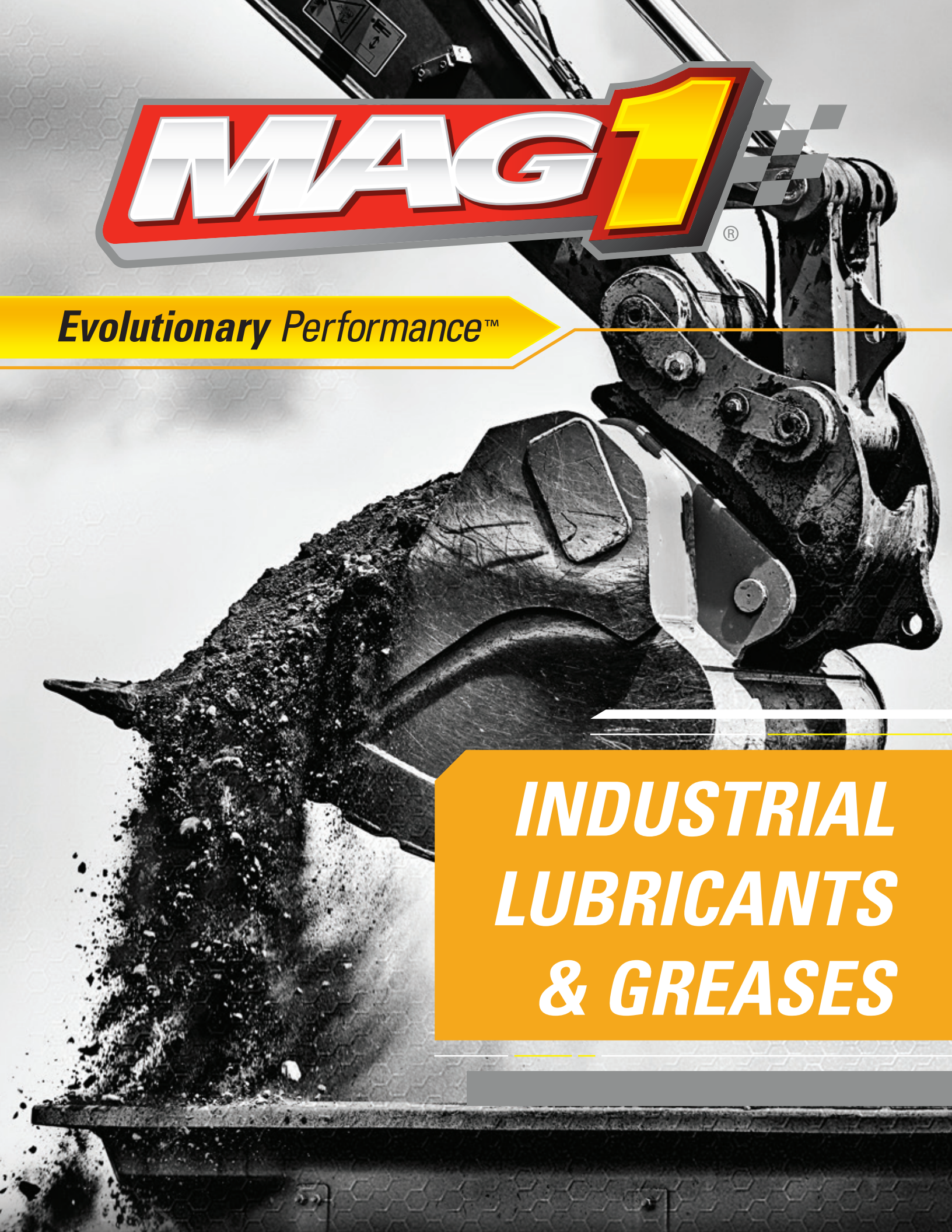
MAG1®

Evolutionary Performance™



INDUSTRIAL LUBRICANTS & GREASES

MAG 1

Evolutionary Performance™

ANTI-WEAR
HYDRAULIC OIL

FMX® TECHNOLOGY — FRICTION MANAGEMENT FOR XTREME PROTECTION

OEMs continue to evolve hydraulic equipment and pump designs. Pumps get smaller and power output increase and the lubricants performance demands rise. Escalating power density leads to higher operating temperatures and pressures. One brand has evolved right alongside today's equipment – MAG 1®. Only the most advanced industrial lubricants meet the difficult challenges of effectively balancing performance, strength and durability.

- Extra protection for equipment life and reliability.
- Excellent varnish control and cleanliness.
- Outstanding wear and corrosion protection.
- Formulated to provide 5,000 hours of oxidation stability.

