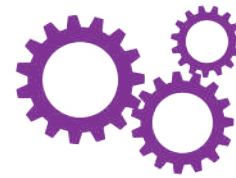




Product Catalogue



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Passenger Car

Heavy Duty

Motorcycle

Transmission/ Axle & Specialties

Hydraulic Fluid

Industrial Oil

Grease

Marine

Certificate



“Value No.1 Energy & Chemical Partner”

Opening the gates to a brighter future as a proud leader in energy

I am your Energy, Golden Horse

Energy has been mankind's constant companion and will continue to be crucial in the future.

As MIDDLE EAST LEADING energy company based on the success of petroleum, petrochemical and lubricant business, GH has always been at the heart of the energy industry.

GH will continue to strengthen its competitiveness to become a global energy leader.



G

Color Orange represents the vitality of Reinery's energy, Color Green expresses the growth and consideration of Retail/Service business divisions and Color Blue symbolizes the leadership toward the top through transparent management. It presents Sun, Ocean & Sky, and Earth to give simple, yet dynamic impression.









Golden Horse with Triple Double Technology



Triple Double Technology of **GH** is equipped with Triple Anti-Technology and Double Boosting Technology which can deliver optimized performance anytime, anywhere.

➤ **Applications:** Automotive engine oils & Transmission/Axle oils

Triple Anti

Anti-friction
Anti-oxidation
Anti-wear

+

Double Boosting

Temperature
Stability
Shear Stability



GH PAO with Dual Plus Technology



Dual Plus Technology of **GH PAO** provides a first - class driving experience in a harsh driving environment through Smooth & Stable Boosting Technology.

Comfort Driving

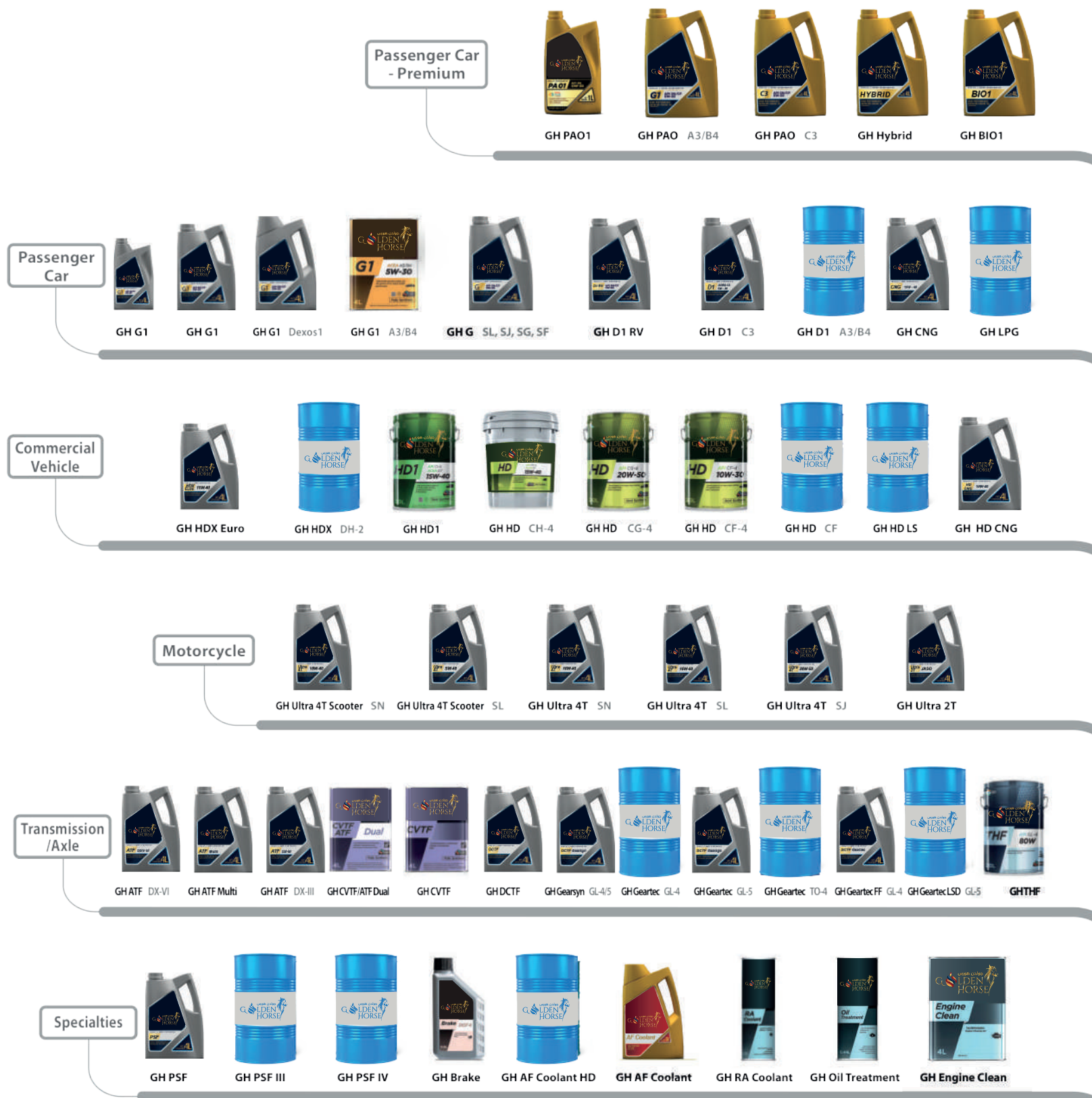
Superior low & high temperature stability and suppression of residue formation in the engine enables stable running without vibration.

+

Smooth Driving

Wear prevention & reduced friction of the engine allow smooth running for a long time.

Product Tree





GH Hydro HVL



GH Hydro HVI



GH Hydro HVZ



GH Hydro XW



GH Hydro AF



GH Hydro R&O



GH Hydrosafety

Hydraulic Fluid



GH Turbine EP



GH Turbine



GH Turbine GT



GH Turbine R&O



GH Compressor P



GH Compressor S



GH Gear EP S



GH Gear EP



GH Machine PM

Industrial Oil



GH Machine



GH Circulating



GH Way Lube



GH Spindle



GH Rockdrill



GH Process



GH Trans I



GH Therm AB



GH Therm

Industrial Oil



GH Grease Liplex



GH Grease Moly EP



GH Grease Therna



GH Grease EP



GH Grease

Grease



GH Marine C



GH Marine S



GH Marine 10



GH Marine 20



GH Marine 30



GH Marine 40



GH Marine 50



GH Outboard 2T

Marine

Golden Horse

The perfect fit for your driving



01 Passenger Car



GH PAO 1
GH PAO A3/B4
GH PAO C3
GH HYBRID
GH BIO1
GH G1 SP
GH G1 Dexos1
GH G1 A3/B4
GH G SL
GH G SJ
GH G SG
GH G SF
GH D1 RV
GH D1 C3
GH D1 A3/B4
GH CNG
GH LPG

Passenger Car

Fully Synthetic

GH PAO 1

Premium engine oil made 100% from PAO with cutting edge technology

- 0W-30 : API SN/CF, ACEA A5/B5, C2
- 0W-40 : API SN/CF, ACEA C3, BMW LL-04, MB 229.31/51, VW 502.00/505.00 RECOMMENDED



DESCRIPTION

GH PAO 1 is a premium performance, multi-grade motor oil for - mulated from selected PAO (Poly Alpha Olefin) and race-proven additive technology. It can be used in passenger car and light truck gasoline engines and passenger car diesel engines under all operating conditions. It is optimized to provide complete engine protection plus ultimate performance.

APPLICATIONS

- Naturally aspirated Gasoline engines, LPG and Diesel engines in passenger cars
- Light truck gasoline and diesel engines
- Gasoline and diesel powered RV and SUV
- CRDI engines in passenger cars
- Passenger cars with high speed, four-stroke, turbocharged and EGR, DPF.
- Four-stroke gasoline engines in motorcycles and portable power equipment where the manufacturer recommends conventional passenger car motor oils

PERFORMANCE STANDARDS

- 0W-30 : API SN/CF, ACEA A5/B5, C2
- 0W-40 : API SN/CF, ACEA C3, BMW LL-04, MB 229.31/51, VW 502.00/505.00 Recommended

CUSTOMER BENEFITS

Maximizes engine life

The wider temperature range capability of the synthetic base fluid ensures correct oil viscosity which reduces friction at start-up, and provides maximum lubrication during high temperature operation. The effective anti-wear additive system minimizes wear in even the most sophisticated valve train mechanisms, including those with variable valve timing.

Maximizes power and performance

Metallic detergent and ashless dispersant additive system ensures maximum power and performance by providing superior control of the ring belt and the piston skirt deposits, even under the most severe operating conditions. Special friction modifiers assist in reducing friction resulting in maximum fuel economy.

Low oil consumption

Synthetic, highly shear-stable formulation provides superior control of oil flow through the ring belt area by maintaining oil viscosity, and reduces oil evaporation at the elevated ring zone temperatures experienced under all operating conditions.

Longer equipment life

Special anti-wear additive package reduces wear by protecting surfaces when load causes breakdown of the lubricant film.

Lower impact emissions

Highly advanced additive technology delivers reduction in harmful exhaust emissions. This advanced technology performance, enhanced by low phosphorus and sulfur formulation (low SAPS) reduces ash formation and delivers a significant increase in DPF service life.

KEY PROPERTIES

SAE Grade	0W-30	0W-40
Density, kg/L @ 15°C	0.846	0.848
Viscosity, mm ² /s @ 40°C	62.9	84.8
Viscosity, mm ² /s @ 100°C	11.2	14.9
Viscosity Index	174	186
Pour Point °C	-54	-51
Flash Point °C	232	232
Package (Liters)	1,4T,200	1,4T,200

GH PAO 1

First - class driving



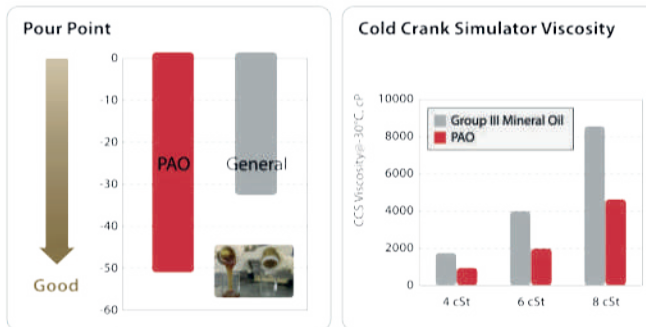
UNIQUE FEATURES

PAO (Poly Alpha Olefin)

PAOs, synthetic base fluids manufactured by carefully controlled chemical reaction of alphaolefin, have extreme stability and high performance in cold property and robustness, mainly used for the most premium lubricant products.

Cold Property

With their excellent cold property, PAOs can be used in extremely cold ambient temperature without oil change

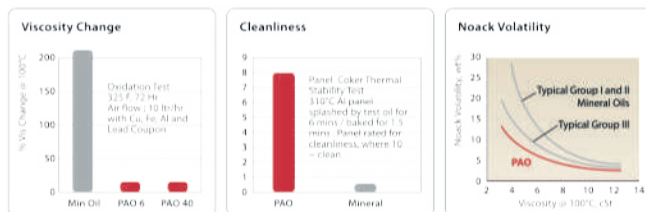


Pour point of PAOs is much lower than general mineral oil, which means better fluidity in low

Low temperature viscosity of PAO is much lower than mineral oil, which enable excelle

Robustness

PAOs have excellent anti-oxidation stability and low volatility, which allows the oil to maintain its original properties longer and significantly reduced sludge extending the oil drain interval.



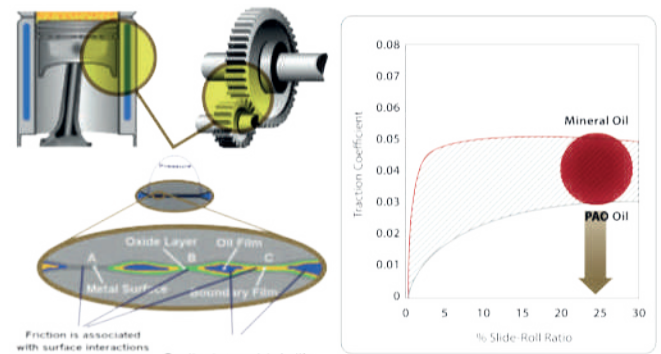
Viscosity increased at high temperature is significantly less

Cleanliness in high temperature is much higher than others.

Low volatility makes oil to be used in longer time.

Anti-Wear

PAOs have excellent anti-wear performance in extreme pressurized friction thanks to their solid molecular structure

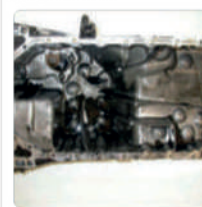


GH

Field Test

Field test results shows that GH PAO products, formulated with premium additives approved from API, ACEA and OEM recent specification, have excellent performance in low sludge and anti-wear characteristics

Sludge : Oil Sump



Mercedes C220 : 96,540 km

Sludge : Piston Head



Mercedes C220 : 96,540 km

Wear : Bearing



Mercedes C220 : 193,080 km

Fully Synthetic

GH PAO A3/B4

Premium gasoline engine oil providing a first-class driving experience

ACEA A3/B4, API SN
MB 229.5 APPROVED(5W-30 ONLY),
VW 502.00/505.00, BMW-LL01, RN 0710 RECOMMENDED



DESCRIPTION

GH PAO A3/B4 is a premium performance, multi-grade motor oil formulated from PAO and VHVI synthetic base fluids and race-proven additive technology for use in passenger car gasoline engines.

APPLICATIONS

- Gasoline in passenger cars
- Passenger cars where the manufacturers recommend ACEA A3/B4 spec oils
- Portable power equipment where the manufacturer recommends conventional passenger car motor oils

PERFORMANCE STANDARDS

- ACEA A3/B4, API SN
- MB 229.5 Approved(5W-30 only), VW 502.00/505.00, BMW-LL01, RN 0710 Recommended

CUSTOMER BENEFITS

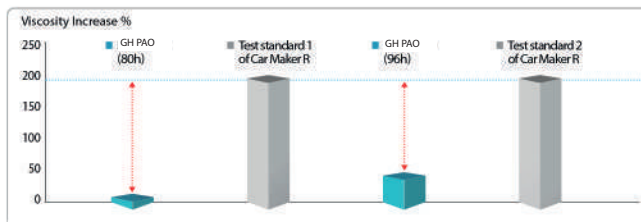
- High performance fully synthetic engine oil made from PAO and VHVI base oil
- Meets the latest ACEA specifications A3/B4 and exceeds many global car OEM requirements
- Provides longer oil drain interval and extends oil's life by minimizing viscosity change
- Improves engine durability by reducing sludge formation while maintaining piston cleanliness.

KEY PROPERTIES

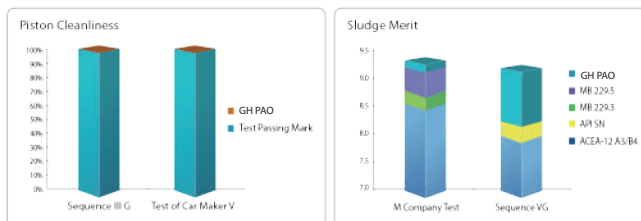
SAE Grade	5W-30	5W-40
Density, kg/L @15°C	0.855	0.853
Viscosity, mm ² /s @ 40°C	71.1	87.5
Viscosity, mm ² /s @ 100°C	12.2	14.5
Viscosity Index	171	173
Pour Point °C	-39	-37
Flash Point °C	226	220
Package (Liters)	1,4T,200	1,4T

UNIQUE FEATURES

- Result of Anti-Oxidation Stability test



- Result of Cleanliness test for engine pistons from car maker V
- Result of Sludge Control test



Fully Synthetic



GH PAO C3

Premium diesel engine oil providing a first-class driving experience

ACEA C3, API SN
BMW LL-04, MB 229.31/51,
VW 502.00/505.01 RECOMMENDED

DESCRIPTION

GH PAO C3 is a fully synthetic engine oil formulated from PAO-added VHVI base oil using high performance additive technology. It meets the requirements of current advanced standards of API SN and ACEA C3. It is also highly recommended for diesel passenger cars with DPF. It is engineered to provide outstanding engine protection, ensuring longer engine life.

APPLICATIONS

- Diesel engines equipped with DPF in passenger cars
- Passenger cars where the manufacturers recommend ACEA C3 spec oils

PERFORMANCE STANDARDS

- ACEA C3, API SN
- 5W-30 / 5W-40 : BMW LL-04, MB 229.31/51, VW 502.00/505.01 Recommended

CUSTOMER BENEFITS

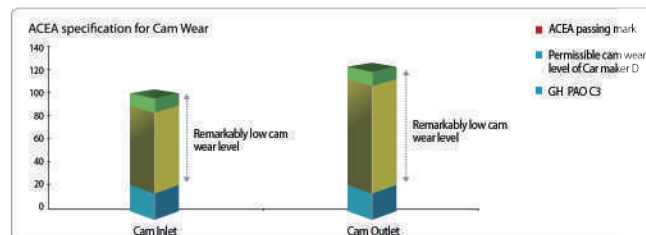
- High performance fully synthetic engine oil made from PAO and VHVI base oil
- Meets the latest ACEA C3 specification and exceeds global car OEM requirements
- Prevents engine's camshaft wear
- Prolongs engine's life with exceptional anti-oxidation stability

KEY PROPERTIES

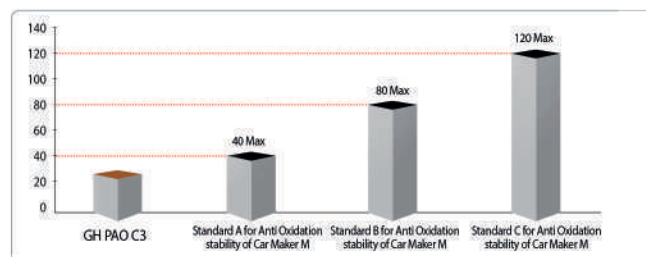
SAE Grade	5W-30	5W-40
Density, kg/L @15°C	0.851	0.856
Viscosity, mm ² /s @ 40°C	63.6	84.8
Viscosity, mm ² /s @ 100°C	11.6	14.4
Viscosity Index	180	177
Pour Point °C	-45	-45
Flash Point °C	232	232
Package (Liters)	1,4T,200	1,4T,200

UNIQUE FEATURES

- Result of Cam Wear test



- Result of Anti-Oxidation Stability test



Fully Synthetic

GH HYBRID

*Premium engine oil,
the perfect fit for Hybrid Electric Vehicles*

- 0W-16 : API SP-RC, ILSAC GF-6B RECOMMENDED
- 0W-20 : API SP-RC, ILSAC GF-6A
GM dexos1 Gen2 RECOMMENDED



DESCRIPTION

GH HYBRID is a premium performance, fully synthetic engine oil which is specially designed for Hybrid Electric Vehicles (HEV). Formulated from VHVI base oils and high performance additive systems, GH HYBRID provides complete engine oil performance, especially enhanced engine durability and fuel efficiency improvement. In addition, it is an eco-friendly product which minimizes CO₂ emissions through fuel consumption reduction.

APPLICATIONS

- Hybrid Electric Vehicles(HEV) equipped with gasoline engines
- For GH Hybrid 0W-16, use only for vehicles that the manufacturer recommends 0W-16 viscosity grade

PERFORMANCE STANDARDS

- 0W-16: API SP-RC, ILSAC GF-6B Recommended
- 0W-20: API SP-RC, ILSAC GF-6A, GM dexos1 Gen2 Recommended

CUSTOMER BENEFITS

Excellent Engine Protection

High performance anti-wear additive and leading edge viscosity modifier deliver maximum wear protection and excellent shear stability. Superior low temperature properties provide excellent lubrication and engine protection for HEV that needs to go through frequent engine start up during mode transition.

Maximized Fuel Efficiency

Premium synthetic base oils and advanced friction modifiers provide reduction of friction, ensuring improved engine performance and maximized fuel efficiency. Specially tailored viscosity characteristics (low viscosity grade) improve oil flow and reduce friction resistance, consequently providing higher engine efficiency.

Extended Oil Drainage Interval

Excellent oxidation stability and shear stability extend the engine oil drain interval.

KEY PROPERTIES

SAE Viscosity	0W-16	0W-20
Density, kg/L @15°C	0.85	0.85
Kinematic Viscosity, mm ² /s @ 40°C	30.6	31.6
Kinematic Viscosity, mm ² /s @ 100°C	7.0	7.5
Viscosity Index	200	221
Pour Point, °C	-44	-44
Flash Point, °C	219	219
Package (Liters)	1	1

Fully Synthetic



GH BIO1

Sustainable,
fully synthetic engine oil made from 100% plant-based oil

• 0W-20: API SP, ILSAC GF-6A

DESCRIPTION

GH BIO1 0W-20 is a sustainable, fully synthetic engine oil made from 100% plant-based oil and cutting-edge additives. A USDA (United States Department of Agriculture) Certified Biobased Product* and an API SP/ILSAC GF-6A approved engine oil, GH BIO1 is an optimal choice for consumers who are looking for a sustainable engine oil that will take their engine to the next level.

