Product information

Syngear® SH®-1000 Series

Synthetic gears/Heavy Duty

Your benefits at a glance

- Thermal and oxidation stability
- Protection against wear, rust, corrosion and foaming
- High viscosity index

Your requirements - our solution

Summit Syngear SH-1000 Series gear lubricants are formulated with synthetic base stocks and fortified with select additive systems to enhance their exceptional performance. The PAO base fluid used has outstanding oxidation and thermal stability, naturally high viscosity index and excellent low temperature pumpability and fluidity. The unique additive system used provides increased oxidation stability, extreme pressure properties, and maximum protection against wear, rust, corrosion and foaming.

In todaýs world of efficiency improvements, there has been much emphasis placed on reducing energy requirements for equipment used in plant operations. Summit Syngear synthetic gear lubricants have proven to reduce friction, thereby reducing the input power to operate the equipment or increasing the available power output. The reduction of fluid friction results in lower lubricant operating temperatures, prolonging the life of both the lubricant and the equipment. The additive system used in this product not only reduces frictional drag, but also protects gears against failures associated with heavy loading and meets the requirements of U.S. Steel 224 specification, AGMA 9005-D94 specification, DIN 51517 Part 3 CLP specification and API GL-4 Gear Service Category.

Application

Summit Syngear SH-1000 Series gear lubricants are recommended for use in all types of enclosed gearing as well as plain and rolling element bearings. These lubricants are ideal for heavily loaded low speed gears and bearings where boundary or elasto-hydrodynamic lubrication (EHL) conditions exist, such as in mine hoist gear reducers. They are particularly recommended for gearboxes which operate under excessively high temperatures where good quality conventional oils rapidly oxidize. Summit Syngear SH-1000 Series gear lubricants may also be used in certain open gear applications, but it is recommended that Summit lubrication engineers be consulted to select the most effective method of application. Summit Syngear SH-10032, SH-10046 and SH-10068 are also recommended for use in piston or gear-type pumps, especially where pressures exceed 1000 psi or when operating over a wide temperature range.

Application notes

Summit Syngear SH-1000 Series gear lubricants are compatible with the most seal materials, paints and plastics, including nitrile Buna N, neoprene, Viton®, Teflon®, polyethylene, polyurethane, ether, fluorocarbon, polyacrlylate, polysulfide, ethylene acrylic, epoxy, plasticol, PVC, acrylic paint and lacquer.

Material safety data sheets

Material safety data sheets can be requested via our website https://www.klsummit.com. You may also obtain them through your contact person at Summit Lubrication.

Characteristics	SYNGEAR SH-10032	SYNGEAR SH-10046	SYNGEAR SH-10068	SYNGEAR SH-1010
Article number	340124	340202	340125	340126
Service temperature, lower limit	-	-	-	-
Service temperature, upper limit	-	-	-	-
Density	0.838 g/cm³	-	-	-
Density, 20°C	-	approx. 0.848 g/cm³	approx. 0.860 g/cm³	approx. 0.866 g/cm³
Density, DIN 51757, 20°C	-	-	-	-
Flash point	204 °C	-	-	-

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Characteristics	SYNGEAR SH-10032	SYNGEAR SH-10046	SYNGEAR SH-10068	SYNGEAR SH-1010
Flash point, ASTM D92, Cleveland open cup	-	≥ 200 °C	≥ 200 °C	≥ 200 °C
Foam test, ISO 6247 / ASTM D892, 24 min, sequence I	-	-	-	0/0 ml
Foam test, ISO 6247 / ASTM D892, 24 min, sequence III	-	-	-	0/0 ml
Foam test, ISO 6247 / ASTM D892, 24°C, sequence I	-	0/0 ml	0/0 ml	-
Foam test, ISO 6247 / ASTM D892, 24°C, sequence III	-	0/0 ml	0/0 ml	-
Foam test, ISO 6247 / ASTM D892, 93.5 min, sequence II	-	-	-	0/0 ml
Foam test, ISO 6247 / ASTM D892, 93.5°C, sequence II	-	0/0 ml	0/0 ml	-
ISO viscosity grade	32	-	-	100
ISO viscosity grade, DIN ISO 3448, ISO VG	-	46	68	-
Kinematic viscosity, 100°C	5.8 mm^2/s	-	-	-
Kinematic viscosity, 40°C	31.0 mm^2/s	-	-	-
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C	-	approx. 7.2 mm^2/s	approx. 10.2 mm^2/s	approx. 13.3 mm^2/s
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C	-	approx. 43 mm^2/s	approx. 69 mm^2/s	approx. 99 mm^2/s
Viscosity index	132	-	-	-
Viscosity index, ASTM D2270	-	approx. 129	approx. 133	approx. 137
Viscosity index, DIN ISO 2909	-	-	-	-
Copper corrosion	1 - - corrosion degree	-	-	-
Copper corrosion, ASTM D130, 24 h, 100°C	-	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h, 100°C	-	-	-	-
Steel corrosion, DIN ISO 7120 / ASTM D665, method A, 24 h, 60°C	rust-free	rust-free	rust-free	rust-free
Pour point	-50 °C	-	-42 °C	-
Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346	-	approx. -61 °C	-	approx. -53 °C
API scuffing load capacity	-	-	-	-
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of cage	-	-	-	-
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of rolling elements	-	-	-	-
Four-ball tester: wear characteristics	0.50 mm	-	-	-