MAG 1 AW ISO FLUIDS

MAG 1 AW ISO Fluids designed to help improve uptime, reduce costs and increase productivity. Our hydraulic oils offer energy-efficient benefits and improved performance across a wide range of temperatures. They specifically designed to meet the demands of high-pressure, industrial and mobile equipment hydraulic systems.

MAG 1 ALL-YEAR AW HYDRAULIC OIL

Suitable for use as a general purpose hydraulic oil used in various ambient temperatures. Viscosity similar to a 5W-20.

PACK SIZES

	Pack Size	Product#
AW ISO 22*	5 Gallon	65847
	55 Gallon	62970
AW ISO 32*	3/1 Gallon	00326
	2/2.5 Gallon	00322
	5 Gallon	00325
	55 Gallon	62861
AW ISO 46*	3/1 Gallon	00466
	2/2.5 Gallon	00462
	5 Gallon	00465
	55 Gallon	00468
	330 Gallon	65574
AW ISO 68*	3/1 Gallon	60774
	2/2.5 Gallon	00682
	5 Gallon	00685
	55 Gallon	62862
	330 Gallon	65575
AW ISO 100*	55 Gallon	63791
All-Year AW*	2/2.5 Gallon	00292
	5 Gallon	00295
	55 Gallon	62860

CLAIMS

	AW ISO 22	AW ISO 32	AW ISO 46	AW ISO 68	AW ISO 100
ASTM D6158	●	●	●	●	●
Eaton E-FDGN-TB002-E, 35VQ25A	●	●	●	●	●
Bosch Rexroth	○	○	○	○	○
Cincinnati/ MAG IAS P-68		○			
Cincinnati/ MAG IAS P-69				○	
Cincinnati/MAG IAS P-70			○		
DIN 51524, Part1,2,3	○	○	○	○	○
General Motors LS-2	○	○	○	○	○
JCMAS HK	○	○	○	○	○
Parker Denison HF-0, HF-1	○	○	○	○	○
Parker Denison HF-2	○	○	○	○	○
Racine	○	○	○	○	○
Sperry Vickers/Eaton I-286-S, M-2950-S	○	○	○	○	○
US Steel 127, 136	○	○	○	○	○

● = Meets Requirements ○ = Suitable for Use

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	AW ISO 22	AW ISO 32	AW ISO 46	AW ISO 68	AW ISO 100	All-Year AW
Calcium, wt. %	ASTM D5185	0.003	0.003	0.003	0.003	0.003	0.003
Color	ASTM D1500	0.5	0.5	0.5	0.5	0.5	0.5
Flash Point °C	ASTM D92	210	210	225	228	235	225
Flash Point °F	ASTM D92	410	410	437	442	455	437
Gravity, °API	ASTM D287	33.50	32.44	31.46	30.71	30.12	33.09
Oxidation Hours	ASTM D943	5,000	5,000	5,000	5,000	5,000	5,000
Phosphorus, wt. %	ASTM D5185	0.033	0.033	0.033	0.033	0.033	0.034
Pour Point °C (°F)	ASTM D5950	-42°C (-44°F)	-39°C (-38°F)	-33°C (-27°F)	-30°C (-22°F)	-30°C (-22°F)	-42°C (-44°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8576	0.8631	0.8683	0.8723	0.8755	0.8597
Sulfur, wt. %	ASTM D4951	0.065	0.065	0.065	0.065	0.065	0.071
Viscosity @ 100°C cSt	ASTM D445	4.36	5.55	6.95	8.95	11.31	7.89
Viscosity @ 40°C cSt	ASTM D445	21.82	32.11	46.03	69.25	99.86	44.86
Viscosity Index	ASTM D2270	107	110	105	103	99	148
Zinc, wt. %	ASTM D5185	0.041	0.041	0.041	0.041	0.041	0.043

*Available in Bulk

Evolutionary Performance™

FMX® TECHNOLOGY — FRICTION MANAGEMENT FOR XTREME PROTECTION

INDUSTRIAL R&O
HYDRAULIC & TURBINE OIL

OEMs and systems continue to evolve. One brand has evolved right alongside today's equipment – MAG 1®. Only the most advanced industrial lubricants meet the difficult challenges of effectively balancing performance, strength and durability.

MAG 1 Industrial R&O ISO Hydraulic Oils have an outstanding rust/oxidation resistance, contains a metal passivator, demulsifier and antifoam protection. Our FMX® Technology provides outstanding control of friction and wear by using advanced molecules that bond together to create a wear-resistant shield.