APPLICATIONS

- All gasoline fueled vehicles
- High performance cars equipped with T-GDI, GDI, DOHC, EFI and VVT

PERFORMANCE STANDARDS

- 0W-20 : API SP, ILSAC GF-6A

CUSTOMER BENEFITS

Sustainable Mobility

100% Plant-based Base Oil, Base oil made from 100% renewable feedstocks including soy, coconut, rapeseed and palm. A USDA (United States Department of Agriculture) Certified Biobased Product, approved to contain 86% biobased content.

Improved Fuel Economy

Uses the lubricating power of plants to deliver improved fuel economy that exceeds industry standards, with excellent friction reduction

Enhanced Wear Prevention

Improves durability by protecting engine parts from collision owing to improper operation timing caused by timing chain tension loss and wear

Advanced Engine Protection

Prevents engine damage and prolongs engine life with outstanding sludge control, LSPI protection and overall engine cleanliness

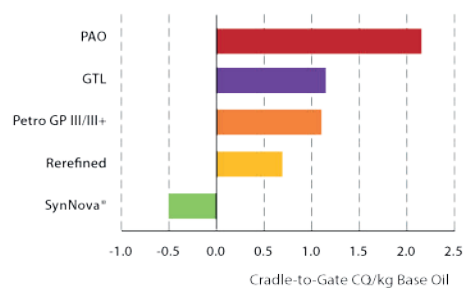
KEY PROPERTIES

SAE Grade	0W-20
Density, @15°C	0.833
Viscosity, mm ² /s @ 40°C	44.9
Viscosity, mm ² /s @ 100°C	8.6
Viscosity Index	175
Pour Point, °C	-46
Flash Point, °C	232
Package (Liters)	1

UNIQUE FEATURES

- GH BIO1 is made with SynNova Sustainable Synthetic Base Oil (SSBO) – manufactured in the USA to help engines meet carbon neutrality targets.
- The Cradle-to-Gate* carbon emission of the base oil used for GH BIO1 was -0.51kg, indicating that it has significantly less carbon impact compared to other base oils used.

Cradle-to-Gate CO₂ Emissions of Base Oils
(kg CO₂/kg Base Oil)



* Cradle-to-Gate: The stage of a product's life cycle in which the product's carbon impact is assessed, from production and extraction of raw materials to the manufacturing of the finished product.

Fully Synthetic

GH G1 SP

High grade gasoline engine oil
providing excellent protection

- 0W-16 : API SP-RC, ILSAC GF-6B
- 0W-20 : API SP-RC, ILSAC GF-6A
- 0W-30 : API SP



DESCRIPTION

GH G1 is formulated from VHVI base oils, high performance additive systems and leading edge viscosity index improver, which meet the requirement of current advanced top-tier engine oil grade of API SP. It is optimized to provide complete engine oil performance, especially enhanced durability and fuel efficiency improvement, through wear protection and friction reduction. In addition, it also includes Timing Chain Wear protection and LSPI prevention performances, which are essential for today's modern vehicles.

APPLICATIONS

- All gasoline fueled vehicles
- High performance cars equipped with T-GDI, GDI, DOHC, EFI and VVT
- Four-stroke gasoline engines in motorcycles (except for motorcycles with wet clutch gearbox)
- Sports vehicles

PERFORMANCE STANDARDS

- 0W-16 : API SP-RC, ILSAC GF-6B
- 0W-20 : API SP-RC, ILSAC GF-6A
- 0W-30 : API SP

CUSTOMER BENEFITS

Timing Chain Wear Protection

High-quality additives effectively protect timing chain against wear that may cause engine power loss and more fuel consumption.

LSPI Prevention

Advanced additives technology efficiently suppresses LSPI phenomena that occasionally occur in combustion chambers of T-GDI engines.

Enhanced Fuel Efficiency

Specifically tailored viscosity characteristics and effective friction modifier help to minimize internal engine friction losses and improve fuel efficiency.

Superior Low Temperature Performance

Superior low temperature properties with proven metal-organic anti-wear additives provide easy start-up of engines at extremely low temperature and excellent wear control in even the most sophisticated valve train mechanisms, including those with variable valve timing.

Saves on maintenance costs

High thermal stability and excellent oxidation resistance provides outstanding protection against in-service oil degradation that contributes to filter blocking and sludge formation in the oil galleries, crankcase and engine head.

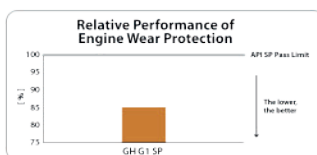
KEY PROPERTIES

	Fully Synthetic	Fully Synthetic	Fully Synthetic
SAE Viscosity	0W-16	0W-20	0W-30
Density, kg/L @15°C	0.85	0.85	0.84
Kinematic Viscosity, mm ² /s @ 40°C	37.4	45.0	54.2
Kinematic Viscosity, mm ² /s @ 100°C	7.2	8.4	10.0
Viscosity Index	158	167	173
Pour Point, °C	-43	-43	-44
Flash Point, °C	230	226	232
Package (Liters)	1, 4T, 200	1, 4T, 200	1, 4T, 200

UNIQUE FEATURES

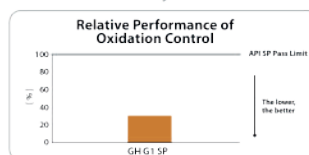
GH G1 SP consists of VHVI base oils and premium additives meeting the requirements of API SP. It provides excellent anti-wear performance and oxidation stability performance under severe operating conditions.

Wear Protection



GH G1 SP offers 15% better engine wear protection than API SP pass limit, which means GH G1 SP can improve durability of engine elements under severe operating conditions.

Oxidation Stability



GH G1 SP offers excellent oxidation performance compared to API SP Pass Limit, which means GH G1 SP can resist oil thickening, allowing better engine protection and maintaining engine performance.

Fully Synthetic



GH G1 SP

High grade gasoline engine oil
providing excellent protection

- 5W-20 / 5W-30 / 10W-30 : API SP-RC, ILSAC GF-6A
- 5W-40 / 5W-50 / 10W-40 / 20W-50 : API SP

DESCRIPTION

GH G1 is formulated from VHVI base oils, high performance additive systems and leading edge viscosity index improver, which meet the requirement of current advanced top-tier engine oil grade of API SP. It is optimized to provide complete engine oil performance, especially enhanced durability and fuel efficiency improvement, through wear protection and friction reduction. In addition, it also includes Timing Chain Wear protection and LSPI prevention performances, which are essential for today's modern vehicles.

APPLICATIONS

- All gasoline fueled vehicles
- High performance cars equipped with T-GDI, GDI, DOHC, EFI and VVT
- Four-stroke gasoline engines in motorcycles (except for motorcycles with wet clutch gearbox)
- Sports vehicles

PERFORMANCE STANDARDS

- 5W-20 / 5W-30 / 10W-30 : API SP-RC, ILSAC GF-6A
- 5W-40 / 5W-50 / 10W-40 / 20W-50 : API SP

CUSTOMER BENEFITS

Timing Chain Wear Protection

High-quality additives effectively protect timing chain against wear that may cause engine power loss and more fuel consumption.

LSPI Prevention

Advanced additives technology efficiently suppresses LSPI phenomena that occasionally occur in combustion chambers of T-GDI engines.

Improved Engine Power and Maintainability

A reduction in the piston blow-by gas coupled with the oil's anti-sludge characteristics helps to maintain engine power and cleanliness, which in turn extends the engine's service life.

Enhanced Fuel Economy

The wide temperature range capability of VHVI and HVI base oils ensures correct oil viscosity which reduces friction at start-up, and provides maximum lubrication under high temperature operating condition.

Wear Resistance under Wide Temperature Condition

Advanced non-conventional base oil formula coupled with high performance additive systems and leading edge viscosity index improver delivers excellent shear stability and maximum wear protection under high speed, and high temperature driving conditions as well as a rapid, highly effective oil film generation. It also minimizes wear of key engine components during engine start under very low temperature.

Extended Oil Drainage Interval

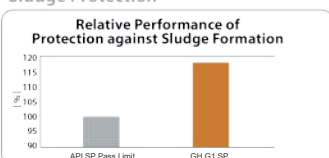
Excellent oxidation resistance and low volatility will extend oil drainage interval.

KEY PROPERTIES

	Fully Synthetic	Fully Synthetic	Fully Synthetic	Fully Synthetic	Semi Synthetic	Semi Synthetic	Semi Synthetic
SAE Viscosity	5W-20	5W-30	5W-40	5W-50	10W-30	10W-40	20W-50
Density, kg/L @15°C	0.85	0.85	0.85	0.85	0.86	0.86	0.87
Kinematic Viscosity, mm ² /s @ 40°C	48.1	62.3	84.0	118.4	68.7	98.9	156.0
Kinematic Viscosity, mm ² /s @ 100°C	8.2	10.4	13.8	18.6	10.9	14.9	17.9
Viscosity Index	144	157	169	176	148	158	127
Pour Point, °C	-39	-39	-40	-39	-40	-39	-26
Flash Point, COC, °C	240	238	228	226	242	240	274
Package (Liters)	1, 4, 200	1, 3, 4, 5, 18, 200	1, 3, 4, 4.7, 5, 200	1, 4, 7, 200	1, 4, 7, 18, 200	1, 3, 4, 4.7, 5, 200	1, 3, 4, 5, 200

* GH G1 20W-50 is also applicable to CNG/LPG engines

Sludge Protection



GH G1 SP shows 18% better sludge protection compared to API SP pass limit, which means GH G1 SP can provide excellent protection against sludge formation, allowing for stable operation and improve engine durability.

Fully Synthetic

GH G1 Dexos1

High grade gasoline engine oil, the perfect fit for GM Dexos1™ Gen2

- 0W-20 : API SN PLUS-RC ,
GM Dexos1™ Gen2 APPROVED
- 5W-30 : API SN PLUS, GM Dexos1™ Gen2



DESCRIPTION

GH G1 Dexos 1 is formulated from VHVI base oils, high performance additive systems and leading edge viscosity index improver. It meets the requirements of current advanced top-tier engine oil grades, API SN PLUS.

It is optimized to provide complete engine oil performance, especially for fuel efficiency, through friction reduction and enhanced durability. In addition, it also minimizes abrupt damage of key engine components (such as piston rings, connecting rods and so on) by prevention of LSPI (Low Speed Pre-Ignition) phenomena in T-GDI engines.

APPLICATIONS

- All gasoline fueled vehicles
- High performance cars equipped with T-GDI, GDI, DOHC, EFI and VVT
- Four-stroke gasoline engines in motorcycles .
- Sports vehicles

PERFORMANCE STANDARDS

- 0W-20 : API SN PLUS-RC, GM Dexos1™ Gen2 Approved
- 5W-30 : API SN PLUS, GM Dexos1™ Gen2

CUSTOMER BENEFITS

Enhanced Fuel Economy

The wide temperature range capability of the VHVI base oils ensures correct oil viscosity to reduce friction at start-up, and to provide maximum lubricity under high temperature operating condition.

Improved Engine Power and Maintainability

A reduction in the piston blow-by gas coupled with the oil's anti-sludge characteristics helps to maintain engine power and cleanliness, which in turn extends the engine's service life.

Extended Oil Drainage Interval

Excellent oxidation resistance and low volatility will extend oil drainage interval.

Stronger Wear Protection

Outstanding protection of valve train by maintaining lubricating films under high temperature will extend engine life.

LSPI Prevention

Advanced additives technology efficiently suppresses LSPI phenomena that occasionally occur in combustion chambers of T-GDI engines.

KEY PROPERTIES

SAE Viscosity	0W-20	5W-30
Density, kg/L @15°C	0.846	0.851
Kinematic Viscosity, mm ² /s @ 40°C	47.2	65.6
Kinematic Viscosity, mm ² /s @ 100°C	8.5	10.9
Viscosity Index	159	158
Pour Point, °C	-46	-42
Flash Point, °C	226	228
Package (Liters)	1, 4T, 200	1, 4T, 200

Fully Synthetic



GH G1 A3/B4

High grade gasoline engine oil, the perfect fit for
ACEA A3/B4 specification

ACEA A3/B4-16, API SN/CF
MB 229.3, VW 502.00/505.00 RECOMMENDED

DESCRIPTION

GH G1 A3/B4 is a premium performance, multi-grade motor oil formulated with selected synthetic base oil and race-proven additive technology. It can be used in normal SAPS passenger car (gasoline engines and diesel engines without DPF) under all operating conditions. This product particularly meets the latest ACEA A3/B4-12 specification. It is optimized to provide long drain interval as well as good performance.

APPLICATIONS

- Naturally aspirated and turbocharged gasoline engines in passenger cars.
- Light truck gasoline engines.
- Gas-fuelled (natural gas and LPG) spark ignition engines where conventional passenger car motor oils are recommended
- Four-stroke gasoline engines in motorcycles and portable power equipment where the manufacturer recommends conventional passenger car motor oils.

PERFORMANCE STANDARDS

- ACEA A3/B4-16, API SN/CF
- MB 229.3, VW 502.00/505.00 Recommended

CUSTOMER BENEFITS

Extended Oil Drainage Interval

Excellent oxidation stability provides very low viscosity increase helping customers to save costs related with the frequent Oil change.

Maximum engine life

The excellent detergent system delivers excellent piston cleanliness and outstanding sludge control.

It will provide the needed engine protection and extend engine service life

Superior Low Temperature Performance

Superior low temperature properties with proven metal-organic anti-wear additives provide easy start-up of engine at extremely low temperature and excellent wear control in even the most sophisticated valve train mechanisms, including those with variable valve timing

KEY PROPERTIES

SAE Viscosity	5W-30	10W-40
Density, kg/L @15°C	0.856	0.859
Kinematic Viscosity, mm ² /s @ 40°C	67.5	92.3
Kinematic Viscosity, mm ² /s @ 100°C	11.6	14.3
Viscosity Index	168	160
Pour Point, °C	-39	-39
Flash Point, °C	226	238
Package (Liters)	1,4T,6,20,200	1,4T,6,20,200

Semi Synthetic

GH G SL

*Gasoline engine oil,
the perfect fit for smart consumers*

API SL



DESCRIPTION

GH G SL is formulated with synthetic technology base oil and high performance additives. It is optimized to provide outstanding protection and lubricity in all passenger car and light truck gasoline engines.

APPLICATIONS

- All passenger car and light truck four-stroke gasoline engines, both naturally aspirated and turbocharged, including those featuring the most recent valve train and emission
- Suitable for small four-stroke gasoline engines in motorcycle and portable power equipment where engine manufacturers allow the use of conventional passenger car motor oils and do not require a purpose-design lubricant.

PERFORMANCE STANDARDS

- API SL

CUSTOMER BENEFITS

- Maximizes engine life through superior wear and deposit control under all operating conditions.
- Provides significant fuel savings by reducing frictional losses.
- Protects against start-up wear in cold conditions through excellent low-temperature fluidity.
- Maintains power and economy by minimizing wear in even the most sophisticated valve train mechanisms, including those with variable valve timing.

KEY PROPERTIES

SAE Viscosity	5W-30	10W-30	10W-40	15W-40
Density, kg/L @15°C	0.849	0.863	0.860	0.864
Kinematic Viscosity, mm ² /s @ 40°C	56.8	65.6	99.5	109.4
Kinematic Viscosity, mm ² /s @ 100°C	10.0	10.0	15.1	15.2
Viscosity Index	165	138	158	145
Pour Point, °C	-45	-45	-42	-39
Flash Point, °C	224	236	246	236
Package (Liters)	4, 200	1, 4, 18, 200	1, 3, 4, 4T, 5, 20, 200	1, 4, 5, 200

Semi Synthetic



GH G SJ

*Gasoline engine oil,
the perfect fit for smart consumers*

API SJ

DESCRIPTION

GH G SJ is a high quality engine oil designed to meet the requirements of passenger car and light truck engines where API SJ performance is required.

APPLICATIONS

- Gasoline engines (four-stroke)
- Gasoline engines equipped with emissions control equipment
- Industrial or marine applications using passenger car type gasoline engines
- Diesel Engines (high speed, four-stroke, naturally aspirated)

PERFORMANCE STANDARDS

- API SJ

CUSTOMER BENEFITS

Enhanced Engine Protection

Proven metallo-organic anti-wear additive system forms a protective layer on contact surfaces to control wear. Effective corrosion inhibitors protect against rust and corrosion.

Trouble-free operation

Special combination of detergent and dispersant additives controls piston and ring deposits that can adversely effect power and performance.

Long periods between overhauls

Good thermal stability and oxidation resistance combats in-service oil degradation that contributes to filter blocking and sludge formation.

KEY PROPERTIES

SAE Viscosity	5W-30	10W-30	10W-40
Density, kg/L @15°C	0.852	0.863	0.866
Kinematic Viscosity, mm ² /s @ 40°C	59.5	66.8	104.8
Kinematic Viscosity, mm ² /s @ 100°C	10.2	10.1	14.8
Viscosity Index	160	140	147
Pour Point, °C	-45	-42	-42
Flash Point, COC, °C	230	232	234
Package (Liters)	1, 4, 4T, 200	1, 4, 4T, 5, 200	1, 3, 4, 5, 20, 200

Semi Synthetic

GH G SG

*Gasoline engine oil,
the perfect fit for smart consumers*

API SG/CD



DESCRIPTION

GH G SG is a high quality engine oil designed to meet the requirements of passenger car and light truck engines where API SG performance is required. It is a multi-grade gasoline engine oil formulated from selected base oils.

APPLICATIONS

- Gasoline engines (four-stroke).
- Gasoline engines equipped with emissions control equipment.
- Industrial or marine applications using passenger car type gasoline engines

PERFORMANCE STANDARDS

- API SG/CD

CUSTOMER BENEFITS

Enhanced Engine Protection

Proven metallo-organic anti-wear additive system forms a protective layer on contact surfaces to control wear. Effective corrosion inhibitors protect against rust and corrosion.

Trouble-free operation

Special combination of detergent and dispersant additives controls piston and ring deposits that can adversely effect power and performance.

Long periods between overhauls

Good thermal stability and oxidation resistance combats in-service oil degradation that contributes to filter blocking and sludge formation.

KEY PROPERTIES

SAE Viscosity	5W-30	15W-40	20W-50
Density, kg/L @15°C	0.857	0.868	0.871
Kinematic Viscosity, mm ² /s @ 40°C	68.1	106.5	163.9
Kinematic Viscosity, mm ² /s @ 100°C	10.01	14.2	18.8
Viscosity Index	131	135	130
Pour Point, °C	-39	-45	-39
Flash Point, COC, °C	230	250	255
Package (Liters)	4, 200	4, 200	4, 200



Semi Synthetic

GH G SF

*Gasoline engine oil,
the perfect fit for smart consumers*

API SF/CF

DESCRIPTION

GH G SF is a high quality engine oil designed to meet the requirements of passenger car and light truck engines where API SF performance is required.

APPLICATIONS

- Gasoline engines (four-stroke)
- Gasoline engines equipped with emissions control equipment
- Industrial or marine applications using passenger car type gasoline engines
- Diesel Engines (high speed, four-stroke, naturally aspirated)

PERFORMANCE STANDARDS

- API SF/CF

CUSTOMER BENEFITS

Enhanced Engine Protection

Proven metallo-organic anti-wear additive system forms a protective layer on contact surfaces to control wear. Effective corrosion inhibitors protect against rust and corrosion.

Trouble-free operation

Special combination of detergent and dispersant additives controls piston and ring deposits that can adversely effect power and performance.

Long periods between overhauls

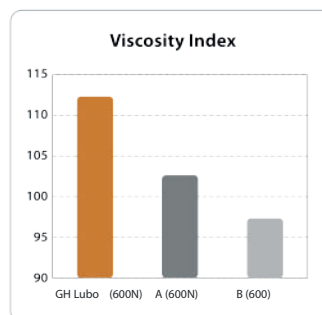
Good thermal stability and oxidation resistance combats in-service oil degradation that contributes to filter blocking and sludge formation.

KEY PROPERTIES

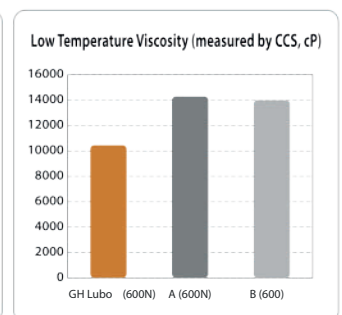
	Semi Synthetic	Semi Synthetic			
SAE Viscosity	15W-40	20W-50	10W	30	40
Density, kg/L @ 15°C	0.879	0.871	0.867	0.868	0.879
Kinematic Viscosity, mm ² /s @ 40°C	110.6	167.8	39.13	73.0	134.7
Kinematic Viscosity, mm ² /s @ 100°C	14.2	19.4	6.448	10.1	14.8
Viscosity Index	130	132	116	121	111
Pour Point, °C	-30	-33	-36	-39	-33
Flash Point, °C	250	236	230	256	252
Package (Liters)	1, 5, 18, 20, 200	1, 3, 4, 5, 6, 18, 20, 200	20, 200	200	200

UNIQUE FEATURES

- GH G uses high performance base oil, GH Lubo 600 N.
- Viscosity index and low temperature properties of GH Lubo 600 N are superior than other base oil.



The higher the VI, the less the viscosity is affected by changes in temperature. Therefore, by the introduction of high VI engine oil using high VI base oil, passenger cars that meet frequently variable operating conditions can show stable and reliable performance.



