution. The clear tubes are made of high-impact, fracture-resistant polycarbonate and are available with rust-resistant aluminium collars in a variety of colours.

#### Features & Benefits

- Rugged and durable
- Allow 100% visual identification
- Eliminate grease cross-contamination
- Enhance existing reliability programmes
- Approved for use by all branches of the U.S. Military; NSNs are available





# HANDLING & TRANSFER

## Sealable, Reusable Containers

Keep oil clean, dry, organized

People often go to great lengths to ensure the quality of their oil, only to contaminate it by using filthy, open containers, pouring it through a dirty funnel, or inadvertently mixing it with different oil. The old tin can oil container stuffed with a shop rag is no way to protect your equipment.



Lubricant reliability starts with how your lubricant is stored and handled. Water and other contaminating particles from your lubricant container will eventually make their way into the equipment, where abrasive particles as small as 3 microns (a human hair is about 40 microns) can have disastrous results.

LE has a simple solution: Oil Safe® Lubricant Transfer Containers by Fluid Defense Systems. Oil Safe containers are visually intuitive, removing risk from your maintenance process at every step along the way. Using these containers will help you prevent machine failures and downtime.

### Transparent containers, colour-coded lids help prevent errors

Oil Safe containers are transparent, with lids available in a variety of colours. The containers can also be labeled for easier identification by operators. Visual identification, colour-coding and labeling all help reduce cross-contamination and misapplication errors.

LE is an authorized Oil Safe distributor, offering the entire product line as well as providing onsite implementation and support.



Available in 10 colours



# HANDLING & TRANSFER

## Single-Point Lubricators

### Ensure 24/7 precise lubricant application

Incorrect or inadequate lubrication results in equipment damage that can lead to breakdown. In many cases, single-point lubricators are the solution to this problem.

With Perma® single-point lubricators filled with LE lubricants, you can deliver the right lubricant, in the right amount, to the right place, at the right time – 24/7. Perma single-point lubricators help eliminate costly routine manual lubrication. They literally pay for themselves by reducing labour costs, downtime, parts costs, and lubricant and machine contamination issues – all while increasing the safety levels of your operation.



#### Perma single-point lubricators:

- Ensure critical equipment receives lubricant 24/7
- Eliminate application of the wrong lubricant, avoiding costly cross-contamination issues
- Eliminate under- or over-application of lubricant
- Increase safety levels with installation in hard-to-access locations
- Hermetically seal lubrication points, keeping dust and moisture out of the equipment

LE is an authorized Perma distributor, offering a variety of Perma single-point lubricators filled with LE's premium greases and oils. Trained LE consultants can recommend the right lubricator and lubricant combination to meet your requirements, and they are available to provide onsite installation and support.



# HANDLING & TRANSFER

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## Centralized Automatic Lubrication Systems

### Ensure fast, precise lubrication

With LE's line of centralized lubrication systems, you can eliminate the inefficient hit-or-miss method of manual lubrication and the high costs of time-consuming lubrication routes and PMs. A well-planned and executed centralized automatic lubrication system can save on the amount of lubricant used, eliminate downtime caused by improper lubrication, and can help increase the level of safety at your facility.

### One-stop shop for centralized lubrication

LE is a U.S. distributor for centralized lubrication systems from Bijur Delimon and Leding Lubricants (Redi-Mount and Interlube), making it easy for us to find the right system for your operation. After selection, LE will provide a quote and can help you plan and install your entire system onsite.



### Dependable full-service support

From planning down to final assembly, the LE team can help you design, plan and execute your centralized lubrication system. Our versatile designs and the ability to tailor a system to your operation's specific needs help ensure efficient performance. Our expert installers can help ensure that the centralized lubrication system is integrated properly into your machinery and that the maintenance personnel at your facility are properly trained. The result is a reliable, long-lasting centralized lubrication system.



# HANDLING & TRANSFER

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## Lubricant Equipment Handling

Keep it clean throughout the process



Keeping the lubricant contaminant-free during the handling and transfer process before it gets to the actual application can be a challenge. Having the proper equipment for your fluid handling needs is the solution.

As an authorized distributor of Liquid Dynamics and National Spencer (Zee Line) products, LE can recommend and provide all of the necessary items – including oil and grease pumps, meters, fluid control valves, and hose reels – to complement your lubrication reliability program. Both companies have vast inventories of products to choose from, and LE consultants have the knowledge and experience to find the right solutions for your needs.

Save yourself time and energy by dealing with one source to procure all of your lubricant handling and transfer supplies.



# HANDLING & TRANSFER

## Viper MkII Wire Rope Lubricator

### Extend wire rope life

The Viper MkII Wire Rope Lubricator range provides fast, effective cleaning and lubrication of wire ropes at speeds up to 2,000 m (2,187 yd) per hour. Use of the Viper MkII improves lubrication by forcing the lubricant under pressure into the wire rope. Other lubricators just coat the surface of the ropes, but the unique seal design of the Viper means the “wire dwell time” in the pressure chamber is up to 80% longer. This means greater lubricant penetration, which leads to increased rope life and extended relubrication intervals.