- Provides unsurpassed protection even in the harshest conditions to fight oxidation, separate air and water and improve filtration.
- Extra protection for equipment life and reliability.
- Excellent varnish control and cleanliness.
- Long oil life even in high-pressure systems.

PACK SIZES

	Pack Size	Product #		Pack Size	Product #
Industrial R&O ISO 68*	55 Gallon	63416	Industrial R&O ISO 32 Turbine Oil	55 Gallon	64202
Industrial R&O ISO 150*	55 Gallon	69278	Industrial R&O ISO 68 Turbine Oil	5 Gallon	66074

CLAIMS

	Industrial R&O ISO 68	Industrial R&O ISO 100	Industrial R&O Turbine ISO 32	Industrial R&O Turbine ISO 68
AFNOR E-48600 HL	O	O	O	O
Alstom HTGD 90117	O	O	O	O
British Standard 489	O	O	O	O
Cincinnati Machine/Milacron P-54	O		O	O
Denison HF-1	O	O	O	O
DIN 51515 Part 1, Part 2	O	O	O	O
DIN 51524, Part 1	O	O	O	O
General Electric GEK-32568F, GEK107395	O	O	O	O
MIL-L-17672C	O	O	O	O
Solar Turbines ES 9-224	O	O	O	O
U.S. Steel 126	O	O	O	O

O = Suitable for Use

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	Industrial R&O ISO 68	Industrial R&O ISO 100	Industrial R&O Turbine ISO 32	Industrial R&O Turbine ISO 68
Color	ASTM D1500	0.5	0.5	0.5	0.5
Gravity, °API	ASTM D287	30.81	29.24	32.63	30.81
Nitrogen, wt. %	ASTM D4629	0.0164	0.0164	0.0164	0.0164
Phosphorus, wt. %	ASTM D5185	0.003	0.003	0.003	0.003
Pour Point °C (°F)	ASTM D5950	-33°C (-27°F)	-33°C (-27°F)	-33°C (-27°F)	-33°C (-27°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8718	0.8765	0.8621	0.8718
Sulfated Ash, wt. %	ASTM D874	0	0	0	0
Sulfur, wt. %	ASTM D4951	0.011	0.011	0.011	0.011
Viscosity @ 100°C cSt	ASTM D445	8.89	11.4	5.565	8.89
Viscosity @ 40°C cSt	ASTM D445	68.92	101.9	32.38	68.92
Viscosity Index	ASTM D2270	102	106	109	102

*Available in Bulk

MAG 1® Greases are specially designed to provide all-around balanced performance even in extreme operating conditions. They cushion the grind of heavy loads and protect surfaces for extended equipment life. Available in a broad range of NLGI grades and fluid viscosities to support a broad range of applications.

- Improved equipment life and reliability.
- Protect at a wide range of operating temperatures, pressures and speeds.
- Reduce friction at start up and running speed.
- Protect from water and particle contamination.

MAG 1 LITHIUM GREASE - MULTI-PURPOSE

MAG 1 Full Synthetic Ultra Grease is specially formulated using only premium base oils, lithium, 12 hydroxy stearic acid and additive systems to provide outstanding lubrication and protection.

MAG 1 MOLY GREASE - EXTREME PRESSURE

MAG 1 Multi-Purpose Lithium Grease with Moly is has been fortified with molybdenum disulfide and graphite to provide protection against seizure under high loads and severe shock load conditions.

MAG 1 BEARING GREASE - HIGH TEMP

MAG 1 High Temp/Wheel Bearing Grease is designed and formulated for bearings operating under conditions of extreme pressure and high temperature. Can also be used for general purpose lubrication.

MAG 1 MARINE GREASE - WATER RESISTANT

MAG 1 Lithium Marine Grease is specially formulated with premium, state-of-the-art lithium complex grease. This tacky grease resists water washout, even under severe operating conditions, including saltwater.

MAG 1 ULTRA GREASE - FULL SYNTHETIC

MAG 1 Full Synthetic Ultra Grease is specially formulated with a premium, 100% full synthetic PAO. This grease has high film strength, extreme pressure (EP) protection and anti-wear properties.