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Characteristics	SYNGEAR SH-10032	SYNGEAR SH-10046	SYNGEAR SH-10068	SYNGEAR SH-1010
Four-ball tester: wear characteristics, ASTM D4172, method: B, 1200 min^{-1} / 40 kgf, 60 min, 75°C	-	approx. 0.40 mm	approx. 0.30 mm	approx. 0.30 mm
Four-ball tester, welding load	200 kgf	-	-	-
Four-ball tester, welding load, ASTM D2596	-	200 kgf	200 kgf	200 kgf
FZG scuffing test	12+	-	-	-
FZG scuffing test, DIN ISO 14635-1, A / 16.6 / 90, failure load stage	-	-	-	-
FZG scuffing test, DIN ISO 14635-1, A / 8.3 / 90, failure load stage	-	≥ 12	≥ 12	≥ 12
Timken test	60 lbs	-	-	-
Timken test, ASTM D2782, OK load	-	60 lbs	65 lbs	65 lbs
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	60 months	60 months	60 months	60 months

Characteristics	SYNGEAR SH-1015	SYNGEAR SH-1022	SYNGEAR SH-1032	SYNGEAR SH-1046
Article number	340453	340454	340455	340456
Service temperature, lower limit	-35 °C	-35 °C	-30 °C	-30 °C
Service temperature, upper limit	140 °C	140 °C	140 °C	140 °C
Density	-	-	-	-
Density, 20°C	-	approx. 0.872 g/cm^3	approx. 0.875 g/cm^3	approx. 0.879 g/cm^3
Density, DIN 51757, 20°C	approx. 0.866 g/cm^3	-	-	-
Flash point	-	-	-	-
Flash point, ASTM D92, Cleveland open cup	≥ 200 °C	≥ 200 °C	≥ 200 °C	≥ 200 °C
Foam test, ISO 6247 / ASTM D892, 24 min, sequence I	-	-	-	-
Foam test, ISO 6247 / ASTM D892, 24 min, sequence III	-	-	-	-
Foam test, ISO 6247 / ASTM D892, 24°C, sequence I	0/0 ml	0/0 ml	0/0 ml	0/0 ml
Foam test, ISO 6247 / ASTM D892, 24°C, sequence III	0/0 ml	0/0 ml	0/0 ml	0/0 ml
Foam test, ISO 6247 / ASTM D892, 93.5 min, sequence II	-	-	-	-
Foam test, ISO 6247 / ASTM D892, 93.5°C, sequence II	0/0 ml	0/0 ml	0/0 ml	0/0 ml
ISO viscosity grade	-	-	-	-
ISO viscosity grade, DIN ISO 3448, ISO VG	150	220	320	460

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Characteristics	SYNGEAR SH-1015	SYNGEAR SH-1022	SYNGEAR SH-1032	SYNGEAR SH-1046
Kinematic viscosity, 100°C	-	-	-	-
Kinematic viscosity, 40°C	-	-	-	-
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C	approx. 18.3 mm^2/s	approx. 25.5 mm^2/s	approx. 33.1 mm^2/s	approx. 43.4 mm^2/s
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C	approx. 148 mm^2/s	approx. 232 mm^2/s	approx. 327 mm^2/s	approx. 476 mm^2/s
Viscosity index	-	-	-	-
Viscosity index, ASTM D2270	approx. 139	approx. 142	approx. 143	-
Viscosity index, DIN ISO 2909	-	-	-	≥ 130
Copper corrosion	-	-	-	-
Copper corrosion, ASTM D130, 24 h, 100°C	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h, 100°C	-	-	-	-
Steel corrosion, DIN ISO 7120 / ASTM D665, method A, 24 h, 60°C	rust-free	rust-free	rust-free	rust-free
Pour point	-	-	-	-
Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346	approx. -45 °C	approx. -45 °C	approx. -41 °C	approx. -39 °C
API scuffing load capacity	API GL 4	API GL 4	API GL 4	API GL 4
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of cage	≤ 200 mg	≤ 200 mg	≤ 200 mg	≤ 200 mg
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of rolling elements	≤ 30 mg	≤ 30 mg	≤ 30 mg	≤ 30 mg
Four-ball tester: wear characteristics	-	-	-	-
Four-ball tester: wear characteristics, ASTM D4172, method: B, 1200 min^{-1} / 40 kgf, 60 min, 75°C	approx. 0.39 mm	approx. 0.34 mm	approx. 0.30 mm	approx. 0.30 mm
Four-ball tester, welding load	-	-	-	-
Four-ball tester, welding load, ASTM D2596	315 kgf	315 kgf	315 kgf	315 kgf
FZG scuffing test	-	-	-	-
FZG scuffing test, DIN ISO 14635-1, A / 16.6 / 90, failure load stage	≥ 12	≥ 12	≥ 12	≥ 12
FZG scuffing test, DIN ISO 14635-1, A / 8.3 / 90, failure load stage	≥ 14	≥ 14	≥ 14	≥ 14
Timken test	-	-	-	-
Timken test, ASTM D2782, OK load	65 lbs	65 lbs	65 lbs	65 lbs