The lower the viscosity, the higher the fluidity of engine oil is maintained at low temperature. Therefore, the smooth operation of automotive engines is possible in cold area.

Fully Synthetic

GH D1 RV

*High grade diesel engine oil
providing excellent protection*

ACEA C3, API SN/CF
MB 229.31/51
BMW LL-04 RECOMMENDED



DESCRIPTION

GH D1 RV is formulated with the latest VHVI synthetic base oil combined with additive technology that produces minimum sulfated ash, phosphorous and sulfur contents to meet the requirement of low SAPS oil. GH D1 RV is suitable for passenger car mounted with gasoline or diesel engines, as well as SUV and RV. GH D1 RV maintains engine durability while helps in extending the life of DPF and helps in increasing DPF performance by using additive of minimum sulfated ash contents. GH D1 RV also helps extending the life of emission after-treatment device such as SCR by introducing low phosphorous and sulfur content additive technology.

APPLICATIONS

- SUV and RV equipped with DPF, SCR and other emission after-treatment system where an ACEA C3 performance engine oil is required.
- Light duty diesel engines and gasoline direct injection engines.
- Passenger cars where the manufacturers recommend API SN spec oils.
- Vehicles that requires MB, BMW specification performance.

PERFORMANCE STANDARDS

- ACEA C3
- API SN/CF
- MB 229.31, 229.51 / BMW LL-04 Recommended

KEY PROPERTIES

SAE Grade	5W-30	5W-40
Density, kg/L @15°C	0.848	0.8543
Kinematic Viscosity, mm ² /s @ 40°C	69.2	89.5
Kinematic Viscosity, mm ² /s @ 100°C	12.3	14.9
Viscosity Index	178	179
Pour Point °C	-42	-42
Flash Point °C	228	238
Package (Liters)	5, 200	200



Fully Synthetic

GH D1 C3

High grade diesel engine oil, the perfect fit for emission after-treatment systems & high durability

ACEA C3, API SN

DESCRIPTION

GH D1 C3 is a fully synthetic Low SAPS engine oil engineered to comply with the latest ACEA and API international standard, provides unsurpassed lubrication with a wide range of temperature for today's engines operating in severe conditions.

APPLICATIONS

- Diesel engines equipped with DPF, SCR and other emission after-treatment systems where an ACEA C3 engine oil is required.
- Light duty diesel engines and gasoline direct injection engines

PERFORMANCE STANDARDS

- API SN, ACEA C3
- MB 229.31, GM dexos® 2 Recommended

CUSTOMER BENEFITS

- Maximize engine life based on outstanding wear protection
- Extends the service life of emission after treatment systems by prevention of clogging in DPFs and TWCs (Three-Way Catalytic Converters)
- Excellent low temperature fluidity for quick and easy start-ups in cold weather
- Keeps engine clean through outstanding resistance to high temperature varnish and low temperature sludge deposit formation
- Excellent oil consumption control

KEY PROPERTIES

SAE Viscosity	5W-30
Density, kg/L @15°C	0.85
Kinematic Viscosity, mm ² /s @ 40°C	71.0
Kinematic Viscosity, mm ² /s @ 100°C	11.8
Viscosity Index	163
Pour Point, °C	-41
Flash Point, °C	228
Package (Liters)	1, 5, 200

Fully Synthetic

GH D1 A3/B4

High grade diesel engine oil, the perfect fit for ACEA A3/B4 specification

ACEA A3/B4, E7



DESCRIPTION

GH D1 A3/B4 is engineered for hard-working gasoline and diesel engines. It is a high performance, HVI engine oil that provides unsurpassed lubrication with a wide range of temperature for today's gasoline and diesel RV engines operating under severe conditions.

APPLICATIONS

- Gasoline, diesel powered RV and SUV built by Mercedes Benz, Ford, GM etc
- Diesel engine of Cummins, Duramax and Navistar – for bigger, heavier duty truck application, such as delivery vans and utility fleets
- Mixed fleets of European, North American diesel engines (High speed, four-stroke, turbocharged and EGR)
- Commercial road transport, including the latest electronic controlled engines
- Stop-and-go vehicles in high soot loading service such as buses and waste collection trucks

PERFORMANCE STANDARDS

- ACEA A3/B4, E7
- API CI-4/SL

CUSTOMER BENEFITS

- Maximize engine life based on outstanding wear protection
- Exceptional high temperature protection for hot running engines under heavy load
- Excellent low temperature fluidity for quick and easy start-ups in cold weather
- Keeps engine clean through outstanding resistance to high temperature varnish and low temperature sludge deposit formation

KEY PROPERTIES

SAE Grade	10W-40
Density, kg/L @ 15°C	0.861
Kinematic Viscosity, mm ² /s @ 40°C	103.9
Kinematic Viscosity, mm ² /s @ 100°C	15.2
Viscosity Index	155
Pour Point °C	-42
Flash Point °C	228
Package (Liters)	200



Semi Synthetic

GH CNG

Top Performance CNG Engine Oil for Passenger Car

API SL

DESCRIPTION

GH CNG is a high-performance, highly shear-stable, multigrade CNG engine oil for use in passenger car, RV, SUV and CNG taxi engines operating under the most severe conditions. It is formulated from high quality base oil and the latest technology additives, optimized to provide complete engine protection against friction, wear, heat stress and engine deposits.

APPLICATIONS

- CNG engines for passenger cars
- RV and SUV
- Taxi using CNG as a fuel

PERFORMANCE STANDARDS

- API SL

CUSTOMER BENEFITS

- Maximizes engine life through superior wear protection and deposit control under all operating conditions.
- Provides significant fuel savings by reducing friction.
- Protects against start-up wear in low temperature conditions based on excellent low-temperature fluidity.
- Maintains power and durability by minimizing wear in even the most sophisticated valve train mechanisms, including those with variable valve timing
- Helps to preserve emission control and fuel saving performances by protection of converters and oxygen sensors.

KEY PROPERTIES

SAE Grade	5W-30	15W-40
Density, kg/L @15°C	0.858	0.869
Kinematic Viscosity, mm ² /s @ 40°C	63.4	109.2
Kinematic Viscosity, mm ² /s @ 100°C	10.4	15.01
Viscosity Index	153	143
Pour Point °C	-42	-39
Flash Point °C	250	236
Package (Liters)	4	4

Fully Synthetic

GH LPG

Top Performance LPG Engine Oil

API SN PLUS



DESCRIPTION

GH LPG is a high-performance, highly shear-stable, multigrade LPG engine oil for use in passenger car, RV, SUV and light truck engines operating under the most severe conditions. It is formulated from latest technology additives, optimized to provide complete engine protection against friction, wear, heat stress and engine deposits.

APPLICATIONS

- LPG engines for passenger cars, RV, SUV and light truck

PERFORMANCE STANDARDS

- API SN PLUS

CUSTOMER BENEFITS

- Maximizes engine life through superior wear protection and deposit control under all operating conditions.
- Provides significant fuel savings by reducing friction.
- Protects against start-up wear in low temperature conditions based on excellent low-temperature fluidity.
- Maintains power and durability by minimizing wear in even the most sophisticated valve train mechanisms, including those with variable valve timing
- Helps to preserve emission control and fuel saving performances by protection of converters and oxygen sensors.

KEY PROPERTIES

SAE Grade	10W-40
Density, kg/L @15°C	0.863
Kinematic Viscosity, mm ² /s @ 40°C	98.1
Kinematic Viscosity, mm ² /s @ 100°C	14.6
Viscosity Index	154
Pour Point °C	-39
Flash Point °C	226
Package (Liters)	200

جولدن هورس
GOLDEN HORSE

*First-Class Driving
Golden Horse PAO*



Golden Horse

The perfect fit for your driving

02 Heavy Duty

GH HDX PAO
GH HDX Euro
GH HDX DH-2
GH HD1
GH HD CH-4
GH HD CG-4
GH HD CF-4
GH HD CF
GH HD LS
GH HD CNG



Commercial

Fully Synthetic

GH HDX PAO

Premium diesel engine oil for heavy duty vehicles, producing ideal performances

API CJ-4/SN, ACEA E9



DESCRIPTION

GH HDX PAO is a super premium performance, synthetic heavy-duty diesel engine oil specifically designed for new low emission engine with ULSD. It is formulated using the most advantaged additive technology, providing outstanding engine protection for EURO VI emissions standard for on highway diesel trucks. It meets the latest stringent EGR soot control and particulate requirements. It is also recommended for a wide range of diesel and gasoline engines requiring API CJ-4, CI-4 PLUS, CI-4, SN, ACEA E9 performance lubricants operating under the most severe service conditions.

APPLICATIONS

- GH HDX PAO 15W-40 is a mixed fleets motor oil recommended for all naturally aspirated and turbocharged four-stroke diesel engines and four-stroke gasoline engines in which the API CJ-4 grade is recommended.
- It is developed in response to EURO VI emissions standard
- It is formulated for superior performance with ULSD but also with both normal and low sulfur diesel fuels
- It is recommended for use in off-highway and construction applications which require an API CJ-4 Service Category.
- Meets major diesel engine manufacturers requirements
- Mixed fleets of both diesel and gasoline engines
- Mixed fleets including both old and new equipment
- Commercial road transport, including the latest electronic controlled engines.
- Stop-and-go vehicles in high soot loading service such as buses and waste collection trucks

PERFORMANCE STANDARDS

- API CJ-4/SN, ACEA E9
- MB 228.31, Cummins CES 20081, Volvo VDS-4, MAN 3275, Mack EO-O Premium Plus, Detroit Diesel DDC93K218, Renault VI RLD-3, CAT ECF-3, ECF-2, ECF-1-a Recommended

CUSTOMER BENEFITS

Enhanced Emission Control System Life

Extends DPF life for less frequent downtime and cleaning leading to decreased number of maintenance.

Minimizes Inventory costs

Backwards compatible with all previous API Oil Service Categories and engine models. One oil for all services, in four-stroke gasoline and all naturally aspirated turbocharged and modern electronically controlled/low emission diesel engines. One oil that allows users with a wide mix of engine brands to enjoy simplified inventory and dispensing systems that help save money, space, handling time, and avoid product misapplication.

Reduced Maintenance and Operating costs

Excellent soot dispersion and wear control. Cylinders, pistons, rings, and injectors are well protected against wear and corrosion, lasting longer in service and requiring less maintenance. Contributes to maximum vehicle utilization and minimum downtime.

Extends engine life to overhaul

High level of anti-wear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication conditions.

KEY PROPERTIES

SAE Grade	15W-40
Density, kg/L @15°C	0.871
Kinematic Viscosity, mm ² /s @ 40°C	120.8
Kinematic Viscosity, mm ² /s @ 100°C	16.23
Viscosity Index	143
Pour Point °C	-41
Flash Point °C	240
Base Number, mg KOH/g	8.80
Package (Liters)	20, 200

Semi Synthetic



GH HDX Euro

Top grade diesel engine oil for heavy duty vehicles, the perfect fit for EURO 6 standards

API CJ-4, CI-4 PLUS, CI-4, SN, ACEA E9

DESCRIPTION

GH HDX Euro is a premium performance, multigrade, heavy-duty diesel engine oil specifically designed for new low emission engine with ULSD. It is formulated using the most advantaged additive technology available to provide outstanding engine protection for EURO VI emissions standard for on highway diesel trucks. It meets the latest stringent EGR soot control and particulate requirements. It is also recommended a wide range of diesel and gasoline engines requiring API CJ-4, CI-4 PLUS, CI-4, SN, ACEA E9 performance lubricants operating under the most severe service conditions.

APPLICATIONS

- GH HDX Euro is a mixed fleets motor oil recommended for all naturally aspirated and turbocharged four-stroke diesel engines and four-stroke gasoline engines in which the API CJ-4 grade is recommended.
- It is developed in response to EURO VI emissions standard
- It is formulated for superior performance with ULSD but also with both normal and low sulfur diesel fuels
- It is recommended for use in off-highway and construction applications which require an API CJ-4 Service Category.
- Meets major diesel engine manufacturers requirements.
- Mixed fleets of both diesel and gasoline engines
- Mixed fleets including both old and new equipment
- Commercial road transport, including the latest electronic controlled engines.
- Stop-and-go vehicles in high soot loading service such as buses and waste collection trucks

PERFORMANCE STANDARDS

- API CJ-4, CI-4 PLUS, CI-4, SN, ACEA E9
- 10W-30: Volvo VDS-4, Mack EO-O Premium Plus, Renault VI RLD-3, Cummins CES 20081 Approved
MB 228.31, Cat ECF-3, ECF-2, ECF-1-a, MAN 3275, DDC 93K218 Recommended
- 15W-40: Volvo VDS-4, Mack EO-O Premium Plus, Renault VI RLD-3, Cummins CES 20081, DDC 93K218 Approved

MB 228.31, Cat ECF-3, ECF-2, ECF-1-a, MAN 3275 Recommended

CUSTOMER BENEFITS

Enhanced emission control system life

Extends DPF life for less frequent downtime and cleaning, thus decreasing your maintenance.

Minimizes Inventory costs

Backwards compatible with all previous API Oil Service Categories and engine models. One oil for all services, in four-stroke gasoline and all naturally aspirated turbocharged and modern electronically controlled/low emission diesel engines. One oil that allows users with a wide mix of engine brands to enjoy simplified inventory and dispensing systems that help save money, space, handling time, and avoid product misapplication.

Reduced Maintenance and Operating costs

Excellent soot dispersion and wear control. Cylinders, pistons, rings, and injectors are well protected against wear and corrosion, lasting longer in service and requiring less maintenance. Contributes to maximum vehicle utilization and minimum downtime.

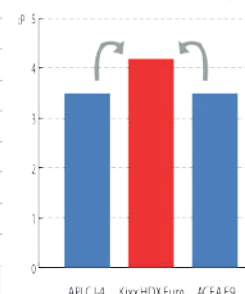
Extends engine life to overhaul

High level of anti-wear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication conditions.

KEY PROPERTIES

SAE Grade	10W-30	15W-40
Density, kg/L @ 15 °C	0.8656	0.8714
Kinematic Viscosity, mm ² /s @ 40 °C	83.2	115.5
Kinematic Viscosity, mm ² /s @ 100 °C	12.2	16.0
Viscosity Index	144	146
Pour Point °C	-41	-39
Flash Point °C	226	232
Base Number, mg KOH/g	8.5	8.5
Package (Liters)	200	4, 18, 200

High Temp. High Shear (HTHS, @ 150°C x 10⁶s-1) Viscosity



API CJ-4 GH HDX Euro ACEA E9

Semi Synthetic

GH HDX CK-4

Premium Quality High Performance Diesel Engine Oil

API CK-4/SM, ACEA E9-16 APPROVED



DESCRIPTION

Premium performance, high performance multigrade, heavy-duty diesel engine oil specifically designed for new low emission 2017 model year on-highway engine using ULSD (Ultra Low Sulfur Diesel). It is also recommended for a wide range of diesel engines requiring the latest API CK-4, ACEA E9 performance lubricants operating under the most severe service conditions.

APPLICATIONS

- GH CK-4 is a mixed fleets motor oil recommended for all naturally aspirated and turbocharged four-stroke diesel engines in which the API CK-4 grade is recommended.
- Can be used in off-highway and construction applications.
- Diesel engines equipped with DPF (Diesel Particulate Filter) or SCR (Selective Catalytic Reduction) and in other after-treatment systems where an API CK-4 engine oil is specified.

PERFORMANCE STANDARDS

GH HDX CK-4 15W-40

- API CK-4, ACEA E9-16 Approved
- Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, Cummins CES 20086, Caterpillar CAT ECF-3 Approved
- MB 228.31, MTU Type 2.1, Deutz DQC III-10 LA, Detroit Diesel DFS93K222, Ford WSS-M2C171-F1 Recommended

CUSTOMER BENEFITS

- Outstanding wear protection and performance reserve to maximize engine life
- Prevent DPFs and SCR from clogging thus extending the service life of after treatment systems.

KEY PROPERTIES

SAE Grade	15W-40
Density, kg/L @15°C	0.867
Kinematic Viscosity mm ² /s @ 40°C	114.3
Kinematic Viscosity, mm ² /s @ 100°C	11.99
Viscosity Index	135
Pour Point °C	-36
Flash Point °C	234
Base Number, mg KOH/g	8.6
Package (Liters)	20, 200

Semi Synthetic



GH HDX DH-2

Top grade diesel engine oil for heavy duty vehicles,
the perfect fit for JASO DH-2 specifications

JASO DH-2 APPROVED

DESCRIPTION

GH HDX DH-2 is a high Performance Diesel engine oil designed to meet the performance requirement of high output, JASO DH-2. It is formulated from an optimized high quality base oil blend plus specialized additives to provide the maximum oil drain intervals recommended for engines and is optimally formulated for new low emission engines running on ultra low sulfur diesel (ULSD) fuel. The DH-2 classification applies to Japanesemade diesel engines with after-treatment devices, such as DPFs and catalysts that comply with up-to-date exhaust emission regulations. It is suitable for the medium- and heavy-duty engines built by manufacturers like Hino Motors Ltd., Isuzu Motors Ltd., Mitsubishi Fuso Truck & Bus Corp. and Nissan Diesel Motor Co. Ltd.

APPLICATIONS

- GH HDX DH-2 is recommended for use in off-highway and construction applications which require an DH-2 Service Category.
- Meets Japanese major diesel engine manufacturers requirements.
- Mixed fleets including both old and new equipment
- Commercial road transport, including the latest electronic controlled engines.
- Stop-and-go vehicles in high soot loading service such as buses and waste collection trucks

PERFORMANCE STANDARDS

- 10W-30 / 15W-40 : JASO DH-2 Approved

CUSTOMER BENEFITS

Enhanced emission control system life

Extends DPF life for less frequent downtime and cleaning, thus decreasing your maintenance.

Reduced Maintenance and Operating costs

Excellent soot dispersion and wear control. Cylinders, pistons, rings, and injectors are well protected against wear and corrosion, lasting longer in service and requiring less maintenance. Contributes to maximum vehicle utilization and minimum downtime.

Extends engine life to overhaul

High level of anti-wear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication conditions.

KEY PROPERTIES

SAE Grade	10W-30	15W-40
Density, kg/L @15°C	0.8673	0.8744
Kinematic Viscosity, mm ² /s @ 40°C	77.04	112.9
Kinematic Viscosity, mm ² /s @ 100°C	11.83	14.87
Viscosity Index	148	136
Pour Point °C	-39	-36
Flash Point °C	227	241
Base Number, mg KOH/g	7.93	6.06
Package (Liters)	200	200

Fully / Semi Synthetic

GH HD 1

*High grade diesel engine oil for heavy duty vehicles,
producing excellent performances*

API CI-4/SL, ACEA E7

DESCRIPTION

GH HD1 is a premium performance, multigrade, heavy-duty diesel engine oil specifically designed to lubricate a wide range of diesel and gasoline engines requiring API CI-4, SL, ACEA E7 performance lubricants operating under the most severe service conditions.

APPLICATIONS

- Mixed fleets of European, North American diesel engines (high speed, four-stroke, turbocharged or naturally aspirated)
- Mixed fleets of both diesel and gasoline engines
- Mixed fleets including both old and new equipment
- Commercial road transport, including the latest electronic controlled engines.
- It meets the major diesel engine manufacturers requirements
- Stop-and-go vehicles in high soot loading service such as buses and waste collection trucks
- Off-highway vehicles and plant

PERFORMANCE STANDARDS

- API CI-4/SL, ACEA E7
- 10W-40 / 15W-40: Volvo VDS-3, MB 228.3, MAN 3275, MTU Type 2, Mack EO-M Plus, Renault RLD-2, CES 20076, 77, 78, Cat ECF 2, ECF 1-a, Global DHD-1 approved
- 10W-30: Volvo VDS-3, MB 228.3, MAN 3275, MTU Type 2, Mack EO-M Plus, Renault RLD-2, CES 20076, 77, 78, Cat ECF 2, ECF 1-a, Global DHD-1 recommended

CUSTOMER BENEFITS

Minimizes fleet maintenance costs

Exceptional soot dispersion keeps fuel soot in suspension, avoiding filter plugging, cylinder head sludge, abrasive polishing wear and oil thickening.

Minimizes fleet operating costs

Excellent deposit control on valves and piston crownlands reduces oil consumption. Exceptional oxidation stability and soot control extends oil drain capability so that equipment is in service longer generating revenue. Outstanding valve train wear protection maintains fuel economy.

Extends engine life to overhaul

High level of anti-wear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication conditions.

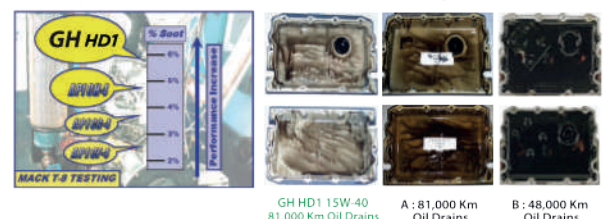
KEY PROPERTIES

	Fully Synthetic	Fully Synthetic	Semi Synthetic	Semi Synthetic
SAE Grade	10W-30	10W-40	15W-40	20W-50
Density, kg/L @15°C	0.8654	0.8651	0.8727	0.8806
Kinematic Viscosity, mm ² /s @ 40°C	80.85	105.7	110.8	178.2
Kinematic Viscosity, mm ² /s @ 100°C	12.10	15.49	14.96	19.89
Viscosity Index	144	153	141	129
Pour Point °C	-42	-42	-39	-33
Flash Point °C	234	226	232	249
Base Number,mg KOH/g	10.41	10.44	10.64	10.76
Package (Liters)	5, 20, 200	1,4T,5,6,20,200	1,4,4T,5,6,18,20,25,200	1,4,5,6,18,20,25,200

UNIQUE FEATURES

- GH HD1 has excellent performance for sustaining durability with EGR system.
- GH HD1 protects sludge formed by sulfur and fuel combustion without the need for overly shortened drain intervals.