With built-in carry handles and shoulder strap, the Viper MkII makes wire rope lubrication a one-person job. Ideal for use on all cranes, towing lines and mooring lines, the Viper MkII eliminates the health, safety and environmental risks associated with manual lubrication.

### Benefits

- Fast, efficient, single-pass wire rope lubrication
- Better grease penetration displaces moisture from rope core
- Protects equipment & reduces downtime
- Reduces lubricant usage
- Safer for staff, with less leakage & mess



### Two models

- Viper MkII – For wire ropes 8 to 67 mm (5/16 to 2-5/8 in.) in diameter
- Viper MkII Maxi – For wire ropes 8 to 165 mm (5/16 to 6-1/2 in.) in diameter

### Viper kit components

- High-strength, lightweight cast aluminium collar
- High-pressure, high-volume grease pump
- Air regulator with gauge & isolation valve
- High-pressure delivery hose, 4 m (13 ft, 1-1/2 in.) in length, 1.3 cm (1/2 in.) in diameter
- High-pressure lube metering valve
- Clear drain hose
- Retaining ratchet straps & shackles
- Robust aluminium storage case



### Double your Viper warranty by using Wirelife® lubricants

We also manufacture the best wire rope lubricants found in the market to provide you with an entire solution. We recommend that you use Wirelife® Almasol® Coating Grease (452-453) with the Viper Mk II Wire Rope Lubricator. Doing so will double your warranty on the Viper lubricator from one year to two years.

LE's global network of distributors ensures easy Viper availability to all markets.

# CONTAMINATION EXCLUSION

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## Desiccant Breathers

### Keep contaminants out of oil

Lubricant contamination is one of the leading causes of machine failure, and contamination can begin before the lubricant ever enters the machine. Small particulates no larger than three microns (the diameter of a single human hair is 40 microns) can cause unwanted machine abrasion. This contamination can accelerate wear and lead to costly repairs.



The simple solution is the use of desiccant breathers, which can stop water and particulates from contaminating the lubricant in the first place.

LE offers a wide range of Des-Case® breathers, including those shown here, as well as adaptors and accessories. Your LE consultant can help you select the right breather for your specific application.

LE is one of the largest authorized distributors of Des-Case products in the U.S., offering the entire product line as well as providing onsite installation and support.



**STANDARD DISPOSABLE BREATHERS**  
Ideal for transformers, storage tanks, totes



**HYBRID BREATHERS**  
Ideal for low-flow gearboxes & high humidity applications



**EXTREME DUTY BREATHERS**  
Ideal for mobile & nautical applications



**REBUILDABLE STEEL BREATHERS**  
Perfect for high-flow applications

# CONTAMINATION REMOVAL

## Oil Sight Glasses

### Continuously & reliably monitor lubricant condition

Sight glasses take the guesswork out of fluid lubrication management by enabling the continuous visual monitoring of the clarity, colour, sediment and water contamination levels of lubricants. Some models even allow you to easily remove the water by draining it right out of the system.

LE is an authorized distributor of high-quality, affordable Esco sight glasses, offering the entire product line as well as providing onsite installation and support. These easy-to-install products are constructed of brass hardware and strong impact- and stain-resistant acrylic, capable of withstanding the pressure and temperature of most operating environments. (One exception is the high-temperature model, which is constructed of heavy-walled Pyrex glass and Teflon end caps)



LE offers a wide range of sight glass products, including those shown here. Your LE consultant can help you select the right sight glass for your specific application.



# CONTAMINATION REMOVAL

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## Filtration Systems

### Protect oil by removing contaminants

At LE, we understand the importance of fluid cleanliness and the role it plays in lubricant reliability. That's why we have partnered with one of the biggest and best filtration experts in the industry – Des-Case Corporation. Together, we offer the solutions you need to protect your lubricants from contamination.

With Des-Case® filtration systems, you can maximize equipment reliability by removing contaminants from the lubricant before they have an opportunity to harm your equipment. ISO cleanliness targets are easily achievable with the right filtration system.

Trained, certified LE consultants can help you create your made-to-order filtration system. Des-Case systems are completely customizable, with options including:

- Portable filtration
- Dedicated filtration
- Water removal
- Filter elements



LE is an authorized Des-Case® distributor, offering the entire product line as well as providing onsite implementation and support.





## EDUCATION & TRAINING

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### MLT I, CLS & OMA Classes

#### Raise the bar through training

Before you raise your lubrication standards at the factory, invest in raising the knowledge of your employees, including managers, engineers and technicians.

The success of your lubrication programme depends on the ability of your employees to understand and apply lubrication best practices. LE has partnered with some of the best knowledge providers in the industry to offer convenient opportunities for lubrication training and certification.

#### Features & Benefits

- MLT I – Machinery Lubrication Technician Level I
- CLS – Certified Lubrication Specialist
- OMA – Oil Monitoring Analyst Level I

Please visit [www.l Lubricants.com/education-training.html](http://www.l Lubricants.com/education-training.html) to find out more about our educational offerings, view a schedule of upcoming classes, or to register.