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Characteristics	SYNGEAR SH-1015	SYNGEAR SH-1022	SYNGEAR SH-1032	SYNGEAR SH-1046
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	60 months	60 months	60 months	60 months

Characteristics	SYNGEAR SH-1068	SYNGEAR SH-1100	SYNGEAR SH-1150
Article number	340457	340458	340253
Service temperature, lower limit	-25 °C	-15 °C	-
Service temperature, upper limit	140 °C	120 °C	-
Density	-	-	-
Density, 20°C	approx. 0.887 g/cm³	approx. 0.890 g/cm³	approx. 0.890 g/cm³
Density, DIN 51757, 20°C	-	-	-
Flash point	-	-	-
Flash point, ASTM D92, Cleveland open cup	≥ 200 °C	≥ 200 °C	≥ 200 °C
Foam test, ISO 6247 / ASTM D892, 24 min, sequence I	-	-	-
Foam test, ISO 6247 / ASTM D892, 24 min, sequence III	-	-	-
Foam test, ISO 6247 / ASTM D892, 24°C, sequence I	0/0 ml	0/0 ml	-
Foam test, ISO 6247 / ASTM D892, 24°C, sequence III	0/0 ml	0/0 ml	-
Foam test, ISO 6247 / ASTM D892, 93.5 min, sequence II	-	-	-
Foam test, ISO 6247 / ASTM D892, 93.5°C, sequence II	0/0 ml	0/0 ml	-
ISO viscosity grade	-	-	-
ISO viscosity grade, DIN ISO 3448, ISO VG	680	1000	1500
Kinematic viscosity, 100°C	-	-	-
Kinematic viscosity, 40°C	-	-	-
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C	approx. 54.0 mm²/s	approx. 73.0 mm²/s	approx. 101 mm²/s
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C	approx. 668 mm²/s	approx. 1010 mm²/s	approx. 1468 mm²/s
Viscosity index	-	-	-
Viscosity index, ASTM D2270	approx. 140	approx. 143	approx. 150
Viscosity index, DIN ISO 2909	-	-	-
Copper corrosion	-	-	-
Copper corrosion, ASTM D130, 24 h, 100°C	1 - 100 - 24 corrosion degree	-	1 - 100 - 24 corrosion degree

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Copper corrosion, DIN EN ISO 2160, 24 h, 100°C	-	1 - 100 - 24 corrosion degree	-
Steel corrosion, DIN ISO 7120 / ASTM D665, method A, 24 h, 60°C	rust-free	rust-free	rust-free
Pour point	-	-	-
Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346	approx. -39 °C	approx. -34 °C	approx. -29 °C
API scuffing load capacity	API GL 4	API GL 4	API GL 4
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of cage	≤ 200 mg	≤ 200 mg	≤ 200 mg
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of rolling elements	≤ 30 mg	≤ 30 mg	≤ 30 mg
Four-ball tester: wear characteristics	-	-	-
Four-ball tester: wear characteristics, ASTM D4172, method: B, 1200 min^{-1} / 40 kgf, 60 min, 75°C	approx. 0.30 mm	approx. 0.30 mm	approx. 0.30 mm
Four-ball tester, welding load	-	-	-
Four-ball tester, welding load, ASTM D2596	315 kgf	400 kgf	400 kgf
FZG scuffing test	-	-	-
FZG scuffing test, DIN ISO 14635-1, A / 16.6 / 90, failure load stage	≥ 12	≥ 12	≥ 12
FZG scuffing test, DIN ISO 14635-1, A / 8.3 / 90, failure load stage	≥ 14	≥ 14	-
Timken test	-	-	-
Timken test, ASTM D2782, OK load	65 lbs	65 lbs	65+ lbs
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	60 months	60 months	60 months

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Summit Lubrication

Your expert in specialty lubricants. Since 1982, we have partnered with you to bring you the right solution and advanced lubrication technologies. With over 500 products, from air and gas compressor oils to refrigeration oils, we develop top-of-the-line products tailored to your specific needs. Your success is our success.

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