Cummins N14 Field Test Rocker Cover Sludge Results





Semi Synthetic

GH HD CH-4

Diesel engine oil for heavy duty vehicles,
the perfect fit for smart consumers

API CH-4/SJ, ACEA E7

DESCRIPTION

GH HD CH-4 is a premium performance, multigrade, heavy-duty diesel engine oil specifically designed to lubricate a wide range of diesel and gasoline engines requiring API CH-4, SJ, ACEA E7 performance lubricants operating under the most severe service conditions.

APPLICATIONS

- Mixed fleets of European, North American diesel engines (high speed, four-stroke, turbocharged or naturally aspirated)
- Mixed fleets of both diesel and gasoline engines
- Mixed fleets including both old and new equipment
- Commercial road transport, including the latest electronic controlled engines.
- It meets the major diesel engine manufacturers requirements
- Stop-and-go vehicles in high soot loading service such as buses and waste collection trucks
- Off-highway vehicles and plant

PERFORMANCE STANDARDS

- API CH-4/SJ, ACEA E7
- MB 228.3, MAN 3275, MTU 2.0, Mack EO-M Plus, CES 20077, Cat ECF-1-a Recommended

CUSTOMER BENEFITS

Minimizes fleet maintenance costs

Exceptional soot dispersion keeps fuel soot in suspension, avoiding filter plugging, cylinder head sludge, abrasive polishing wear and oil thickening.

Minimizes fleet operating costs

Excellent deposit control on valves and piston crownlands reduces oil consumption. Exceptional oxidation stability and soot control extends oil drain capability so that equipment is in service longer generating revenue. Outstanding valve train wear protection maintains fuel economy.

Extends engine life to overhaul

High level of anti-wear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication conditions.

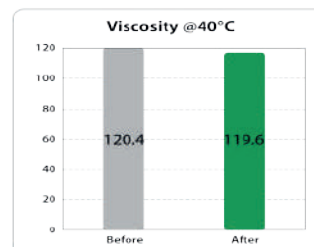
KEY PROPERTIES

SAE Grade	10W-30	10W-40	15W-40	20W-50
Density, kg/L @ 15°C	0.8667	0.8670	0.8689	0.8769
Kinematic Viscosity, mm ² /s @ 40°C	80.14	102.5	108.8	179.4
Kinematic Viscosity, mm ² /s @ 100°C	11.99	15.13	14.86	20.04
Viscosity Index	144	155	142	130
Pour Point °C	-42	-42	-36	-33
Flash Point °C	231	228	236	246
Base Number, mg KOH/g	10.0	10.0	10.0	10.0
Package (Liters)	4, 18, 200	20, 200	4, 5, 18, 20, 25, 200	4, 18, 20, 200

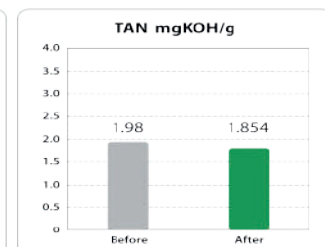
UNIQUE FEATURES

- GHHD CH-4 prolongs engine life and extends oil drain intervals
- Exceptional oxidation stability and soot control extends oil drain capability so that equipment can be in service with longer generating revenue

ISOT (165.5°C, 24Hr)



Oxidation stability test, ISOT, shows the viscosity of before test and after are almost the same.



Total acid number is almost the same. It means that the oil is strong against to oxidation.

Semi Synthetic

GH HD CG-4

*Diesel engine oil for heavy duty vehicles,
the perfect fit for smart consumers*

API CG-4

DESCRIPTION

GH HD CG-4 is a high performance, multigrade, heavy-duty diesel engine oil specifically designed to lubricate a wide range of diesel engines requiring API CG-4 performance lubricants.

APPLICATIONS

- Mixed fleets of diesel engines (high speed, four-stroke, turbo-charged or naturally aspirated)
- Commercial road transport
- Off-highway vehicles and plant
- Agricultural tractors and farm machinery
- High speed diesel engines in marine service (e.g. fishing, river transport, etc.)
- Generator sets
- Mobile hydraulic systems (where oil type and viscosity are appropriate)

PERFORMANCE STANDARDS

- API CG-4

CUSTOMER BENEFITS

Reduces fleet maintenance costs

Specially balanced metallic detergent and ashless dispersant additive system provides excellent overall engine cleanliness in all service conditions, particularly the higher soot dispersion required to maintain oil drain intervals in modern engine designs. Excellent oxidation stability protects against the formation of gums and varnish at elevated temperatures.

Prolongs engine life

Proven metallo-organic anti-wear additive system provides excellent protection against wear of critically loaded components under all operating conditions. Multigrade viscosity provides additional protection against wear at start-up and under high temperature operating conditions.

Preserves full power and performance

Metallic detergent and ashless dispersant additive system preserves full power and performance by providing excellent upper-ring-belt deposit control under the high temperatures encountered in turbocharged diesel engines.

Saves on inventory costs

Mid-ash, higher dispersion formulation provides excellent overall performance in mixed fleets of different engine designs, allowing fewer oils to be stored and reducing the chance of problems arising through product misapplication.

KEY PROPERTIES

SAE Grade	10W-30	10W-40	15W-40	20W-50
Density, kg/L @15°C	0.8666	0.8658	0.8703	0.8793
Kinematic Viscosity, mm ² /s @40°C	64.43	100.7	110.8	180.8
Kinematic Viscosity, mm ² /s @100°C	10.05	14.99	15.01	20.00
Viscosity Index	141	156	143	128
Pour Point °C	-39	-39	-36	-33
Flash Point °C	240	225	236	242
Base Number, mg KOH/g	8.67	9.11	8.93	8.77
Package (Liters)	4,18, 200	1,4T, 20, 200	1,4T, 16, 18, 20, 200	4,18, 20, 200

Semi Synthetic

GH HD CG-4

*Diesel engine oil for heavy duty vehicles,
the perfect fit for smart consumers*

API CG-4

DESCRIPTION

GH HD CG-4 is a high performance, multigrade, heavy-duty diesel engine oil specifically designed to lubricate a wide range of diesel engines requiring API CG-4 performance lubricants.

APPLICATIONS

- Mixed fleets of diesel engines (high speed, four-stroke, turbo-charged or naturally aspirated)
- Commercial road transport
- Off-highway vehicles and plant
- Agricultural tractors and farm machinery
- High speed diesel engines in marine service (e.g. fishing, river transport, etc.)
- Generator sets
- Mobile hydraulic systems (where oil type and viscosity are appropriate)

PERFORMANCE STANDARDS

- API CG-4

CUSTOMER BENEFITS

Reduces fleet maintenance costs

Specially balanced metallic detergent and ashless dispersant additive system provides excellent overall engine cleanliness in all service conditions, particularly the higher soot dispersion required to maintain oil drain intervals in modern engine designs. Excellent oxidation stability protects against the formation of gums and varnish at elevated temperatures.

Prolongs engine life

Proven metallo-organic anti-wear additive system provides excellent protection against wear of critically loaded components under all operating conditions. Multigrade viscosity provides additional protection against wear at start-up and under high temperature operating conditions.

Preserves full power and performance

Metallic detergent and ashless dispersant additive system preserves full power and performance by providing excellent upper-ring-belt deposit control under the high temperatures encountered in turbocharged diesel engines.

Saves on inventory costs

Mid-ash, higher dispersion formulation provides excellent overall performance in mixed fleets of different engine designs, allowing fewer oils to be stored and reducing the chance of problems arising through product misapplication.

KEY PROPERTIES

SAE Grade	10W-30	10W-40	15W-40	20W-50
Density, kg/L @15°C	0.8666	0.8658	0.8703	0.8793
Kinematic Viscosity, mm ² /s @40°C	64.43	100.7	110.8	180.8
Kinematic Viscosity, mm ² /s @100°C	10.05	14.99	15.01	20.00
Viscosity Index	141	156	143	128
Pour Point °C	-39	-39	-36	-33
Flash Point °C	240	225	236	242
Base Number, mg KOH/g	8.67	9.11	8.93	8.77
Package (Liters)	4,18, 200	1,4T, 20, 200	1,44T, 18, 20, 200	4,18, 20, 200

Semi Synthetic

GH HD CF-4

*Diesel engine oil for heavy duty vehicles,
the perfect fit for smart consumers*

API CF-4/SG

DESCRIPTION

GH HD CF-4 is a high performance, multigrade diesel engine oil specially designed to lubricate a wide range of diesel and gasoline engines requiring API CF-4 performance lubricants.

APPLICATIONS

- Mixed fleets of diesel engines (high-speed, four-stroke, turbo-charged or naturally aspirated)
- Mixed fleets of both diesel and gasoline engines
- Commercial road transport
- Off-highway vehicles and plant
- Small diesel engines in marine service(e.g. fishing, river transport, etc)
- Generator sets
- Powershift transmissions(where oil type and viscosity are appropriate)

PERFORMANCE STANDARDS

- API CF-4/SG

CUSTOMER BENEFITS

Maximum power output

Advanced detergent/dispersant additive system maintains power output by providing outstanding deposit control under the high temperature conditions encountered in turbocharged engines.

Reduced maintenance costs

Highly effective detergent additive system minimizes piston crown land deposits which can lead to damaged bore polishing. The proven metallo-organic anti-wear additive system reduces wear in engines under severe service by forming a protective layer on all metal contact surfaces.

Saves on inventory costs

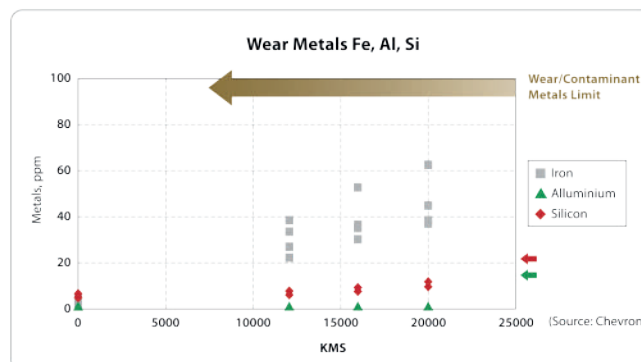
The mid-ash, medium dispersant formulation provides very good overall performance in mixed fleets of different engine designs, allowing fewer oils to be stored and reducing the chance of problems arising through product misapplication.

KEY PROPERTIES

SAE Grade	5W-30	10W-30	15W-40	15W-50	20W-50
Density, kg/L @15°C	0.8539	0.8671	0.8731	0.8652	0.8774
Kinematic Viscosity, mm ² /s @ 40°C	58.09	69.14	113.5	141.3	177.6
Kinematic Viscosity, mm ² /s @ 100°C	10.16	10.57	15.02	18.89	20.09
Viscosity Index	164	141	137	152	131
Pour Point °C	-39	-39	-36	-36	-36
Flash Point °C	228	228	239	242	250
Base Number,mg KOH/g	10.56	10.53	10.46	8.65	10.33
Package (Liters)	1,4,6,20,200	1,4,4T,6,18,20,200	1,4,4T,5,6,18,20,25,200	200	1,4,6,8,18,20,25,200

UNIQUE FEATURES

- GH HD CF-4 maintains power output by providing outstanding deposit control.
- With the anti-wear additive system, GH HD CF-4 reduces wear in severe service by forming a protective layer on all metal contact surfaces.



Semi Synthetic

GH HD CF

*Diesel engine oil for heavy duty vehicles,
the perfect fit for smart consumers*

API CF

DESCRIPTION

GH HD CF is a high performance, multigrade diesel engine oil specially designed to lubricate a wide range of diesel and gasoline engines requiring API CF performance lubricants.

APPLICATIONS

- Mixed fleets of diesel engines (high speed, four-stroke, turbo-charged or naturally aspirated)
- Mixed fleets of both diesel and gasoline engines
- Commercial road transport
- Off-highway vehicles and plant
- Small diesel engines in marine service(e.g. fishing, river transport, etc)
- Generator sets

PERFORMANCE STANDARDS

- API CF

CUSTOMER BENEFITS

Maximum power output

Advanced detergent/dispersant additive system maintains power output by providing outstanding deposit control under the high temperature conditions encountered in turbocharged engines.

Reduced maintenance costs

Highly effective detergent additive system minimizes piston crown land deposits which can lead to damaging bore polishing. The proven metallo-organic anti-wear additive system reduces wear in severe service by forming a protective layer on all metal contact surfaces.

Saves on inventory costs

The mid-ash, medium dispersion formulation provides very good overall performance in mixed fleets of different engine designs, allowing fewer oils to be stored and reducing the chance of problems arising through product misapplication.

KEY PROPERTIES

SAE Grade	20W-50	40	50
Density, kg/L @15°C	0.8771	0.8801	0.8719
Kinematic Viscosity, mm ² /s @ 40°C	173.6	137.5	168.6
Kinematic Viscosity, mm ² /s @ 100°C	19.65	14.96	19.74
Viscosity Index	130	110	135
Pour Point °C	-30	-33	-36
Flash Point °C	250	250	272
Base Number,mg KOH/g	9.74	9.02	9.7
Package (Liters)	18,25,200	4,6,200	4,6,200



Semi Synthetic

GH HD LS

Diesel engine oil for heavy duty vehicles using low sulfur fuel, the perfect fit for smart consumers

API CF/SF

DESCRIPTION

GH HD LS is a high quality, heavy-duty diesel engine oil designed to lubricate diesel engines requiring API CF performance lubricants which uses low sulfur diesel fuel. It is formulated using an advanced additive technology and HVI base oils to provide engine protection.

APPLICATIONS

- Diesel engines (high-speed, four-stroke, turbocharged or naturally aspirated) using low sulfur fuel.
- Commercial road transport
- Off-highway vehicles
- Agricultural tractors
- Generator sets
- High speed diesel engines in marine service (e.g., fishing, river transport, etc.)

PERFORMANCE STANDARDS

- API CF/SF

CUSTOMER BENEFITS

Saves on maintenance

Proven metallo-organic anti-wear additive system resists wear by forming a protective layer on contact surfaces under all service conditions.

Prolongs periods between overhauls

High performance detergent and dispersant additive system resists the formation of high temperature deposits in diesel engines and low temperature sludge in gasoline engines. Good oxidation stability resists oil degradation and protects against oil thickening, and oil line and filter plugging.

Long oil drain intervals

High viscosity index base oils ensures that protects an decrease of engine oil without the need for overly shortened oil drain intervals.

KEY PROPERTIES

SAE Grade	30	40	15W-40
Density, kg/L @ 15°C	0.8696	0.8754	0.8658
Kinematic Viscosity, mm ² /s @ 40°C	88.62	128.7	107.6
Kinematic Viscosity, mm ² /s @ 100°C	11.21	14.32	14.41
Viscosity Index	114	111	137
Pour Point °C	-36	-36	-36
Flash Point °C	264	264	248
Base Number, mg KOH/g	6.37	6.44	6.45
Package (Liters)	25, 200	25, 200	25, 200

Fully / Semi Synthetic

GH HD CNG

*Top Performance Low Ash CNG Engine Oil***CUMMINS CES 20074**

DESCRIPTION

GH HD CNG is a heavy-duty, low ash, multi-grade crankcase oil specifically designed to lubricate a wide range of spark ignition, natural gas or compressed natural gas engines. It provides the protection needed for mobile natural gas engines and also excellent engine oil for stationary applications. It has a lot of performances like the protection against deposits in the higher temperature gas combustion chamber, wear protection, foam protection, exceptional oxidation and nitration control ability.

APPLICATIONS

- Mobile heavy-duty automotive engines converted to run on sweet natural gas or LPG
- Four-cycle stationary engines on sweet natural gas or LPG
- Gas powered co-generation engines

PERFORMANCE STANDARDS

- 10W-40 : Cummins CES 20074 Recommended
- 15W-40 : Cummins CES 20074 Approved

CUSTOMER BENEFITS

Maximizes engine life

Detergent additive provides excellent piston deposit control. Balanced sulfated ash level reduces valve surface deposits.

Reduced maintenance costs

Outstanding oxidation and nitration resistance minimizes acid number increase, providing protection against bearing corrosion.

Extended oil change periods

Very high oxidation stability protects against the formation of gums and varnishes, reduces oil thickening and increases oil life.

Increased service life

Low phosphorus content ensures exhaust system catalyst compatibility and, therefore, maximizes unit's service life.

KEY PROPERTIES

	Fully Synthetic	Semi Synthetic
SAE Grade	10W-40	15W-40
Density, kg/L @15°C	0.8551	0.8682
Kinematic Viscosity, mm ² /s @ 40°C	99.47	114.5
Kinematic Viscosity, mm ² /s @ 100°C	14.98	15.04
Viscosity Index	158	136
Pour Point °C	-39	-37
Flash Point °C	226	237
Sulfated Ash, mass%	0.52	0.56
Package (Liters)	4, 18, 200	4, 18, 200

جولدن هورس
GOLDEN HORSE

All Ways with You



Golden Horse

The perfect fit your driving

03 Motorcycle



GH Ultra 4T Scooter SN
GH Ultra 4T Scooter SL
GH Ultra 4T SN
GH Ultra 4T SL
GH Ultra 4T SJ
GH Ultra 2T



Motorcycle

Fully / Semi Synthetic

GH Ultra 4T Scooter SN

Top grade engine oil,
the perfect fit for four-stroke scooters

API SN
JASO MB RECOMMENDED



DESCRIPTION

GH Ultra 4T Scooter SN is formulated from Synthetic Technology meeting the requirement of current advanced top-tier engine oil grade of API SN. It is optimized to provide complete scooter engine oil performance especially for fuel efficiency, reducing friction loss and durability.

APPLICATIONS

- All gasoline fueled vehicles
- High performance cars equipped with DOHC, EFI and VVT
- Four-stroke gasoline engines in motorcycles
- Sports Vehicles

PERFORMANCE STANDARDS

- API SN
- 5W-40 / 10W-40: JASO MB Recommended

CUSTOMER BENEFITS

Fuel economy

The wide temperature range capability of the synthetic technology base fluid ensures correct oil viscosity which reduces friction at start-up, and provides maximum lubrication during high temperature operation.

Engine power and maintainability

A reduction in the piston blow-by gas coupled with the oil's anti-slug characteristics help maintain engine power and cleanliness, which in turn extends the engine's service life.

Oil drainage interval

Excellent oxidation resistance and low volatility will extend oil drainage interval.

All-temperature wear resistance

Advanced non-conventional base oil formula coupled with high performance additive systems and leading edge viscosity index improver delivers excellent shear stability and maximum wear protection in high speed, high temperature driving conditions as well as a rapid, highly effective oil film protection. It also provides component wear resistance during very low temperature cold starts.

KEY PROPERTIES

	Fully Synthetic	Semi Synthetic	Semi Synthetic
SAE Viscosity	5W-40	10W-30	10W-40
Density, kg/L @15°C	0.849	0.862	0.861
Kinematic Viscosity, mm ² /s @ 40°C	83.9	70.6	104.8
Kinematic Viscosity, mm ² /s @ 100°C	14.4	10.5	15.7
Viscosity Index	178	135	159
Pour Point °C	-42	-39	-42
Flash Point °C	222	232	220
Package (Liters)	0.8, 1, 200	1	0.8, 1, 200

Semi Synthetic



GH Ultra 4T Scooter SL

*Top grade engine oil,
the perfect fit for four-stroke scooters*

**API SL
JASO MB APPROVED**

DESCRIPTION

GH Ultra 4T Scooter SL is formulated from Synthetic Technology meeting the requirement of current advanced top-tier engine oil grade of API SL. It is optimized to provide complete scooter engine oil performance especially for fuel efficiency, reducing friction loss and durability.

APPLICATIONS

- All gasoline fueled vehicles
- High performance cars equipped with DOHC, EFI and VVT
- Four-stroke gasoline engines in motorcycles
- Sports Vehicles

PERFORMANCE STANDARDS

- API SL
- 10W-40 / 15W-40 : JASO MB Approved

CUSTOMER BENEFITS

Fuel economy

The wide temperature range capability of the synthetic technology base fluid ensures correct oil viscosity which reduces friction at start-up, and provides maximum lubrication during high temperature operation.

Engine power and maintainability

A reduction in the piston blow-by gas coupled with the oil's anti-sludge characteristics help maintain engine power and cleanliness, which in turn extends the engine's service life.

Oil drainage interval

Excellent oxidation resistance and low volatility will extend oil drainage interval.

All-temperature wear resistance

Advanced non-conventional base oil formula coupled with high performance additive systems and leading edge viscosity index improver delivers excellent shear stability and maximum wear protection in high speed, high temperature driving conditions as well as a rapid, highly effective oil film protection. It also provides component wear resistance during very low temperature cold starts.