PACK SIZES

	Pack Size	Product #
Lithium Grease - Multi-Purpose	3/3 Ounces	00712
	10/14 Ounces	00713
	12/1 Pound	60134
	35 Pound	00715
	120 Pound	00719
Moly Grease - Extreme Pressure	10/14 Ounces	00733
	35 Pound	00735
Ultra Grease - Full Synthetic	10/14 Ounces	64049

	Pack Size	Product #
Bearing Grease - High Temp	10/14 Ounces	00723
	12/1 Pound	00720
	35 Pound	00725
	120 Pound	20020
	400 Pound	20055
Marine Grease - Water Resistant	3/3 Ounces	60128
	10/14 Ounces	60130
	12/1 Pound	60132

CLAIMS

	Lithium Grease - Multi-Purpose	Moly Grease - Extreme Pressure	Bearing Grease - High Temp	Marine Grease - Water Resistant	Ultra Grease - Full Synthetic
NGLI Grade	2	2	2	2	2
Operating Temp Range	-20 to -250˚F	-25 to 250˚F	-40 to 325˚F	-25 to 250˚F	-40 to 350˚F
Color	Amber	Molly-Gray	Red	Blue	Purple
Thickener Type	Lithium Complex	Lithium Complex	Lithium Complex	Lithium Complex	Lithium Complex

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	Lithium Grease - Multi-Purpose	Moly Grease - Extreme Pressure	Bearing Grease - High Temp	Marine Grease - Water Resistant	Ultra Grease - Full Synthetic
Copper Corrosion	ASTM D4048	-	-	1b	1b	-
Dropping Point, °C (°F), Min.	ASTM D2265	177°C (350°F)	177°C (350°F)	260°C (500°F)	260°C (500°F)	260°C (500°F)
Four Ball EP Weld Point, Min	ASTM D2596	-	250	250	315	250
Four Ball Load Wear Index, Kgf	ASTM D2596	-	40	45	45	-
Four Ball Wear, mm Scar Dia	ASTM D2266	-	0.6	0.55	0.6	0.6
Oil Separation, % Loss Max.	ASTM D1742	-	10	2.5	3.5	10
Oxidation Stability, PSI Drop	ASTM D942	5	5	5	5	7
Roll Stability	ASTM D1831	>10	10	-	-	-
Rust Prevention	ASTM D1743	-	Pass	Pass	Pass	Pass
Timken OK Load, LB	ASTM D2509	-	45	50	60	55
Unworked Penetration @ 77°F	ASTM D217	265-295	-	-	-	-
Water Washout % Loss Max	ASTM 1264	>15	10	4.5	5	5
Wheel Bearing Leakage	ASTM D4290	-	-	6.0	6.0	-
Worked Penetration @ 77°F	ASTM D217	265-295	265-295	265-295	265-295	265-295

MAG 1

Evolutionary Performance™

FMX® TECHNOLOGY — FRICTION MANAGEMENT FOR XTREME PROTECTION

SYNTHETIC GEAR OIL

MAG 1® Full Synthetic Lubricants protect equipment operating under severe loads and pressures, wide operating temperature ranges and contamination threats. They also provide unsurpassed advantages that exceed the capabilities of conventional lubricants. MAG 1 Full Synthetic Lubricants offer longer life and can extend equipment life, while helping increase worker safety by minimizing maintenance.

MAG 1 Full Synthetic Gear Lubricant is specially formulated for multipurpose, extreme pressure applications, including conventional differentials, gear boxes, limited slip rear axles, manual transmissions and hypoid gears.

- Superior protection against wear, especially under extreme pressure and high torque operation.
- High resistance to thermal breakdown.
- Helps prevent foaming, rust and corrosion.
- Smooths and quiets operation.

PACK SIZES

	Pack Size	Product #
Full Synthetic SAE 75W-90 GL-5 Gear Oil*	6/1 Quart	62378
	5 Gallon	62380
	16 Gallon	62621
	55 Gallon	64875
	330 Gallon	63879
Full Synthetic SAE 75W-140 GL-5 Gear Oil*	6/1 Quart	00870
	5 Gallon	62874
	16 Gallon	62620
	55 Gallon	64874

CLAIMS

	Full Synthetic SAE 75W-90 GL-5 Gear Oil	Full Synthetic SAE 75W-140 GL-5 Gear Oil
AGMA 9005-E02, 250.03, 250.04, 251.02, No. 4	●	●
AIST/US Steel 224	●	●
API GL-5	●	●
ArvinMeritor (Rockwell INternational) 076-E	●	●
Mack GO-J, GO-H, GO-G	●	●
MT-1	●	●
SAE J2360, MIL-2105E/F	●	●
GM 9986115	○	
Limited Slip	○	○