KEY PROPERTIES

SAE Viscosity	10W-40	15W-40
Density, kg/L @15°C	0.863	0.871
Kinematic Viscosity, mm ² /s @ 40°C	101.2	114.8
Kinematic Viscosity, mm ² /s @ 100°C	14.8	14.7
Viscosity Index	155	131
Pour Point °C	-42	-39
Flash Point °C	220	242
Package (Liters)	0.8, 1, 200	0.8, 1

Fully Synthetic

GH Ultra 4T SN

Top grade engine oil,
the perfect fit for four-stroke motorcycles

API SN
JASO MA2 APPROVED



DESCRIPTION

GH Ultra 4T SN is a premium performance, shear-stable, multi-grade gasoline engine oil specifically designed for use in four-stroke motorcycles and portable power equipment requiring API SN JASO MA / MA2 lubricants, including high output engines operating in severe service.

APPLICATIONS

- Air and liquid-cooled four-stroke motorcycle engines
- Particularly suitable for Japanese high performance motorcycle engines
- Motorcycles with and without oil immersed clutches
- Motorcycles with combined engine/transmission units or separate gear boxes where a multi-grade engine oil is specified
- Motorcycles with back torque limiters
- Motorcycles with exhaust catalytic converters
- Latest generation, four-stroke scooter engines
- Four-stroke gasoline engines fitted to portable power equipment, such as generators, mowers, etc.

PERFORMANCE STANDARDS

- API SN Recommended
- JASO MA2 Approved

CUSTOMER BENEFITS

Prolongs engine life

Proven metallo-organic anti-wear additive system reduces wear of highly stressed engine components under severe operating conditions.

Saves on maintenance

High oxidation stability resists oil breakdown under the severe heat stress generated by modern engines, enabling the lubricant to do its primary job of providing effective protection for stressed components.

Lively throttle response

Highly effective detergent/dispersant additive system ensures excellent control of piston ring belt deposits for very good power release and acceleration. Correct frictional characteristics enable smooth operation of wet clutches and back torque limiters.

Good all-temperature protection

Highly shear stable viscosity index improver additive minimizes shear-thinning, particularly in the gearbox, and resists breakdown under the high stresses which occur at high rotational speeds, to provide the correct oil viscosity for protection at both start-up and during high temperature operation.

KEY PROPERTIES

SAE Viscosity	10W-40	20W-50
Density, kg/L @15°C	0.853	0.857
Kinematic Viscosity, mm ² /s @ 40°C	98.99	127.9
Kinematic Viscosity, mm ² /s @ 100°C	15.11	18.05
Viscosity Index	161	157
Pour Point °C	-38	-36
Flash Point °C	236	242
Package (Liters)	0.8, 1	1

Semi Synthetic

GH Ultra 4T SL

*Top grade engine oil,
the perfect fit for four-stroke motorcycles*

**API SL
JASO MA2 APPROVED**

DESCRIPTION

GH Ultra 4T SL is a premium performance, shear-stable, multi-grade gasoline engine oil specifically designed for use in four-stroke motorcycles and portable power equipment requiring API SL JASO MA / MA2 lubricants, including high output engines operating in severe service.

APPLICATIONS

- Air and liquid-cooled four-stroke motorcycle engines
- Particularly suitable for Japanese high performance motorcycle engines
- Motorcycles with and without oil immersed clutches
- Motorcycles with combined engine/transmission units or separate gear boxes where a multi-grade engine oil is specified
- Motorcycles with back torque limiters
- Motorcycles with exhaust catalytic converters
- Latest generation, four-stroke scooter engines
- Four-stroke gasoline engines fitted to portable power equipment, such as generators, mowers, etc.

PERFORMANCE STANDARDS

- API SL
- JASO MA2 Approved

CUSTOMER BENEFITS

Prolongs engine life

Proven metallo-organic anti-wear additive system reduces wear of highly stressed engine components under severe operating conditions.

Saves on maintenance

High oxidation stability resists oil breakdown under the severe heat stress generated by modern engines, enabling the lubricant to do its primary job of providing effective protection for stressed components.

Lively throttle response

Highly effective detergent/dispersant additive system ensures excellent control of piston ring belt deposits for very good power release and acceleration. Correct frictional characteristics enable smooth operation of wet clutches and back torque limiters.

Good all-temperature protection

Highly shear stable viscosity index improver additive minimizes shear-thinning, particularly in the gearbox, and resists breakdown under the high stresses which occur at high rotational speeds, to provide the correct oil viscosity for protection at both start-up and during high temperature operation.

KEY PROPERTIES

SAE Viscosity	10W-40	15W-40	20W-40	20W-50	25W-60
Density, kg/L @ 15°C	0.86	0.856	0.874	0.873	0.874
Kinematic Viscosity, mm ² /s @ 40°C	108.5	98.4	133	168.8	229
Kinematic Viscosity, mm ² /s @ 100°C	15.6	14.8	15	19.2	25.8
Viscosity Index	152	156	114	130	143
Pour Point °C	-37	-33	-35	-36	-26
Flash Point °C	236	236	278	240	254
Package (Liters)	1	0.8, 1, 200	1, 200	0.7, 0.8, 1, 200	1

Semi Synthetic

GH Ultra 4T SJ

*Top grade engine oil,
the perfect fit for four-stroke motorcycles*

**API SJ
JASO MA2 APPROVED**



DESCRIPTION

GH Ultra 4T SJ is a premium performance, shear-stable, multi-grade gasoline engine oil specifically designed for use in four-stroke motorcycles and portable power equipment requiring API SJ, JASO MA lubricants, including high output engines operating in severe service.

APPLICATIONS

- Air and liquid-cooled four-stroke motorcycle engines
- Particularly suitable for Japanese high performance motorcycle engines
- Motorcycles with combined engine/transmission units, or separate gear boxes where a multigrade engine oil is specified
- Motorcycles with back torque limiters
- Motorcycles with exhaust catalytic converters
- Latest generation, four-stroke scooter engines
- Four-stroke gasoline engines fitted to portable power equipment, such as generators, pumps, mowers, etc

PERFORMANCE STANDARDS

- API SJ
- 15W-40 / 20W-50 : JASO MA2 Approved

CUSTOMER BENEFITS

Prolongs engine life

Proven metallo-organic anti-wear additive system reduces wear of highly stressed engine components under severe operating conditions.

Saves on maintenance

High oxidation stability resists oil breakdown under the severe heat stress generated by modern engines, enabling the lubricant to do its primary job of providing effective protection for stressed components.

Lively throttle response

Highly effective detergent/dispersant additive system ensures excellent control of piston ring belt deposits for very good power release and acceleration. Correct frictional characteristics enable smooth operation of wet clutches and back torque limiters.

Good all-temperature protection

Highly shear stable viscosity index improver additive minimizes shear-thinning, particularly in the gearbox, and resists breakdown under the high stresses which occur at high rotational speeds, to provide the correct oil viscosity for protection at both start-up and during high temperature operation.

KEY PROPERTIES

SAE Viscosity	15W-40	20W-50
Density, kg/L @15°C	0.863	0.872
Kinematic Viscosity, mm ² /s @ 40°C	109.2	167.2
Kinematic Viscosity, mm ² /s @ 100°C	15.0	19.3
Viscosity Index	144	132
Pour Point °C	-36	-39
Flash Point °C	226	236



GH Ultra 2T

*High grade engine oil,
the perfect fit for two-stroke motorcycles*

JASO FB RECOMMENDED

DESCRIPTION

GH Ultra 2T is a high-performance, two-stroke motorcycle oil formulated with a low-ash additive system. It is available in one SAE fluidity/miscibility grade, F/M 2, as preferred by oil-injection systems. It is prediluted with a special solvent that permits ready mixing with gasoline over a wide temperature range. Dyed distinctively to aid in identifying its presence in fuel/ oil mixtures.

APPLICATIONS

- Satisfies the performance needs of those manufacturers of two-stroke engines who allow the use of JASO FB oils.
- Recommended for over-the-road service in all two-stroke motorcycle engines, either oil-injected or using a premix of gasoline and oil.
- Manufacturers recommended gasoline-to-oil ratios, up to 50:1, should be used for premixes of gasoline and oil.
- Suitable for use in two-stroke portable power equipment except the most severe chainsaw applications.
- Not recommended for use in ash-sensitive, water-cooled, two-stroke outboard engines.
- Should not be used in with small air-cooled engines which operate at gasoline-to-oil ratios below 25:1
- Should not be used in any four-stroke engines.

PERFORMANCE STANDARDS

Meets JASO FB, the Global GB category and API TC for air-cooled, two-stroke engines

CUSTOMER BENEFITS

- Maximizes time between overhauls by minimizing scuffing, wear and deposits.
- Protects against preignition.
- Maximizes engine life by controlling the deposits which lead to ring sticking.
- Maximizes spark plug life by reducing fouling.
- Easy to mix with gasoline.

KEY PROPERTIES

SAE Grade (J1536)	F/M2
Density, kg/L @15°C	0.859
Kinematic Viscosity, mm ² /s @40°C	43.2
Kinematic Viscosity, mm ² /s @100°C	7.2
Viscosity Index	129
Pour Point, °C	-39
Flash Point °C	85
Package (Liters)	1

GOLDEN HORSE

The perfect fit your driving

03 Transmission/Axle & Specialties

GH ATF DX-VI
GH AFT Multi
GH AFT DX-III
GH CVTF / AFT Dual
GH CVTF
GH DCTF
GH Gearsyn GL-4/5
GH Geartec FF GL-4
GH Geartec GL-4
GH Geartec LSD GL-5
GH Geartec GL-5
GH Geartec TO-4
GH THF
GH PSF
GH PSF III
GH PSF IV
GH Brake
GH AF Coolant HD
GH AF Coolant
GH RA Coolant
GH Oil Treatment
GH Engine Clean



Transmission/Axle & Specialties



Fully Synthetic

GH ATF DX-VI

*Top Performance Low Viscosity Automatic Transmission Fluid***GM DEXRON®-VI, FORD MERCON LV,
JASO 1A-LV**

DESCRIPTION

GH ATF DX-VI is a premium performance, low viscosity multi-vehicle fluid for modern automatic transmissions, which is blended with synthetic base stocks and advanced high performance additives. It is specially designed to provide improved fuel efficiency and excellent shudder control performance. GH ATF DX-VI is officially approved for use by GM and meets or exceeds the requirements of latest OEM specifications such as Ford MERCON LV, Toyota WS, Nissan Matic S, Hyundai SP-IV/SP-IV-RR. It is also suitable for most modern 6+ speed automatic transmissions.

PERFORMANCE STANDARDS

Auto Maker	Specification	Auto Maker	Specification
GM	DEXRON® VI Approved	Mercedes / Daimler	MB 236.10/11/12/14/15
	DEXRON® IIIIG, IIIH		MB 236.3/4/5/6/7/8/9/1
Toyota / Lexus	DEXRON® II, IID, IIE	Suzuki	3314, 3317
	Type C-II	Allison	TES-295/353/389
VW / Audi	Type T, T-III, T-IV	Volvo	P/N 1161521, 1161540, 1161640
	Type WS (JWS 3324)	Ford / Lincoln	WSS M2C 922A1
ZF	G 052 533/055		WSS M2C 924A
	G 052 025 (A2)	Honda	ATF-Z1(except in CVTs)
BMW	G 052 390 (A2)	Mazda	ATF Type 3.0/3.1
	G 055 025 (A2)		JWS 3317, Type T-IV
ZF	G 055 540 (A2)	Hyundai / Kia	D-II, M-III, M-V, FZ, F-1
	G 060 162 (A1, A2, A6)		SP-II, SP-IV, SP-IV RR
BMW	Lifeguardfluid6, 8	Mitsubishi	ATF Red-1K
	TE-ML 03D/04D/11A/14A/16L/17C		JWS 3309 T-4
BMW	ATF-3+	Nissan	NWS 9638 T-5
	JWS 3309 (T-IV)		Diageen SK, AW, SP-IV
BMW	LA2634, LT71141	JASO	Diageen J2, J3
	7045E, ETL-8672B		Diageen ATF-PA
BMW	83 22 0 142 516	JASO	Matic-D, Matic-J, Matic-K
	83 22 2 152 426		Matic-S, Matic-W
BMW	83 22 2 305 397		M315-2013 1A-LV, Class 1A

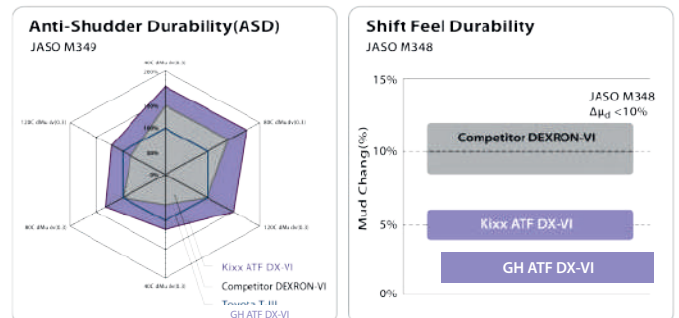
CUSTOMER BENEFITS

- OEM approved and licensed by GM(DEXRON®-VI).
- Improved fuel efficiency and shudder control performance.
- Excellent transmission cleanliness and durability by oxidation/thermal stability.
- Good start operation in cold climates thanks to its excellent low-temperature fluidity.
- Excellent friction performance and shift feel durability for comfort transmission shift.
- Exceptional wear and corrosion performance for long equipment life.

KEY PROPERTIES

Density, kg/L @15°C	0.864
Kinematic Viscosity, mm ² /s @ 40°C	30.3
Kinematic Viscosity, mm ² /s @ 100°C	6.0
Pour Point °C	-52
Flash Point °C	224
Brookfield Viscosity, cP @-20°C	864
Brookfield Viscosity, cP @-40°C	12,100
Package (Liters)	1, 4T, 200

UNIQUE FEATURES



- At least 20% longer than Competitor
- At least 30% longer than Toyota T-III

- GH ATF DX-VI consistently JASO limit

Fully Synthetic



GH ATF Multi

Top Performance Multi-vehicle Automatic Transmission Fluid

JASO 1A, GM DEXRON®-III, TOYOTA T-IV,
HYUNDAI SP-III/SP-IV

DESCRIPTION

GH ATF Multi is a high-performance, high-quality multi-vehicle fluid for automatic transmissions. (Applicable for Slip controlled lock-up clutch) It is a specially formulated fluid designed to meet the requirements of a wide range of Automatic Transmission Specifications requiring Hyundai SP-III, SP-IV, GM DEXRON® III, Ford MERCON®, MERCON V, Toyota T-IV and WS. In addition, it meets the requirements of European OEM's like Volvo CE 97340 and MB, BMW, VW, FZ 4, 5, 6 and 8-speed automatic transmission specifications. Gh ATF Multi is a special blend of high quality base stocks with an advanced additives system for use as a Service-Fill.

PERFORMANCE STANDARDS

Auto Maker	Specification	Auto Maker	Specification
VW / Audi	G 052 162 (ZF Lifeguard 5)	Hyundai / Kia	Dex-II, SP-II
	G 055 162-A2, A6 (ZF Lifeguard 6 Plus)		JWS 3314, NWS 9638
	G 060 162 (ZF Lifeguard 8)		SP-III, SP-IV, SP-IV M, SP-IV RR
	G 052 990		ATF RED 1, RED 1K
	G 055 025-A2 (JWS 3309)		ATF 3403 JLM20238
Mercedes Benz	MB 236.1, 236.2, 236.3	Jaguar	ATF 3403-M115
	MB 236.5, 236.6, 236.7		ATF L771141, ZF 5HP 24
	MB 236.8, 236.9	JASO	M315-2013 1A
			M315-2013 2A
BMW	704SE, ETL-8072B	Mazda	ATF 3317
	JWS 3309 (T-IV)		ATF D-II, F-1, FZ
	LT71141(ZF 5 HP 18FL/19FL/24A/30)		ATF M-III, M-V, N-1, S-1
Ford	MERCON®, FNR5	Mitsubishi	Diaqueen ATF PA
	WSS M2C138CJ, M2C166H		Diaqueen AW
	WSS M2C 922A1, 924A		Diaqueen J2, J3, SK
Fuso	WSS M2C 938A		Diaqueen SP-II, SP-III, SP-IV
	ATF-A4	Nissan	Matic Fluid C, D, J
	ATF-II		Matic Fluid K, S
GM	ATF-SP III		ATF 3403-M115
	DEXRON®-II, IID, IIE	Porsche	T-IV (JWS 3309)
	DEXRON®-IIIG, IIIG		ZF 5HP 19FL, 5HP 20, LT71141
	GM/GMC/Opel/Saturn V6, AW1	Subaru	ATF, ATF 5AT, ATF HP
Honda	GM966195(Aisin AW, JWS 3309)		ATF 2326, ATF 2384K
	ATF Ultra II, DW-1	Suzuki	ATF 3314, ATF 3317
	ATF-Z1(except in CVTs)		JWS 3309
Chrysler / Dodge	Type 3.0, Type 3.1	Toyota	ATF D-II, D-III, T-III, T-IV(JWS 3309)
	ATF+, +2		ATF WS(JWS 3324)
	ATF +3(MS 7176E), +4(MS 9602)	ZF	4-9 speed transmission
Isuzu	JWS 3309 (T-IV)		TE-ML 05L, 09, 11A, 11B, 21L
	Besco ATF-II	Shell	3403, M115, LA 2634
JEEP	Besco ATF-III		7045-E, 8072B, N402
	ATF+3, +4	Texaco	

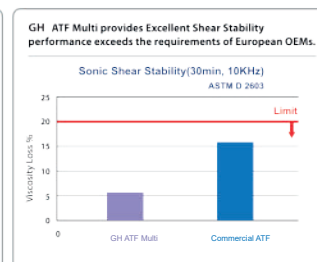
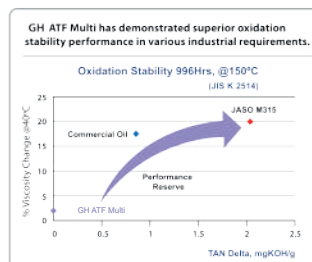
CUSTOMER BENEFITS

- Excellent anti shudder protection.
- Oxidation and thermal stability
- Provides high foam stability.
- Provides good start operation in cold climates thanks to its excellent low-temperature fluidity.
- Provides more stable friction property.
- Use for most 4~8 speed vehicles.

KEY PROPERTIES

Density, kg/L @15°C	0.845
Kinematic Viscosity, mm ² /s @ 40°C	35.6
Kinematic Viscosity, mm ² /s @ 100°C	7.0
Pour Point °C	-49
Flash Point °C	220
Brookfield Viscosity, cP @-20°C	875
Brookfield Viscosity, cP @-40°C	14,960
Package (Liters)	1, 4, 4T, 20, 200

UNIQUE FEATURES



Fully Synthetic

GH ATF DX-III

Automatic Transmission Fluid**GM DEXRON®-III , MERCON®, ALLISON C-4**

DESCRIPTION

Modern vehicle and transmission designs place increased stress on the automatic transmission fluid.

GH ATF DX-III is superior to any other past or currently ATF for uses in passenger car with automatic transmission. And It can be recommended for Automatic transmission with lock-up clutch. It provides a higher quality performance due in part by its oxidation resistance, low temperature fluidity, appropriate friction performance, high shear stability, and near sludge free operation.

APPLICATIONS

In accordance with the GM powertrain licensing requirements for the use of the DEXRON trademark, ATF DX-III may be recommended for use in automatic transmissions or other units, such as power-steering systems, industrial hydraulic systems and air compressors for which the service-fill product is specified as DEXRON®-II, DEXRON®-III or DEXRON fluid.

PERFORMANCE STANDARDS

Auto Maker	Specification	Auto Maker	Specification
GM	DEXRON®-II, IID, IIE	Mitsubishi	Diaqueen SP-II, SP-III, SP-IV
	DEXRON®-III, IIIH, TASA		Diaqueen AW
Ford	MERCON®	Nissan	Diaqueen J2
	WSS M2C 138CJ, 166H		Matic Fluid C, D, J, K
Honda	WSS M2C 922A1, 924A	Suzuki	ATF, ATF HP
	FNR5		ATF 2326, ATF 2384K
Hyundai / Kia	ATF Ultra II	Toyota	JWS 3309
	ATF-Z1 (except in CVTs)		ATF 3314, ATF 3317
JASO	SP-II, SP-III, SP-IV, SP-IV M	Volvo	ATF D-II, D-III
	JWS 3314		ATF T-III, T-IV
Allison	Red 1	VW	CE 97340
	M315-2013 1A		5HP (19FL, 24A)
	M315-2013 2A	ZF	G 055 025 A2 (JWS 3309)
	C-3 & C-4		TL 521 62
			TE-ML 09, 11A, 11B

CUSTOMER BENEFITS

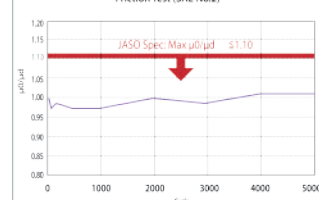
- Ensures long life-time
- Provides high foam stability.
- Provides high antirusting performance and lower sludge formation.
- Provides good start operation in cold climates thanks to its excellent low-temperature fluidity.
- Provides more stable friction property.