● = Meets Requirements ○ = Suitable for Use

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	Full Synthetic SAE 75W-90 GL-5 Gear Oil	Full Synthetic SAE 75W-140 GL-5 Gear Oil
Brookfield Viscosity at -40°C, cP	ASTM D2983	135,000	127,000
Brookfield Viscosity at -26°C, cP	ASTM D2983	-	-
Color	ASTM D1500	1	1
Flash Point °C	ASTM D92	224	232
Flash Point °F	ASTM D92	435	450
Gravity, °API	ASTM D287	31.24	34.31
Pour Point °C (°F)	ASTM D5950	-51°C (-60°F)	-51°C (-60°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8695	0.8534
Viscosity @ 100°C cSt	ASTM D445	16.15	27.64
Viscosity @ 40°C cSt	ASTM D445	109.3	171.8
Viscosity Index	ASTM D2270	159	200

*Available in Bulk

MAG 1®

Evolutionary Performance™

FMX® TECHNOLOGY — FRICTION MANAGEMENT FOR XTREME PROTECTION

CONVENTIONAL GEAR OIL

MAG 1® Driveline Gear Oils are engineered for use in drivetrains that require gear lubricants with excellent load-carrying capability and where extreme pressures and shock loading are expected. Driveline gear oils can be used for on-highway passenger cars, SUVs, light- and heavy-duty trucks, buses, and vans. Other applications include off-highway industries, such as construction, mining, quarrying and agriculture.

MAG 1 Gear Lubricant is specially formulated for multipurpose, extreme pressure applications, including conventional differentials, gear boxes, limited slip rear axles, manual transmissions and hypoid gears.

- Superior protection against wear, especially under extreme pressure and high torque operation.
- High resistance to thermal breakdown.
- Helps prevent foaming, rust and corrosion.
- Smooths and quiets operation.

PACK SIZES

	Pack Size	Product #
SAE 80W-90 GL-5*	6/1 Quart	00820
	3/1 Gallon	00826
	2/2.5 Gallon	00822
	5 Gallon	00825
	16 Gallon	00829
	55 Gallon	62864
	330 Gallon	66367
SAE 85W-140 GL-5*	6/1 Quart	00830
	3/1 Gallon	00836
	2/2.5 Gallon	00832
	5 Gallon	00835
	16 Gallon	00839
	55 Gallon	62865
	330 Gallon	66368
SAE 90 GL-1*	330 Gallon	67740
SAE 90 GL-4*	5 Gallon	00865
Marine SAE 80W-90	6/1 Quart	62845

CLAIMS

	SAE 80W-90 GL-5	SAE 85W-140 GL-5	SAE 90 GL-1	SAE 90 GL-4	Marine SAE 80W-90
API GL-5	●	●			●
API GL-4				●	
API GL-1			○		
Mack GO-J, GO-H, GO-G	●	●			
MT-1	●	●			
SAE J2360, MIL-2105E/F	●	●			
Limited Slip	○	○			

● = Meets Requirements ○ = Suitable for Use

TYPICAL PHYSICAL PROPERTIES

Properties	Test Test Method	SAE 80W-90 GL-5	SAE 85W-140 GL-5	SAE 90 GL-1	SAE 90 GL-4	Marine SAE 80W-90
Brookfield Viscosity at -26°C, cP	ASTM D2983	92,000	-	-	-	89,000
Brookfield Viscosity at -12°C, cP	ASTM D2983	-	55,000	-	-	-
Color	ASTM D1500	7	8	6.5	6.5	7
Flash Point °C	ASTM D92	224	235	224	224	224
Flash Point °F	ASTM D92	435	455	435	435	435
Gravity, °API	ASTM D287	27.76	25.69	28.99	28.53	28.08
Pour Point °C (°F)	ASTM D5950	-33°C (-27°F)	-18°C (0°F)	-33°C (-27°F)	-	-33°C (-27°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8885	0.9002	0.8817	0.8842	0.8867
Viscosity @ 100°C cSt	ASTM D445	13.98	26.39	14.89	14.8	15.29
Viscosity @ 40°C cSt	ASTM D445	130.9	347.7	147.1	146.5	144.8
Viscosity Index	ASTM D2270	104	100	101	100	107

*Available in Bulk

Evolutionary Performance™

EP INDUSTRIAL GEAR OIL

MAG 1® EP Industrial Gear Oils are engineered for use in systems that require industrial gear lubricants with excellent protection technology to handle increasing power density and risk of micropitting, extend drain interval and reduce operating and manpower costs. Our Industrial Gear Oils are designed to provide outstanding performance even in the harshest conditions.

MAG 1 EP Industrial Gear Oils are recommended for lubrication of spur, helical, bevel, and worm gear configurations subject to heavy or shock loading in industrial equipment. They performs well at high temperatures and in the presence of water, which can often affect normal operations. Benefits include:

- Build a barrier to reduce friction and wear.
- Long oil life and equipment protection.
- Help to reduce operating and manpower costs.