KEY PROPERTIES

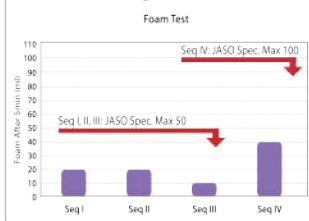
Density, kg/L @15°C	0.841
Kinematic Viscosity, mm²/s @ 40°C	33.5
Kinematic Viscosity, mm²/s @ 100°C	7.02
Pour Point °C	-48
Flash Point °C	230
Brookfield Viscosity, cP @-20°C	980
Brookfield Viscosity, cP @-40°C	11,840
Package (Liters)	1, 4T, 20, 200

UNIQUE FEATURES

GH ATF DX-III reduces shifting shock when engaging
Friction Test (SAE No.2)



GH ATF DX-III reduces generation of foam
Foam Test



Fully Synthetic



GH CVTF/ATF Dual

Top Performance Continuously Variable Transmission Automatic and Transmission Fluid

DESCRIPTION

GH CVTF/ATF Dual is a top performance multifunctional transmission fluid designed to providing superior versatility for both Automatic Transmission and Continuously Variable Transmissions(CVT) Service Fill applications.

It is a specially formulated with synthetic base oil and premium additive system to provide good balance of high friction coefficient in steel-on-steel contact and long anti-shudder durability.

APPLICATIONS

- Pushbelt or chain type Continuously Variable Transmissions (CVTs)
- Most modern automatic transmissions

PERFORMANCE STANDARDS

Auto Maker	Specification (CVTF)	Auto Maker	Specification (ATF)
Toyota	CVTF TC, CVTF FE	Toyota/Aisin	Autofluid D-II and D-III
Nissan	NS-1, NS-2, NS-3	Nissan	Type T-IV, WS, JWS 3309, 3314, 3317
Honda	Z-1, HMMF, HCF-2	Honda	Matic Fluid C, D, J, S
Mitsubishi	Diaqueen SP-III	Mitsubishi	Z-1, ATF DW-1
Mazda	Diaqueen CVTF-J1, J4, J4+	Mitsubishi	Diaqueen SP-II & IIM, SP-III
Subaru	Mazda JWS 3320	Mazda	Diaqueen AW/PA, J2, J3, ATF PA
Daihatsu	Subaru EVT, ICVT	Subaru	ATF M-III, M-V, FZ
Suzuki	Lineartronics Chain CVT	Subaru	Subaru ATF
Hyundai/Kia	Ammix CVT, CVT Fluid DC, DFE	Daihatsu	Ammix ATF D3-SP
GM	CVTF TC/3320, NS-2	Suzuki	Suzuki ATF
BMW	CVT Green 1 & 2	Isuzu	BESCO ATF-II, ATF-III
Audi	CVT J1	Hyundai/Kia	SP-III, SP-IV
		GM	Vehicles of model year 2005 and earlier
		Ford	Vehicles of model year 2006 and earlier*
		ZF	ZF manufactured 4-6 speeds ATs

CUSTOMER BENEFITS

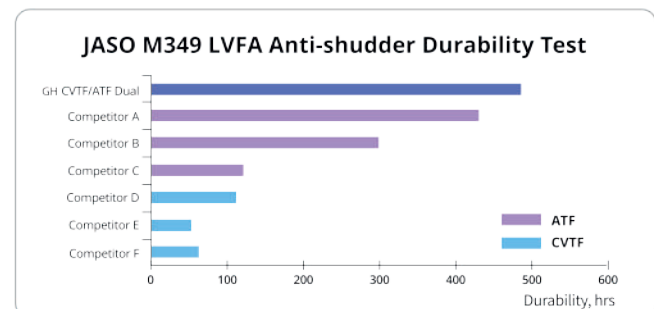
- Use for most vehicles equipped with CVT or AT
- Superior anti - shudder durability
- Maintain high steel-on-steel friction
- Extended paper friction durability in torque converter
- Retention of torque capacity on aging
- Excellent thermal and oxidation stability

KEY PROPERTIES

Appearance	Red
Density, kg/liter @15°C	0.845
Kinematic Viscosity, mm ² /s @40°C	35.8
Kinematic Viscosity, mm ² /s @100°C	7.44
Viscosity Index	181
Pour point, °C	-49
Flash point, COC, °C	214
Brookfield Viscosity, m Pas @-30°C	3,510
Brookfield Viscosity, m Pas @-40°C	11,300
Package (Liters)	4T, 200

UNIQUE FEATURES

GH CVTF/ATF Dual shows superior Anti-shudder Durability performance and high steel-on- steel friction for CVT.

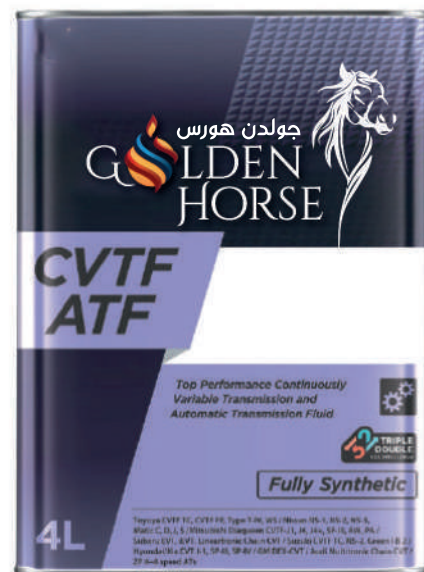


Fully Synthetic

GH CVTF

Top Performance Continuously Variable Transmission Fluid

TOYOTA TC/FE, NISSAN NS-3, MITSUBISHI SP-III



DESCRIPTION

GH CVTF is a premium quality transmission fluid designed to meet the service fill use in a broad range of Continuously Variable Transmissions(CVT).

This CVTF is a specially formulated to provide excellent driving comfort, longer life of transmission, extended service interval, excellent wear control and durability between belt and pulley. It is recommended for use in all of the push belt type CVT. And it is recommended to be used in chain type CVTs.

PERFORMANCE STANDARDS

Auto Maker	Specification
Nissan	NS-1, NS-2, NS-3
Toyota	CVTF TC CVTF FE
Subaru	iCVT, iCVT FG ECVT Lineartronic chain CVT, CVT II Lineartronic High Torque CVT
Suzuki	CVTF TC CVTF 3320 NS-2 CVTF Green 1 & 2, Green IV
Mitsubishi	CVTF-J1 CVTF-J4, J4+ SP-III (CVT model only)

* Use in Honda CVT with starting clutch is not recommended

CUSTOMER BENEFITS

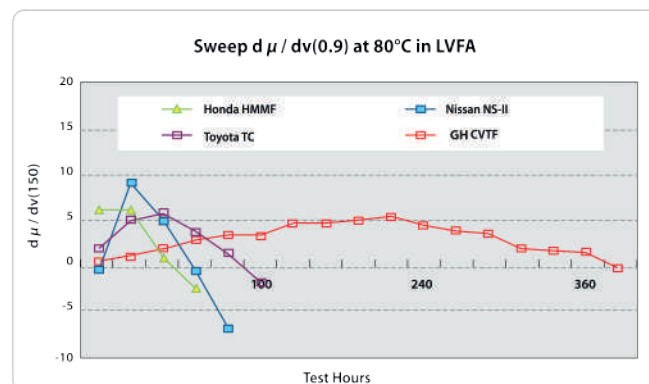
- Compatibility in multiple CVT Transmission types
- Superior anti-shudder durability.
- Maintain high steel-steel friction and extended paper friction durability
- Prevent wear at the metal-to-metal contact points on parts of transmission system.
- Provides strong oil film/good shear stability
- Excellent thermal and oxidation stability
- Excellent parts material compatibility

KEY PROPERTIES

Appearance	Red
Density, kg/L @15°C	0.845
Kinematic Viscosity, mm ² /s @ 40°C	34.7
Kinematic Viscosity, mm ² /s @ 100°C	7.36
Viscosity Index	178
Pour Point °C	-48
Flash Point °C	214
Brookfield Viscosity, cP @-20°C	970
Brookfield Viscosity, cP @-40°C	9,560
Package (Liters)	1, 4T, 20, 200

UNIQUE FEATURES

GH CVTF shows much longer anti-shudder durability performance than most popular CVTFs in the market including Toyota TC and Nissan NS-2.





Fully Synthetic

GH DCTF

Top Performance Dual Clutch Transmission Fluid

VW 6-SPEED DCT, BMW 6&7-SPEED DCT

DESCRIPTION

GH DCTF is a high performance, premium DCT fluid specifically designed for use in service-fill applications for a wide range of OEM vehicles equipped with European, Asian and U.S. wet dual clutch transmissions. It was formulated with synthetic base oil and the latest advanced additive technology chosen by various OEMs for their next generation wet-DCT applications.

PERFORMANCE STANDARDS

Auto Maker	Specification	Auto Maker	Specification
VW / Audi	TL 052 182	Mitsubishi	TC-SST 6-speed (GFT)
	TL 052 529		MZ320065 Diaqueen SSTF-1
	G 052 529 A2 or A6	Peugeot / Citroen	DCS 6-speed(GFT)
VW(Audi/Seat/Skoda)	6-speed DCT		9734.S2
	6-speed DCT	Volvo	Powershift 6-speed(GFT)
	Driveologic 7-speed(Getrag)		1161838, 1161839
BMW	DCTF-1	Chrysler	Powershift 6-speed(Getrag)
	Powershift 6-speed(GFT)		EDC 6-speed(Getrag)
	M2C936A	ZF/Porsche	999.917.080.00

CUSTOMER BENEFITS

- Improved friction performance to provide shudder free driving experience.
- Excellent oxidation control to provide longer fluid life.
- Exceptional anti-corrosion performance for better hardware protection.
- Superior parts durability for hardware protection.
- Very good low temperature characteristics and high shear resistance.
- Increased fuel economy.

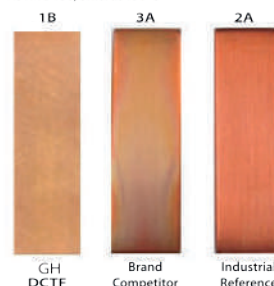
KEY PROPERTIES

Appearance	Amber & Clear
Density, kg/L @15°C	0.846
Kinematic Viscosity, mm ² /s @ 40°C	35.3
Kinematic Viscosity, mm ² /s @ 100°C	7.2
Viscosity Index	172
Pour Point °C	-50
Flash Point °C	210
Brookfield Viscosity, cP @-20°C	945
Brookfield Viscosity, cP @-40°C	11,760
Package	1, 4, 200

UNIQUE FEATURES

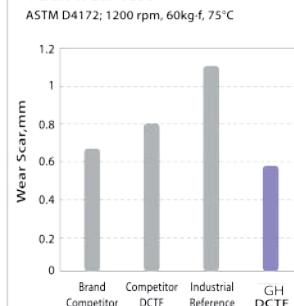
Copper Corrosion

ASTM D130; 3hrs. at 150°C



4 Ball Wear Test

ASTM D4172; 1200 rpm, 60kg-f, 75°C



Fully Synthetic

GH Gearsyn GL-4/5

*Premium Manual Transmission and Axle Fluid
providing ideal protection and performance*

API GL-4, GL-5



DESCRIPTION

Premium performance Total Driveline Lubricants(TDL) formulated with PAO & VHVI synthetic base oil and latest advanced additive technologies to provide extremely loaded automotive gear protection and outstanding synchromesh performance. It is recommended for use in both transmission and axle applications.

APPLICATIONS

Light and heavy duty automotive axles and spiral-bevel, worm gear differentials automotive manual transmission and transaxles heavily loaded axle and synchronized or non-synchronized gear-boxes.

PERFORMANCE STANDARDS

- API GL-4, GL-5

CUSTOMER BENEFITS

Longer fluid and equipment life

Outstanding oxidation and thermal stable performances help resist oil degradation and prevent damage to gears, bearings and seals from harmful deposits.

Excellent gear protection and synchronizer performance

The Special new additive technologies provide good load carrying capacity and wear protection, and also provide excellent and stable synchromesh compatibility.

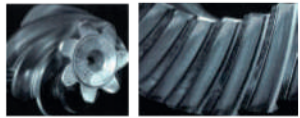
Superior cold performance and fuel efficiency

The wide temperature range capability of the PAO based synthetic base fluid ensures correct oil viscosity which reduces friction at low temperature and provides maximum lubrication during high temperature operation.

KEY PROPERTIES

SAE Viscosity	75W-90
Density, kg/L @15°C	0.867
Kinematic Viscosity, mm ² /s @ 40°C	82.8
Kinematic Viscosity, mm ² /s @ 100°C	14.7
Viscosity Index	186
Pour Point °C	-46
Flash Point °C	220
Brookfield Viscosity, m Pas @-40°C	30400
Package (Liters)	1,4T,200

UNIQUE FEATURES

Superior Thermal Stability	Excellent Load Carrying and Antiwear
Superior thermal stability performance which meets the OEM requirements for axle and transmission. 	Excellent resisting gear wear and scuffing under severe conditions 



GH Geartec FF GL-4

*Top Performance Transmission & Transaxle
Fluid for FF Vehicles*

API GL-4, MIL-L-2105D

DESCRIPTION

GH Geartec FF GL-4 is a high-performance gear lubricant suitable for transaxle of FF vehicles (front engine front wheel drive). Especially, it is suitable for the transaxle of FF vehicles that need high quality gear lubricant which provides outstanding oxidation resistance under extremely high temperature condition as well as excellent shear stability. GH Geartec FF GL-4 is made from high quality base oils and additives which provide wear resistance, oxidation stability, anti-rust and anticorrosion qualities as well as excellent shear stability.

PERFORMANCE STANDARDS

- API GL-4
- MIL-L-2105D

CUSTOMER BENEFITS

- Reduces operating costs by minimizing wear and extending equipment life.
- Long service life by resisting oxidation and oil thickening.
- Protects against corrosion of ferrous and non-ferrous components.
- Protects gears in severe service through its excellent load-carrying and EP properties.
- Lubricates effectively over a wide temperature range.

KEY PROPERTIES

SAE Grade	75W-85
Density, kg/L @15°C	0.87
Kinematic Viscosity, mm ² /s @ 40°C	72.35
Kinematic Viscosity, mm ² /s @ 100°C	12.32
Viscosity Index	169
Pour Point °C	-40
Flash Point °C	210
Package (Liters)	1,4T,20,200



GH Geartec GL-4

Top Performance Manual Transmission Fluid

API GL-4, MIL-L-2105D

DESCRIPTION

GH Geartec GL-4 is a high quality, mild-EP automotive gear lubricant designed for applications where API GL-4 performance is required.

APPLICATIONS

- Automotive manual synchromesh transmissions and transaxles, particularly where the manufacturer specifically advises against the use of API GL-5 lubricants
- Automotive spiral-bevel and worm gear differentials
- Automotive steering gears
- Tractor and agricultural gear sets, and oil-lubricated track rollers of crawler tractors
- Industrial applications for which API GL-4 lubricants are suitable

PERFORMANCE STANDARDS

- API GL-4
- MIL-L-2105D

CUSTOMER BENEFITS

Lower maintenance

The special mild-EP additive and corrosion inhibitor system are non-corrosive towards sensitive copper alloy components and protects ferrous metals against rusting in the presence of moisture. Good thermal stability keeps gear cases and bearings clean and free from harmful deposits.

Longer gear equipment life

The special sulfur-phosphorus mild-EP additive system provides good load carrying capacity which also helps resist gear tooth wear and scoring.

Long oil service life

The highly refined base oil and special inhibitor system provide good oxidation stability which help resist oil degradation and thickening in service.

KEY PROPERTIES

SAE Grade	80W-90	85W-140
Density, kg/L @15°C	0.874	0.889
Kinematic Viscosity, mm ² /s @ 40°C	133.1	319.0
Kinematic Viscosity, mm ² /s @ 100°C	14.37	26.20
Viscosity Index	107	108
Pour Point °C	-39	-33
Flash Point °C	225	238
Package (Liters)	200	200

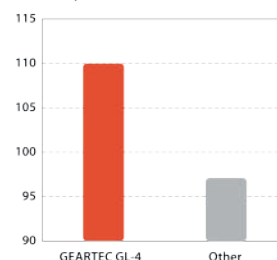
UNIQUE FEATURES

High Quality, mild-EP automotive gear lubricant

(API GL-4, MIL-L-2105, SAE 90, 80W-90, 85W-140)

- GH Geartec GL-4 is formulated from highly refined base oil and special additive.
- It provides high VI, good oxidation and thermal stability.

Viscosity Index



GH Geartec GL-5

Top Performance Manual Transmission and Axle Fluid

API GL-5, MIL-L-2105D



DESCRIPTION

GH Geartec GL-5 is a high-performance, multipurpose, thermally stable, EP automotive gear lubricant.

APPLICATIONS

- Recommended for automotive hypoid gear applications requiring lubricants meeting MIL-L-2105D, MIL-L-2105C, MIL-L-2105B, API Service GL-5 or where EP, multi-purpose or hypoid type gear oils are specified.
- Recommended where loading is severe and maximum gear protection is required. "Clean gear" technology makes it particularly suitable where gear oil temperatures are high.
- Not recommended for manual transmissions and transaxles where the manufacturer specifies API GL-4(mild-EP) lubricants, or where the manufacturer advises against the use of API GL-5(multipurpose, hypoid) lubricants.

PERFORMANCE STANDARDS

- API GL-5
- MIL-L-2105D

CUSTOMER BENEFITS

Provides long equipment life by resisting gear wear and scuffing. Maximizes equipment availability by avoiding premature failure or need for overhaul due to deposit-induced seal wear and leakage. Assists smooth shifting in manual transmissions by controlling glazing and coking of friction surfaces in synchronizing mechanisms. Provides long oil service life by resisting oxidation and oil thickening. Provides against corrosion of ferrous and non-ferrous components.

KEY PROPERTIES

SAE Grade	75W-90	80W-90	85W-140	90	140
Density, kg/L @15°C	0.869	0.875	0.880	0.877	0.881
Kinematic Viscosity, mm ² /s @ 40°C	85.7	136.7	306.6	176.7	316.1
Kinematic Viscosity, mm ² /s @ 100°C	14.56	14.65	25.68	17.51	26.18
Viscosity Index	178	107	109	107	109
Pour Point °C	-43	-38	-32	-34	-30
Flash Point °C	225	208	210	232	232
Package (Liters)	1, 4, 4T, 20, 200	1, 4, 4T, 18, 20, 200	1, 4, 18, 20, 200	200	200

UNIQUE FEATURES

High performance, thermally stable, EP automotive gear lubricant
(API GL-5, MIL-L-2105D, SAE 80W-90, 85W-140)

Very Good Anti-wear Performance

High quality base oil and additive provides good resisting gear wear and scuffing under severe conditions



GH



other

Outstanding thermal & oxidation stability

GH product is superior to other products in oxidation test under 150°C, 96 hours. (Oxidation Test Method : JIS K2514)



GH



other



GH Geartec TO-4

Top Performance Off-road Transmission and Hydraulic Fluid

CATERPILLAR TO-4, ZF TE-ML 03C, 07F

DESCRIPTION

GH Geartec TO-4 is specially formulated heavy duty transmission fluid for off-highway power-shift transmission device and hydrodynamic power shift, modern engineering machineries meeting the performance requirements of Caterpillar TO-4, Allison C-4 and other off-road equipment specification.

APPLICATIONS

GH Geartec TO-4 is recommended for heavy duty off-highway equipment. It meets performance requirements and can be used in applications where manufactures recommend the use of Caterpillar TO-4 and Allison C-4 automatic or power-shift Transmission.

- Off-Road Transmission and associated equipment
- Automotive manual transmissions and gearboxes
- Hydraulic systems
- Enclosed oil immersed (wet) brakes

PERFORMANCE STANDARDS

- Caterpillar TO-4
- Allison C-4(off-road), TES-439
- API GL-4
- Eaton I-280-S
- ZF TE-ML 03C, 07F Approved
- Komatsu KES 07.868.1
- Caterpillar TO-2
- Vickers M-2950-S

CUSTOMER BENEFITS

Maximizes transmission life

Extremely shear stable formulation maintains film thickness under severe transmission and hydraulic system operation, protecting vital components against scuffing and wear. Effective anti-wear additive also reduces wear by forming a protective layer on metal surfaces under high load conditions.

Longer oil life

Very high oxidation stability protects against the formation of gums and varnishes, reducing oil thickening and increasing oil life.

Saves on maintenance

Highly refined base oils and effective oxidation inhibitors provide

excellent thermal and oxidation stability, providing superior resistance to the formation of lacquer, deposits and corrosive oil degradation by-products. Excellent viscosity characteristics at low temperatures ensure rapid oil circulation on start-up, preventing wear which contributes to power loss.

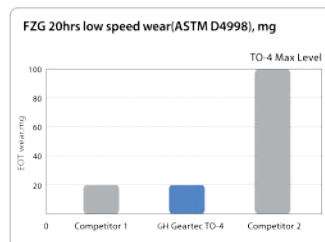
Smooth and quiet operation

Special friction modifier component allows smooth action of the wet brakes and power take off clutches minimizing chatter, stick slip and squawk and ensures maximum brake efficiency.