PACK SIZES

	Pack Size	Product #
EP 150 Industrial Gear Oil*	55 Gallon	62866
EP 220 Industrial Gear Oil*	55 Gallon	62867
EP 320 Industrial Gear Oil*	55 Gallon	63793
	330 Gallon	67336

CLAIMS

	EP 68 Industrial Gear Oil	EP 150 Industrial Gear Oil	EP 220 Industrial Gear Oil	EP 320 Industrial Gear Oil	EP 460 Industrial Gear Oil
ISO 12925-1 type CKC	●	●	●	●	●
AGMA 9005 D-94, 250.04, 251.02	○	○	○	○	○
API GL-2	○	○	○	○	○
Cincinnati Machine/Milacron	○	○	○	○	○
U.S. Steel 224	○	○	○	○	○

● = Meets Requirements ○ = Suitable for Use

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	EP 150 Industrial Gear Oil	EP 220 Industrial Gear Oil	EP 320 Industrial Gear Oil
Color	ASTM D1500	7	7.5	7.5
Gravity, °API	ASTM D287	28.84	27.83	27.06
Phosphorus, wt. %	ASTM D5185	0.013	0.013	0.013
Pour Point °C (°F)	ASTM D5950	-27°C (-17°F)	-24°C (-11°F)	-15°C (5°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8825	0.8881	0.8924
Sulfur, wt. %	ASTM D4951	0.336	0.336	0.336
Viscosity @ 100°C cSt	ASTM D445	15.31	19.88	25.53
Viscosity @ 40°C cSt	ASTM D445	145.7	217.9	325.3
Viscosity Index	ASTM D2270	107	105	102

*Available in Bulk

MAG 1® Industrial Lubricants provide solutions that make jobs easier or provide protection for equipment and systems.

MAG 1 Way Oils are a specially formulated fluid for the lubrication of slideways on industrial machine tools. Mild EP performance prevents scoring under heavy loads and special metal wetting agent protects all metal surfaces from rust and corrosion.

PACK SIZES

	Pack Size	Product #
Way Lube ISO 68*	55 Gallon	62871

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	Way Lube ISO 68
Color	ASTM D1500	0.5
Flash Point °C	ASTM D92	218
Flash Point °F	ASTM D92	424
Gravity, °API	ASTM D287	30.99
Nitrogen, wt. %	ASTM D4629	0.0336
Oxidation Hours	ASTM D943	-
Phosphorus, wt. %	ASTM D5185	-
Pour Point °C (°F)	ASTM D5950	-30°C (-22°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8708
Sulfur, wt. %	ASTM D4951	0.095
Viscosity @ 100°C cSt	ASTM D445	8.85
Viscosity @ 40°C cSt	ASTM D445	66.78
Viscosity Index	ASTM D2270	106
Zinc, wt. %	ASTM D5185	-

*Available in Bulk

CONSTRUCTION LUBRICANTS

MAG 1® Construction Lubricants provide solutions that make jobs easier or provide protection for equipment and systems.

MAG 1 ROCK DRILL OILS

MAG 1 Rock Drill Oil is formulated for internal lubrication of all makes of pneumatic percussion air-powered tools under the most severe conditions. It is formulated with extreme pressure additives and rust-inhibiting agents. Recommended for use in air drills, drifters, high and low-speed drills, jackhammers, paving breakers, stoppers and wagon drills.

- Available in ISO 46, ISO 100 and ISO 150 viscosities.

MAG 1 CONCRETE FORM OIL

MAG 1 Concrete Form Oil is a non-staining fluid specifically designed for easy release of concrete forms.

MAG 1 VACUUM PUMP OIL ISO 68

MAG 1 Vacuum Pump ISO 68 Oil is specially formulated with only the finest quality, base oils and an advanced additive system to deliver unsurpassed protection and performance. Recommended for use in most rotary vane and piston pumps.

- Outstanding control of friction and wear.

PACK SIZES

	Pack Size	Product #
Rock Drill ISO 100*	55 Gallon	64091
	330 Gallon	68964
Rock Drill ISO 150*	330 Gallon	68249
Vacuum Pump ISO 68*	2/2.5 Gallon	00672
Concrete Form Oil*	55 Gallon	62868
	330 Gallon	67318

CLAIMS

	Rock Drill ISO 46	Rock Drill ISO 100	Vacuum Pump ISO 68
AGMA 9005 D-94, 250.04, 251.02	○	○	
ASTM D6158			●
API GL-2	○	○	
Bosch Rexroth			○
Cincinnati Machine/Milacron	○	○	
Cincinnati/MAG IAS P-69			○
DIN 51524, Part 1,2,3	○		○
DIN 51524 Part 2			
Dresser-Rand, Ingersoll-Rand, Gardner-Denver, Chicago-Pneumatic, and Joy equipment	○	○	
Eaton Brochure 03-401-2010			
Eaton E-FDGN-TB002-E, 35VQ25A			●
General Motors LS-2	○		○
JCMAS HK	○		○
Parker Denison HF-0	○		○
Parker Denison HF-1	○		○
Parker Denison HF-2	○		○
Racine			○
Sperry Vickers/Eaton I-286-S, M-2950-S	○		○
U.S. Steel 127, 136	○		○
U.S. Steel 224	○	○	

● = Meets Requirements ○ = Suitable for Use

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	Rock Drill ISO 100	Rock Drill ISO 150	Vacuum Pump ISO 68	Concrete Form Oil
Brookfield Viscosity at 35°C, cP	ASTM D2983	-	-	-	-
Color	ASTM D1500	6	6	1	0.5
Flash Point °C	ASTM D92	235	235	228	207
Flash Point°F	ASTM D92	455	455	442	405
Gravity, °API	ASTM D287	29.50	29.50	30.71	33.88
Nitrogen, wt. %	ASTM D4629	-	-	-	-
Oxidation Hours	ASTM D943	-	-	5,000	-
Phosphorus, wt. %	ASTM D5185	0.013	0.013	0.034	-
Pour Point °C (°F)	ASTM D5950	-30°C (-22°F)	-30°C (-22°F)	-30°C (-22°F)	-15°C (5°F)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8789	0.8789	0.8723	0.8556
Sulfur, wt. %	ASTM D4951	0.336	0.336	0.071	0.336
Viscosity @ 100°C cSt	ASTM D445	12.23	12.23	8.95	4.13
Viscosity @ 40°C cSt	ASTM D445	102.5	102.5	69.25	20.15
Viscosity Index	ASTM D2270	111	111	103	107
Zinc, wt. %	ASTM D5185	-	-	0.043	-

*Available in Bulk

MAG 1

Evolutionary Performance™

NON-DETERGENT LUBRICATING OIL

MAG 1® Non-Detergent Lubricating Oils are recommended for compressors and hydraulic systems which require non-detergent oils. Non-detergent oils are effective in the lubrication of bearings and chains in non-critical once-through systems. Not for use in automotive gasoline engines.

PACK SIZES

	Pack Size	Product #
ND SAE 10*	2/2.5 Gallon	00212
	55 Gallon	62091
ND SAE 20*	55 Gallon	60691
ND SAE 30*	6/1 Quart	68761
	2/2.5 Gallon	00232
	55 Gallon	62859

TYPICAL PHYSICAL PROPERTIES

Properties	Test Method	ND SAE 10	ND SAE 20	ND SAE 30
Color	ASTM D1500	1.0	1.0	1.5
Flash Point °C	ASTM D92	204	210	221
Flash Point °F	ASTM D92	399	410	430
Gravity, °API	ASTM D287	32.48	28.88	21.94
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8629	0.8823	0.9222
Viscosity @ 100°C cSt	ASTM D445	4.64	6.08	10.98
Viscosity @ 40°C cSt	ASTM D445	24.71	42	143.8
Viscosity Index	ASTM D2270	103	85	38

*Available in Bulk

Viscosity Grading System

ISO: Hydraulic Oil Viscosities

AGMA: American Gear Manufacturers Association gear oil viscosity classification. Most common classification is SAE Gear.