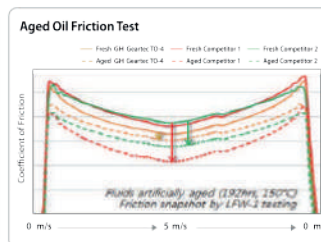
KEY PROPERTIES

SAE Viscosity	10W	30	50
Density, kg/L @15°C	0.865	0.874	0.879
Kinematic Viscosity, mm ² /s @ 40°C	40.4	90	192
Kinematic Viscosity, mm ² /s @ 100°C	6.5	11.1	18.7
Viscosity Index	113	108	107
Pour Point °C	-41	-37	-31
Flash Point °C	232	266	270
Viscosity, CCS, cP @ -20°C	2,420	9,645	32,099
Package (Liters)	200	200	200

UNIQUE FEATURES



- GH Geartec TO-4 demonstrates excellent performance in FZG low speed wear testing for wear under low speed, high load conditions
- Low speed, high load is common in construction and mining machinery



- Outstanding friction performance from fill to drain
- Little variation in aged-fluid friction with GH Geartec TO-4, compared to competitor fluids

GH THF

Top Performance Multi-functional Tractor Oil / UTTO

JOHN DEERE JDM J20C/D, API GL-4



DESCRIPTION

GH THF is a high quality, multi-functional, specially formulated universal tractor transmission oil(UTTO) for use in transmissions, hydraulic systems and final drives of modern farm and industrial wheel and crawler tractors.

APPLICATIONS

- Where tractor manufacturers specify the use of a THF/UTTO type product
- Mixed fleets of agricultural tractors and associated equipment
- Automotive manual transmissions and gear boxes
- Mobile hydraulic system
- Enclosed oil immersed (wet) brakes
- Power take off (PTO) clutches.

PERFORMANCE STANDARDS

- API GL-4
- John Deere JDM J20C, J20D
- CNH Case / New Holland MAT 3525, 3526, FNHA-2-C-201, M2C92A, 134-D
- Massey Ferguson CMS M1135, M1141, M1143, M1145
- Case MS-1206, MS-1207, MS-1210
- Allison C-3/C-4, Caterpillar TO-2
- Komatsu Dresser B-06-0001, B-06-0002
- Kubota UDT, Volvo CE WB101
- ZF TE-ML 03E, 03F, 05F, 06K

CUSTOMER BENEFITS

Maximizes transmission life

Extremely shear stable formulation maintains film thickness under severe transmission and hydraulic system operation, protecting vital components against scuffing and wear. Effective anti-wear additive also reduces wear by forming a protective layer on metal surfaces under high load conditions.

Longer oil life

Very high oxidation stability protects against the formation of gums and varnishes, reducing oil thickening and increasing oil life.

Saves on maintenance

Highly refined base oils and effective oxidation inhibitors provide excellent thermal and oxidation stability, providing superior resistance to the formation of lacquer, deposits and corrosive oil degradation by-products. Excellent viscosity characteristics at low temperatures ensure rapid oil circulation on start-up, preventing wear which contributes to power loss.

Smooth and quiet operation

Special friction modifier component allows smooth action of the wet brakes and power take off clutches minimizing chatter, stick slip and squawk and ensures maximum brake efficiency.

KEY PROPERTIES

SAE Grade	80W
Density, kg/L @15°C	0.866
Kinematic Viscosity, mm ² /s @ 40°C	55.75
Kinematic Viscosity, mm ² /s @ 100°C	9.506
Viscosity Index	155
Pour Point °C	-47
Flash Point °C	232
Viscosity, Brookfield cP @ -18°C	2,440
Foam Test, ml, Sequence I	5/0
Foam Test, ml, Sequence II	10/0
Foam Test, ml, Sequence III	5/0
Copper Corrosion, 100°C x 3hrs	1a
Package (Liters)	20, 200



Fully Synthetic

GH PSF

Top Performance Power Steering Fluid

ALLISON C-4, DEXRON®-III

DESCRIPTION

GH PSF is specially designed for use in power steering system applications over a wide temperature range, which is also meets the service requirements of many OEMs such as DEXRON®-II, DEXRON®-III, Allison C-4, etc. It is a high quality performance which meets oxidation resistance, low temperature fluidity, appropriate friction performance, high shear stability.

APPLICATIONS

- Power steering units (Passenger cars, trucks, buses, etc) for service-fill product is specified as DEXRON®-II, DEXRON®-III fluid.

PERFORMANCE STANDARDS

- General Motors DEXRON®-II, DEXRON®-III
- Allison C-4

CUSTOMER BENEFITS

- Ensures long life-time.
- Provides high foam stability.
- Provides excellent corrosion prevention.
- Provides good start operation in cold climates by excellent low-temperature fluidity.
- Provides more stable friction property.

KEY PROPERTIES

Appearance	Red
Density, kg/L @15°C	0.844
Kinematic Viscosity, mm²/s @ 40°C	34.3
Kinematic Viscosity, mm²/s @ 100°C	7.2
Viscosity Index	180
Pour Point °C	-48
Flash Point °C	212
Brookfield Viscosity, m Pas @-20°C	1,050
Brookfield Viscosity, m Pas @-40°C	11,000
Package (Liters)	1

Fully Synthetic

GH PSF III

*HMC PSF-3 Power Steering Fluid***HMC PSF 3**

DESCRIPTION

GH PSF III is a high performance, wide temperature range, shear stable, antiwear power steering fluid.

APPLICATIONS

- Power steering units (where Hyundai Motor Company recommend a PSF-3 fluid)

PERFORMANCE STANDARDS

- Hyundai, Kia Power Steering Fluid Specification(HMC MS 517-16, PSF-3)

CUSTOMER BENEFITS

- Shear stable viscosity index improver resists break down under high shear conditions found in modern power steering units, ensuring that the oil viscosity and film thickness continue to protect the moving components.
- Combination of carefully blended friction modifiers, base oil viscosity and shear stable viscosity index improvers provides optimum frictional characteristics, ensuring easy operation.
- Oxidation inhibitors, combined with highly refined basestocks, provide a level of oxidation resistance and thermal stability which prevents acid build up, oil thickening, and the formation of gum, varnish and sludge.
- Distinctive coloring is effective in highlighting leakage, so specially dyed fluids are not required where leak detection is critical.

KEY PROPERTIES

Appearance	Red
Density, kg/L @15°C	0.844
Kinematic Viscosity, mm ² /s @ 40°C	32.6
Kinematic Viscosity, mm ² /s @ 100°C	7.2
Viscosity Index	194
Pour Point °C	-48
Flash Point °C	210
Brookfield Viscosity, m Pas @-40°C	8,260
Package (Liters)	200



Fully Synthetic

GH PSF IV

HMC PSF-4 Power Steering Fluid

HMC PSF 4

DESCRIPTION

GH PSF IV is a premium performance automotive power steering fluid specially designed to meet Hyundai, Kia requirements over a wide temperature range. It is also premium formula which uses high quality base stocks (including PAO), additives and provides optimum protection in power steering systems of modern vehicles.

APPLICATIONS

GH PSF IV is ideal for use in the power steering systems of modern Hyundai and Kia vehicles. It exceeds the severe Hyundai, Kia power steering fluid specification. It is recommended for gasoline and diesel passenger cars, buses and trucks.

PERFORMANCE STANDARDS

- Hyundai, Kia Power Steering Fluid Specification (HMC MS 517-16, PSF-4)

CUSTOMER BENEFITS

- Provides good start operation in cold climates thanks to its excellent low-temperature fluidity.
- Protects power steering system against wear and ensures long life-time.
- Provides high foam stability, oxidation and corrosion stability.
- Provides high anti-rusting performance and lower sludge formation.
- Provides more stable friction property.

KEY PROPERTIES

Density, kg/L @15°C	0.839
Kinematic Viscosity, mm ² /s @ 40°C	25.9
Kinematic Viscosity, mm ² /s @ 100°C	7.23
Viscosity Index	268
Pour Point °C	-51
Flash Point °C	180
Brookfield Viscosity, cP @-20°C	355.9
Brookfield Viscosity, cP @-30°C	780.8
Brookfield Viscosity, cP @-40°C	2,212
Package (Liters)	200

GH Brake

Top Performance Automotive Brake Fluid

DOT 3, DOT 4



DESCRIPTION

GH Brake is a premium, non-petroleum automotive brake fluid, designed for use in a wide range of conventional hydraulic brake and clutch systems in severe service conditions or where DOT fluids are recommended.

PERFORMANCE STANDARDS

- DOT-3: FMVSS No. 116 DOT 3, SAE J1703, ISO 4925
- DOT-4: U.S. Federal Motor Vehicle Safety Standard (FMVSS) No. 116 DOT 4, SAE J1704, ISO 4925

CUSTOMER BENEFITS

Excellent braking response

Low volatility minimizes vapor formation over a wide temperature range, ensuring good braking performance and providing an additional margin of safety against vapor lock under more severe service conditions.

Reliable operation in severe service

High thermal and oxidation stability provides resistance to fluid degeneration and formation of harmful deposits, even under severe service conditions.

Saves on maintenance

Compatible with all metallic, plastic and elastomer components, providing continuous corrosion protection and lubrication throughout the brake/clutch system.

Reduces inventory costs

Widespread suitability for different motor vehicles as it may be used in systems designed for DOT 3, DOT 4.

KEY PROPERTIES

FMVSS Grade	DOT 3	DOT 4
Specific Gravity	1.07	1.1
Equilibrium Reflux Boiling Pt., °C	234	258
Wet Equilibrium Reflux Boiling Pt., °C	151	163
Kinematic Viscosity, cSt @ 40°C	1225	1073
Kinematic Viscosity, cSt @ 100°C	2.8	2.1
pH	9.58	8.64
Package (Liters)	0.5,200	0.5,200



GH AF Coolant HD

Top Performance Extended Life Antifreeze Coolant

DESCRIPTION

GH AF Coolant HD is an Extended Life Antifreeze Coolants based on ethylene glycol and phosphate using Hybrid Organic Acid Technology (HOAT) without amine, borate, nitrate and silicate. It has been designed for use and can be used in all models of foreign and domestic passenger vehicles, light duty and heavy duty diesel applications especially for heavy duty use. It will provide extended protection against rust, erosion, galvanized corrosion and pitting caused by cavitation for all coolant system metals, including aluminum. It offers excellent protection against temperature extremes, preventing freeze-up and boil over when used in accordance with OEM and product manufacturer's guidelines regarding product dilution. The superior performance and stability of this premium extended life corrosion inhibitor package allows the product to go on working well beyond the lifetime of traditional products.

APPLICATIONS

- Large trucks and buses, automotive vehicles, cars, such as for filling and supplement.
- Industrial vehicles, machinery and equipment, filling and cooling system supplement.
- Marine institutions of cooling device filling and supplement.
- Aircraft de-ice for the filling and supplement.

PERFORMANCE STANDARDS

- ASTM D 3306, D 4985, D 6210
- JIS K 2234
- KS M 2142

CUSTOMER BENEFITS

When used as a 50% coolant in softened or de-ionized water, GH AF Coolant HD offers the following advantages

- Compatible with other extended life heavy duty diesel coolants such as Caterpillar ELC.

- Compatible with Coolant Extenders currently used with OAT based heavy duty diesel coolants.
- Does not require the use of traditional SCAs (Supplemental Coolant Additives).
- Hard water compatible.
- Excellent liner cavitation protection.
- Excellent high temperature aluminium protection.
- Can be used 10 years or 200,000km for passenger car.

Freezing and boiling protection provided by various concentrations of GH AF Coolant HD are as follows:

Amount of GH AF Coolant HD for Freezing and Boiling Protection		
Coolant in Water (vol.%)	Down to (°C)	Increase (°C)
60	-52	10
50	-36	8
40	-25	6
30	-16	4

KEY PROPERTIES

Test Item		Specification	Typical Value
Specific Gravity	Undiluted	1.12~1.15	1.136
Freezing point, °C	30% vol% solution in water	Max -14.5	-15.2
	50% vol% solution in water	Max -34.0	-36.5
Boiling point, °C	Undiluted	Min 155	165
Foaming, ml/s	30% vol% solution in water	Max 4	0
Reserve alkalinity, ml	Undiluted	Report	12.8
PH	30% vol% solution in water	7.0~9.0	7.74
	50% vol% solution in water	7.0~9.0	7.81
Water, wt %	Undiluted	Max 5.0	4.25
Package (Liters)		1,200	

GH AF Coolant

Top Performance Antifreeze / Coolant

ASTM D 3306



DESCRIPTION

GH AF Coolant is a premium quality, ethylene glycol based anti-freeze coolant concentrate, designed primarily to meet the stringent corrosion protection requirements of late model car engines which have a significant amounts of aluminum in their construction. It is dyed a distinctive color for easy identification.

APPLICATIONS

- Primarily recommended for late model passenger car and light commercial vehicle engines where enhanced protection of aluminum heat-rejecting surfaces is required. It can also be used in certain cast iron, heavy-duty diesel engines, particularly, European dry-liner and "no-liner" designs, which operate without supplemental coolant additives(SCAs).
- GH AF Coolant is a coolant concentrate designed to be mixed with clean water. It is not a pre-diluted product. For optimum year-round protection a concentration of 50 percent solution of GH AF Coolant in water is recommended.
- Freezing and boiling protection provided by various concentrations of GH AF Coolant are as follows:

Amount of GH AF Coolant for Freezing Protection 8L Boiling Point

Coolant in Water(vol.%)	Down to(°C)	Increase(°C)
60	-52	10
50	-37	8
40	-24	6
33	-18	5

Should not be used at concentrations more than 67 percent or less than 33 percent

PERFORMANCE STANDARDS

- ASTM D 3306

CUSTOMER BENEFITS

- Protects cooling systems from corrosion and deposits.
- Provides a higher boiling point for protection against engine overheating.
- Prevents coolant freezing.
- Maximizes aluminum engine component life.
- Long service life.
- Compatible with hard tap water.

KEY PROPERTIES

Test Item		Specification	Typical Value
Specific Gravity	Undiluted	1.114 min	1.122
Freezing point, °C	30% vol% solution in water	-14.5 max	-15.7
	50% vol% solution in water	-34.0 max	-36.6
Boiling point, °C	Undiluted	155 min	170
Foaming, ml	30% vol% solution in water	4 max	0
Reserve alkalinity, ml	Undiluted	Report	22.6
PH	30% vol% solution in water	7.0~11.0	8.36
Water, wt %	Undiluted	5 max	3.91
Package (Liters)			1, 3, 200



GH RA Coolant

Top Performance Radiator / Coolant

DESCRIPTION

GH RA Coolant is a premium quality, ethylene glycol based amine-phosphate type coolant, which is pre-mixed with ionized water (80%). It is designed primarily to meet the corrosion protection requirements of late model car engines having significant amounts of aluminum in their construction. It is dyed a distinctive color for ready identification.

APPLICATIONS

- Primarily recommended for late model passenger car and light commercial vehicle engines where enhanced protection of aluminum heat-rejecting surfaces is required. It can also be used in certain cast iron, heavy-duty diesel engines, which operate without supplemental coolant additives(SCAs).
- GH RA Coolant is a pre-diluted coolant with clean water. Its freezing point is about -8°C, boiling point increases about 3°C.

PERFORMANCE STANDARDS

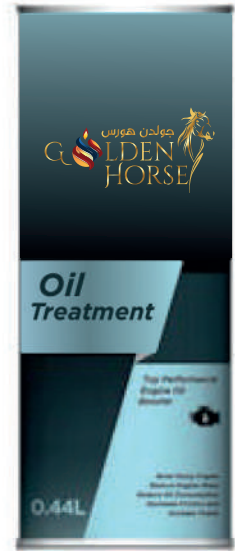
- ASTM D 3306
- KS M2142
- JIS K2234

CUSTOMER BENEFITS

- Protects cooling systems from corrosion and deposits.
- Provides higher boiling point for protection against engine overheating.
- Prevents coolant freezing.
- Maximizes aluminum engine component life.
- Long service life.

KEY PROPERTIES

Test Item		Specification	Typical Value
Specific Gravity	Undiluted	1.020~1.028	1.028
Freezing point, °C	Undiluted	-7 max	-8.1
Boiling point, °C	Undiluted	100 min	103
Foaming, ml	Undiluted	10 max	0
PH	Undiluted	6.0~11.0	8.24
Package (Liters)		0.5, 4, 200	



GH Oil Treatment

Top Performance Engine Oil Booster

DESCRIPTION

GH Oil Treatment is a high quality, shear-stable, oil booster specially designed to help for engine oil maintain its stay-in-grade. it contains a shear stable viscosity index improver, a lubricity agent, a corrosion fighter and acid-inhibitor additives.

APPLICATIONS

- Booster for gasoline engine in passenger car.
- Booster for diesel engine in light and heavy duty truck.

CUSTOMER BENEFITS

- Reduce engine wear
- Decrease friction and increase power
- Reduce oil consumption
- Quiet noisy engine

RECOMMENDED USES

- Add GH Oil Treatment to your engine oil when engine is warm.
- Use 1 can of GH Oil Treatment with 4ℓ of engine oil (Approximately 10% GH Oil Treatment).
- Add GH Oil Treatment when you change oil or between oil change.

KEY PROPERTIES

Density, kg/L @15°C	0.8486
Viscosity, cSt @ 100°C	374
Package (Liters)	0.444



GH Engine Clean

Top Performance Engine Flushing Oil

DESCRIPTION

GH Engine Clean, highly effective engine flushing oil is intended for clearing the buttered system of carbonaceous and varnish adjournment of gasoline and diesel engines of all types and also mechanical transmissions and allowing transition to oils with higher operational properties. It is recommended for use at transition from mineral oils to semi synthetic and synthetic oils.

APPLICATIONS

- Restores mobility of piston rings.
- Prevents blocking of hydrojacks and eliminates their knock.
- In the course of washing oil channels, other knots of the engine are cleared of harmful adjournment formed while in service.
- Application is recommended at each replacement of oil.

FLUSHING STEPS

- Drain old engine oil from system, having to have the used but-tered filter in place.
- Then fill oil system with engine flush oil (no less than 75 % from necessary volume of oil in the engine).
- Start the engine and allow it to work idly in a current for 20 minutes.
- Then drain engine flush oil from system, change the oil filter and fill in with new engine oil.

KEY PROPERTIES

ISO VG Grade	32
Density, kg/L @15°C	0.8535
Kinematic Viscosity, mm ² /s @ 40°C	30.19
Kinematic Viscosity, mm ² /s @ 100°C	5.4
Viscosity Index	114
Pour Point °C	-15
Flash Point °C	228
Package (Liters)	1, 4T, 200

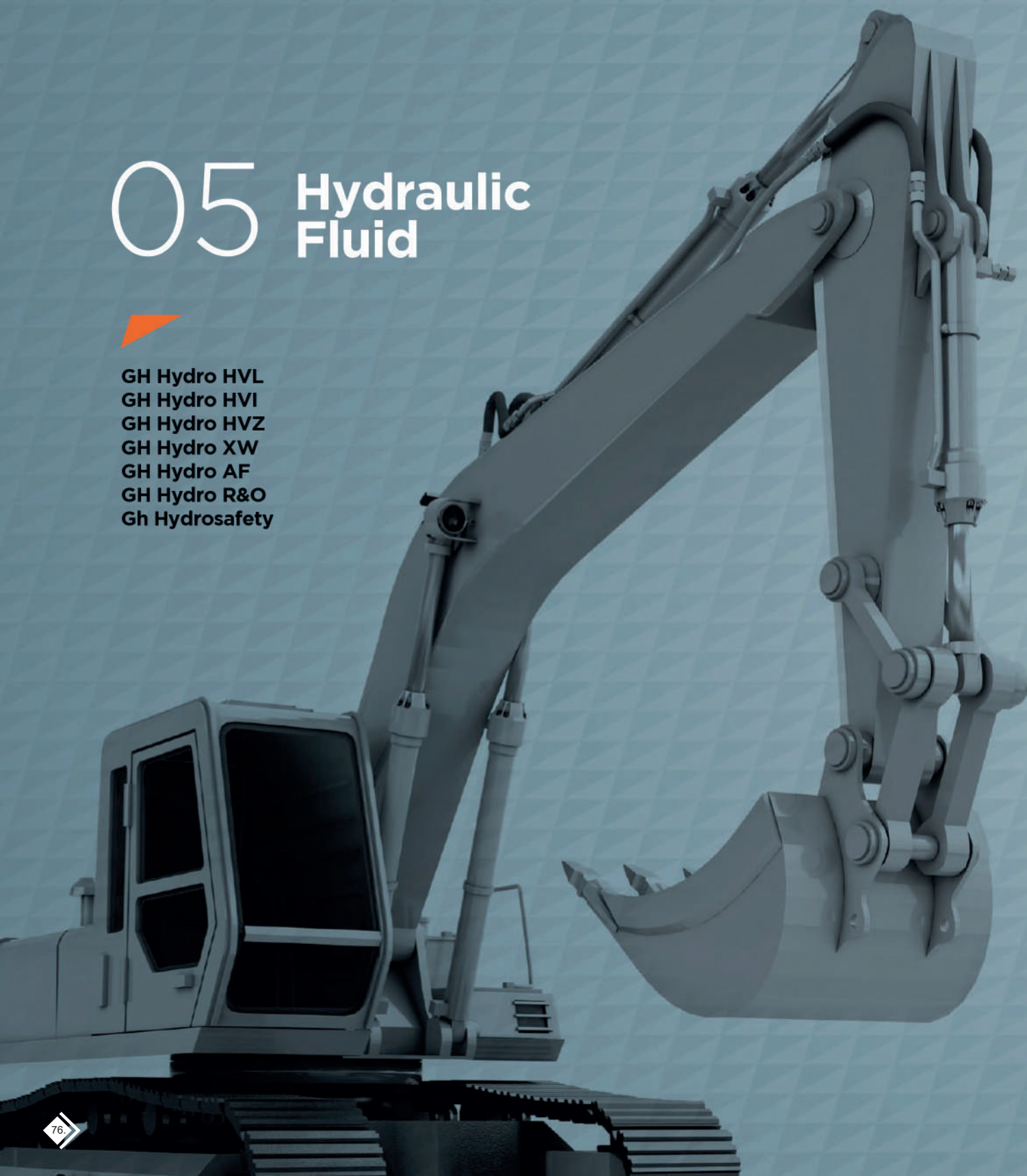
Golden Horse

The perfect fit for your machinery

05 Hydraulic Fluid



GH Hydro HVL
GH Hydro HVI
GH Hydro HVZ
GH Hydro XW
GH Hydro AF
GH Hydro R&O
Gh Hydrosafety



Hydraulic Fluid



GH Hydro HVL

Premium Long-life Antiwear Hydraulic Fluid for Excavator

ISO VG 46

DESCRIPTION

GH Hydro HVL is a premium quality, shear stable, multi-viscosity, anti-wear hydraulic fluid, designed for use in hydraulic systems subjected to wide variations in ambient and operating temperatures. It is specifically designed to meet the long-life hydraulic oil requirement of construction equipment. (Excavator : 5000 hrs)

APPLICATIONS

- Industrial hydraulic equipment subject to wide variation in temperatures
- Hydraulic Systems in mobile, construction and agricultural equipment
- Industrial Hydraulic systems with vane, gear or piston pumps
- Enclosed gears operating under moderate load conditions
- Industrial circulating systems where a rust and oxidation inhibitor or antiwear oil is required

PERFORMANCE STANDARDS

GH Hydro HVL meets performance standards as below.