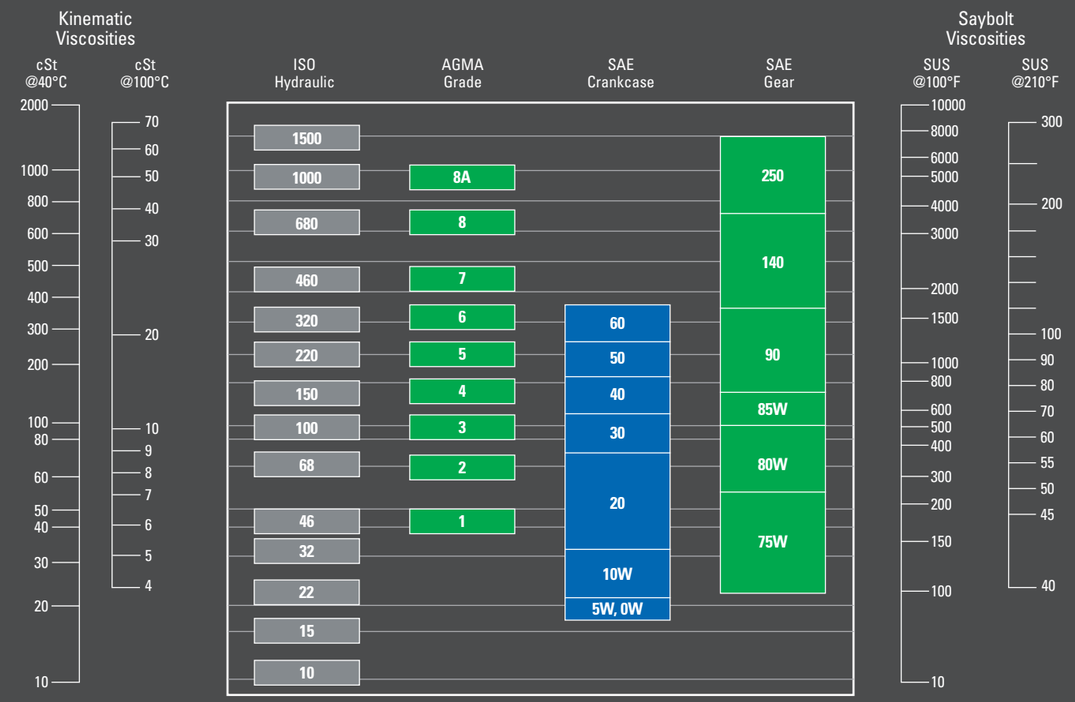
SAE Crankcase: Motor Oil Viscosities

SAE Gear: Gear Oil Viscosities

Viscosities are related horizontally only. For example, the following oils have similar viscosities: ISO 46, AGMA 1, SAE 20W and SAE Gear 75W.

Crankcase and Gear Oil viscosities are measured at 100°C viscosity. The 'W' grades are measured at low temperature properties. ISO oils and AGMA grades are measured at 40°C viscosity.

COMPARATIVE VISCOSITY CLASSIFICATIONS



To obtain approximate conversions, use the following conversion factors. Refer to ASTM D2161 for exact values:

Saybolt, SUS = Kinematic, cSt x 4.6 Kinematic, cSt = Saybolt, SUS / 4.6

If you have any questions regarding your application, please call the 800-939-3846 tech line.

MAG 1®

Evolutionary *Performance*™

MAG 1® motor oils, lubricants and chemicals are designed to keep pace with today's engine demands, requiring lighter viscosities and increased power densities. It's the only brand with FMX® Technology System, which meets the difficult challenges of effectively balancing performance, strength and durability.

THE MEANING OF EVOLUTIONARY PERFORMANCE™

Today's engines, machinery and equipment are evolving rapidly as OEMs push for more power density, lighter viscosity oil and increased fuel or fluid efficiency. MAG 1 is leading the way in this new evolution, based on the science of advanced additives and powerful molecular structures. It's all part of our exclusive FMX Technology System that boosts performance on many levels under the most severe operating conditions.

It means, despite lower viscosities, MAG 1 still delivers extraordinary performance, strength and durability, in every grade. Even the thinnest MAG 1 oils and fluids perform better than thicker oils of the past.

MAG 1 engine oils and lubricants are chemically formulated to deliver a higher level of performance that rises to the challenge of ever-increasing demands and developments by automotive, heavy duty truck and industrial equipment manufacturers.

PERFORMANCE

MAG 1 delivers unsurpassed protection to control friction and wear well beyond standard industry requirements. It can also help extend engine life and improve the performance of all types of vehicles, trucks, machinery, and equipment.

STRENGTH

MAG 1 is bolstered by FMX Technology, which provides a very strong oil film that shields engines, parts and machinery at multiple points of contact and fights friction between rotating parts.

DURABILITY

MAG 1 protects as well on the last day as it does on the first. Even under the most extreme operating conditions, it retains viscosity and withstands heat and shearing.

EXTREME CONDITIONS

With a powerful, molecular-reinforced formulation, MAG 1 reduces engine and equipment stresses from high heat, cold starts, heavy loads, steep inclines, dusty roads, power density, and more.

WELL-EARNED REPUTATION

MAG 1 is the brand to trust no matter what kind of vehicle you drive or equipment you operate. Manufactured in the U.S.A. by one of the world's leading suppliers of lubricants and automotive chemicals, its solid reputation and record of performance over many years is a testament to the consistent, dependable quality of every MAG 1 product.

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