- Denison Hydraulics HF-0
- Vickers I-286-S [industrial applications], M-2950-S [mobile applications]
- Bosch Rexroth RE 90 220
- ISO Standard 6743 Part 4, Type HV
- GB 11118.1-2011, L-HV
- DIN 51524 Part 3, HVLP

CUSTOMER BENEFITS

Wide temperature application

Shear stable, multi-viscosity characteristics reduce the risk of breakdown in high pressure & high load hydraulic systems which operate over a wide temperature range.

Longer equipment life

Special anti-wear additive package reduces wear by protecting surfaces when applied load causes breakdown of the lubricating film.

Reduced downtime

Effective rust and oxidation inhibitor system prevents

- the production of abrasive particles from rust & deposits
- varnishes and sludges from oil breakdown which can damage equipment surfaces & seals
- filters being blocked prematurely

Trouble-free operation

Good hydrolytic stability and water separation characteristics provide excellent filterability in the presence of water contamination. Good anti-foam and air release properties ensure smooth operation and system efficiency.

Extended oil service life

High oxidation stability resists oil thickening and deposit formation in service, eliminating the need for unscheduled change of hydraulic fluid.

KEY PROPERTIES

ISO VG	46
Specific Gravity, 15 °C	0.852
Kinematic Viscosity, mm ² /s @ 40°C	46.5
Kinematic Viscosity, mm ² /s @ 100°C	8.0
Viscosity Index	147
Pour Point °C	-45
Flash Point °C	243
Copper Corrosion, 100°C/3hr	1a
Rust Preventive, Sea Water	Pass
Demulsibility, min	15
Package (Liters)	20



GH Hydro HVI

Premium Wide Temperature Range Antiwear Hydraulic Fluid for Excavator

ISO VG 46

DESCRIPTION

GH Hydro HVI is a premium quality, shear stable, multi-viscosity, anti-wear hydraulic fluid, designed for use in hydraulic systems subjected to wide variations in ambient and operating temperatures. It is designed for excavators to meet the requirements of major manufacturers and users of hydraulic system (Excavator : 2000 hrs).

APPLICATIONS

- Industrial hydraulic equipment subject to wide variation in temperatures
- Hydraulic Systems in mobile, construction and agricultural equipment
- Industrial Hydraulic systems with vane, gear or piston pumps
- Enclosed gears operating under moderate load conditions
- Industrial circulating systems where a rust and oxidation inhibitor or antiwear oil is required

PERFORMANCE STANDARDS

GH Hydro HVI meets performance standards as below.

- Denison Hydraulics HF-0
- Vickers I-286-S [industrial applications], M-2950-S [mobile applications]
- Bosch Rexroth RE 90 220
- ISO Standard 6743 Part 4, Type HV
- GB 11118.1-2011, L-HV
- DIN 51524 Part 3, HVL

CUSTOMER BENEFITS

Wide temperature application

Shear stable, multi-viscosity characteristics reduce the risk of breakdown in high pressure & high load hydraulic systems which operate over a wide temperature range.

Longer equipment life

Special anti-wear additive package reduces wear by protecting surfaces when applied load causes breakdown of the lubricating film.

Reduced downtime

Effective rust and oxidation inhibitor system prevents

- the production of abrasive particles from rust & deposits
- varnishes and sludges from oil breakdown which can damage equipment surfaces & seals
- filters being blocked prematurely

Trouble-free operation

Good hydrolytic stability and water separation characteristics provide excellent filterability in the presence of water contamination. Good anti-foam and air release properties ensure smooth operation and system efficiency.

Extended oil service life

High oxidation stability resists oil thickening and deposit formation in service, eliminating the need for unscheduled change of hydraulic fluid.

KEY PROPERTIES

ISO VG	46
Density, kg/L @15°C	0.860
Kinematic Viscosity, mm ² /s @ 40°C	46.2
Kinematic Viscosity, mm ² /s @ 100°C	8.4
Viscosity Index	155
Pour Point °C	-45
Flash Point °C	233
Copper Corrosion, 100°C/3hr	1a
Rust Preventive, Sea Water	Pass
Demulsibility, min	15
Package (Liters)	200

GH Hydro HVZ

*Top Performance Wide Temperature Range
Antiwear Hydraulic Fluid*

ISO VG 15, 22, 32, 46, 68, 100



DESCRIPTION

GH Hydro HVZ is a premium quality, shear stable, multi-viscosity, anti-wear hydraulic fluid, designed for use in hydraulic systems subjected to wide variations in ambient and operating temperatures (Excavator : 2000 hrs).

APPLICATIONS

- Industrial hydraulic equipment subject to wide variation in temperatures
- Hydraulic Systems in mobile, construction and agricultural equipment
- Industrial Hydraulic systems with vane, gear or piston pumps
- Fork-lift trucks
- Enclosed gears operating under moderate load conditions
- Industrial circulating systems where a rust and oxidation inhibitor or antiwear oil is required

PERFORMANCE STANDARDS

GH Hydro HVZ meets performance standards as below.

- Denison Hydraulics HF-0 (ISO VG 32, 46, 68)
- Vickers I-286-S [industrial applications], M-2950-S [mobile applications] (ISO VG 32, 46, 68)
- Cincinnati Milacron P-68 (ISO VG 32), P-69 (ISO VG 68), P-70 (ISO VG 46)
- Bosch Rexroth RE 90 220 and RE 07 075
- ISO Standard 6743 Part 4, Type HV
- DIN 51524 Part 3, HVLP
- GB 11118.1-2011, L-HV
- US Steel 126 and 127

CUSTOMER BENEFITS

Wide temperature application

Shear stable, multi-viscosity characteristics reduce the risk of breakdown in high pressure & high load hydraulic systems which operate over a wide temperature range.

Longer equipment life

Special anti-wear additive package reduces wear by protecting surfaces when applied load causes breakdown of the lubricating film.

Reduced downtime

Effective rust and oxidation inhibitor system prevents

- the production of abrasive particles from rust & deposits
- varnishes and sludges from oil breakdown which can damage equipment surfaces & seals
- filters being blocked prematurely

Trouble-free operation

Good hydrolytic stability and water separation characteristics provide excellent filterability in the presence of water contamination. Good anti-foam and air release properties ensure smooth operation and system efficiency.

Extended oil service life

High oxidation stability resists oil thickening and deposit formation in service, eliminating the need for unscheduled change of hydraulic fluid.

KEY PROPERTIES

ISO VG	15	22	32	46	68	100
Density, kg/L @15°C	0.840	0.839	0.851	0.861	0.866	0.872
Kinematic Viscosity, mm ² /s @ 40°C	14.9	21.7	31.9	46.2	68.9	101.2
Kinematic Viscosity, mm ² /s @ 100°C	3.8	5.0	6.3	8.3	11.0	14.4
Viscosity Index	165	169	154	155	153	147
Pour Point °C	-55	-45	-45	-45	-42	-32
Flash Point °C	172	206	218	233	234	246
Copper Corrosion, 100°C/3hr	1a	1a	1a	1a	1a	1a
Rust Preventive, Sea Water	pass	pass	pass	Pass	Pass	pass
Demulsibility, min	20	15	15	15	15	15
Package (Liters)	20,200	20,200	20,200	20,200	20,200	20,200



GH Hydro XW

Top Performance Antiwear Hydraulic Fluid

ISO VG 32, 46, 68, 100, 150, 220, 320

DESCRIPTION

GH Hydro XW is a premium-quality antiwear hydraulic fluid designed for use in mobile and stationary high pressure hydraulic systems. It contains a stabilized zinc additive system which provides outstanding antiwear characteristics, and also provides good thermal and oxidation stability.

APPLICATIONS

- Industrial hydraulic equipment operated in plants and factory
- Industrial Hydraulic systems with vane, gear or piston pumps
- Enclosed gears operating under moderate load conditions
- Industrial circulating systems where a rust and oxidation inhibitor or antiwear oil is required

PERFORMANCE STANDARDS

GH Hydro XW meets performance standards as below.

- Denison Hydraulics HF-0 (ISO VG 32, 46, 68)
- Eaton products and brochure 03-401-2010 Rev 1 (ISO VG 32, 46)
- Cincinnati Milacron P-68 (ISO VG 32), P-69 (ISO VG 68), P-70 (ISO VG 46)
- Bosch Rexroth RE 90 220 and RE 07 075
- ISO Standard 6743 Part 4, Type HM
- DIN 51524 Part 2, HLP
- GB 11118.1-2011, L-HM
- US Steel 126 and 127

CUSTOMER BENEFITS

Longer equipment life

Special anti-wear additive package reduces wear by protecting surfaces when applied load causes breakdown of the lubricating film.

Reduced downtime

- Effective rust and oxidation inhibitor system prevents
- the production of abrasive particles from rust & deposits
 - varnishes and sludges from oil breakdown which can damage equipment surfaces & seals
 - filters being blocked prematurely

Trouble-free operation

Good hydrolytic stability and water separation characteristics provide excellent filterability in the presence of water contamination. Good anti-foam and air release properties ensure smooth operation and system efficiency.

Extended oil service life

High oxidation stability resists oil thickening and deposit formation in service, eliminating the need for unscheduled change of hydraulic fluid.

KEY PROPERTIES

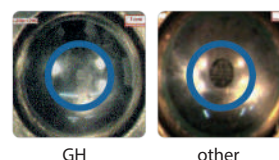
ISO VG	32	46	68	100	150	220	320
Density, kg/L @15°C	0.852	0.861	0.863	0.868	0.875	0.879	0.880
Kinematic Viscosity, mm ² /s @40°C	32.3	46.3	67.8	100.2	149.2	213.0	312.5
Kinematic Viscosity, mm ² /s @100°C	5.8	7.2	9.3	11.9	15.5	20.1	25.9
Viscosity Index	120	115	113	109	106	110	108
Pour Point °C	-36	-30	-25	-27	-32	-26	-24
Flash Point °C	221	229	235	243	245	247	249
Rust Preventive, Sea Water (D665)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Package (Liters)	18,20,200	18,20,200	18,20,200	20,200	200	200	200

UNIQUE FEATURES

- The special anti-wear additive package reduces wear by protecting surface when load breakdown of the lubricant film.
- Outstanding oxidation stability compared with other anti-wear hydraulic oil ensure less in-service thickening and longer fluid life.

Long equipment life

4-Ball anti-wear test result

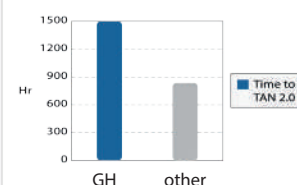


GH

other

Longer service life

Oxidation Stability Test Result (Time to TAN 2.0 @ 95°C)



GH Hydro AF

Top Performance Ash Free Anti-Wear Hydraulic Fluid

ISO VG 46, 68



DESCRIPTION

GH Hydro AF is designed to give maximum protection to hydraulic pumps in high temperature industrial applications as well as in environmentally sensitive areas. It is formulated with high quality base oils and an ashless ("Zinc-free") additive system that provides superior oxidation stability, water separability, foam suppression, and protection against wear, rust and corrosion.

APPLICATIONS

- Industrial hydraulic equipment operated in plants and factory
- Industrial Hydraulic systems with vane, gear or piston pumps
- Enclosed gears operating under moderate load conditions
- Industrial circulating systems where a rust and oxidation inhibitor or antiwear oil is required

PERFORMANCE STANDARDS

GH Hydro AF meets performance standards as below.

- Denison Hydraulics HF-0 (ISO VG 46, 68)
- Cincinnati Milacron P-69 (ISO VG 68), P-70 (ISO VG 46)
- ISO Standard 6743 Part 4, Type HM
- DIN 51524 Part 2, HLP
- GB 11118.1-2011, L-HM

CUSTOMER BENEFITS

Premium performance

Ashless formulation meets or exceeds pump manufacturer's requirements for viscosity, rust and corrosion protection, hydrolytic stability, water separability, foam inhibition, and filterability.

Superior oxidation stability

Longer service life than conventional antiwear hydraulic oils or vegetable hydraulic oils.

Excellent antiwear properties

Provides excellent wear protection.

KEY PROPERTIES

ISO VG	46	68
Density, kg/L @15°C	0.850	0.859
Kinematic Viscosity, mm ² /s @40°C	45.8	68.8
Kinematic Viscosity, mm ² /s @100°C	7.4	9.5
Viscosity Index	124	116
Pour Point °C	-39	-36
Flash Point °C	236	254
Package (Liters)	200	200



GH Hydro R&O

General Purpose Hydraulic Fluid

ISO VG 32, 46, 68, 100, 320

DESCRIPTION

GH Hydro R&O is a general purpose hydraulic fluid, rust and oxidation inhibited hydraulic fluid designed for used in a variety of industrial applications.

APPLICATIONS

- Mobile and stationary hydraulic systems using axial piston type pumps where R&O type oils are suitable
- Hydraulic systems using vane and gear pumps where pressures and speeds allow the use of R&O type oils (Not suitable for hydraulic systems where antiwear type oils are required)
- Industrial circulating systems where a rust and oxidation inhibitor is required
- Enclosed gear applications where antiwear or EP properties are not required

PERFORMANCE STANDARDS

GH Hydro R&O meets performance standards as below.

- Cincinnati Milacron P-38 (ISO VG 32), P-54 (ISO VG 68), P-55 (ISO VG 46)
- ISO Standard 6743 Part 4, Type HL
- DIN 51524 Part 1, HL
- GB 11118.1-2011, L-HL
- Denison Hydraulic HF-1

CUSTOMER BENEFITS

- Providing long service life by resisting oil thickening and the formation of harmful sludge or varnish deposits
- Protection against rust
- Rapid separation of mixed water

KEY PROPERTIES

ISO VG	32	46	68	100	320
Density, kg/L @15°C	0.853	0.856	0.862	0.864	0.8908
Kinematic Viscosity, mm ² /s @ 40°C	30.8	46.2	67.4	97.13	333
Kinematic Viscosity, mm ² /s @ 100°C	5.5	7.2	9.3	11.71	25.78
Viscosity Index	117	116	115	109	101
Pour Point °C	-33	-30	-27	-24	-15
Flash Point °C	228	234	240	249	270
Rust Preventive, Sea Water (D665)	Pass	Pass	Pass	Pass	Pass
Package (Liters)	20, 200	20, 200	20, 200	20, 200	200

UNIQUE FEATURES

- Superior oxidation & Thermal stability resists oil thickening and deposit formation in service, eliminating the need for unscheduled change of hydraulic oil.

Superior Oxidation & Thermal stability

GH product produce less sludge than other products (test under 150°C, 168 hrs)



GH



others

Water like color

GH product is formulated with highly refined base oil.

GH Hydrosafety

Water Glycol Fire-resistant Hydraulic Fluid

ISO VG 46



DESCRIPTION

GH Hydrosafety is a water-glycol fire-resistant fluid containing antiwear agents and rust inhibitors for use in high pressure hydraulic systems where the requirements for fire resistance, pump wear protection and viscosity are satisfied by waterglycol fluids.

APPLICATIONS

- Hydraulic systems with:
 - gear pumps (up to 14 MPa)
 - vane pumps (up to 14 MPa)
 - axial piston pumps (up to 20 MPa)
 - operating temperature below 65°C
- Injection molding equipment
- Metal die casting equipment
- Hot metal presses
- Welding machines
- Hydraulic pressure guns
- Hydraulic stretchers
- Furnace and oven doors
- Steel mill hydraulic equipment
- Machine tool slideways and guides: (slag granulators, down coilers in hot strip mills, tipping ladles, continuous casting equipment, etc.)
- Mobile equipment operating in fire risk areas

PERFORMANCE STANDARDS

GH Hydrosafety meets performance standards as below.

- Factory Mutual (FM) requirements for less hazardous hydraulic fluid
- ISO Standard 6743 Part 4, Type HFC

CUSTOMER BENEFITS

Fire resistance for improved safety

Glycol/water mix (approximately Vol.% water)) provides a non-flammable mist or spray so that, should a hydraulic hose rupture, the fluid will not support combustion.

Long pump life

Special anti-wear agents protect high pressure pumps from excessive wear, saving on costly repairs.

Trouble-free operation

Effective rust inhibitors provide good rust protection both in the fluid immersed sections of the system and in the vapor spaces where condensed water typically collects, thus avoiding rust debris contamination which can adversely affect system operating efficiency.

Good all-temperature performance

The glycol/water solution enables the fluid to dissipate heat quickly and keep the system temperature in control, thereby avoiding hot spots. The low freezing point reduces the risk of hydraulic fluid freezing in low temperature operation, with subsequent damage to the equipment.

KEY PROPERTIES

ISO VG	46
Density, kg/L @15°C	1.070
Kinematic Viscosity, mm ² /s @ 40°C	46.0
Viscosity Index	230
Pour Point °C	-50
Flash Point °C	None
Package (Liters)	200



GH Hydro

The Perfect fit
for your machinery



Golden Horse

The perfect fit your driving

06 Industrial Oil



GH Turbine EP
GH Turbine
GH Turbine GT
GH Turbine R&O
GH Compressor P
GH Compressor S
GH Gear EP S
GH Gear EP
GH Machine PM
GH Machine
GH Circulating
GH Way Lube
GH Spindle
GH Rockdrill
GH Process
GH Trans I
GH Therm AB 20
GH Therm



Industrial Oil



GH Turbine EP

Turbine Oil With Gear Cases, Bearings

ISO VG 32, 46

DESCRIPTION

GH Turbine EP is high-quality rust and oxidation oil with extreme pressure characteristics. It is formulated from premium quality, chemically stable, high VI base stocks, which are further enhanced by the addition of oxidation inhibitors. It is designed primarily for use in industrial gas and steam turbines including those with reduction gear sets.

APPLICATIONS

- Stationary industrial gas and steam turbines
- Stationary industrial gas turbines with reduction gear sets
- Industrial gas turbines in severe service
- Hydraulic turbines
- Rotating machinery in gas and steam combined-cycle cogeneration units
- Bath and circulating systems supplying moderately loaded gear sets, low pressure hydraulic systems, vacuum pumps, rolling element bearings, machine tools, conveyors, and electric motors
- Air compressors, turbo-blowers and centrifugal pumps requiring a rust and oxidation inhibited, antiwear oil
- Do not use in breathing air apparatus or medical equipment.
- Do not use in aviation-derivative gas turbines.

PERFORMANCE STANDARDS

- Alstom HTGD 90117
- ASTM D4304-Type II
- British Standards BS 489
- Cincinnati Machine P-38
- German Standard DIN 51515 Part 1 DIN 51515 Part 2
- General Electric GEK 27070 GEK 28143B GEK 32568F GEK 101941A
- International Standards ISO 8068 AR, B ISO 8068 TGE
- Japanese Industrial Standard JIS K2213 Type 2
- MAN Turbo & Diesel TQL T2
- Siemens TLV 9013 04 for turbosets with and without gearboxes
- TLV 9013 05 for turbosets with and without gearboxes

CUSTOMER BENEFITS

- Foam inhibition helps prevent sump overflow and erratic governor operation.
- Anti-wear additive system forms a protective chemical film on loaded gear tooth surfaces to assist in reducing wear and scuffing
- Premium base stocks and inhibitor system provide outstanding long-term oxidation stability to resist oil breakdown
- Premium base oils and oxidation inhibitor system resist the formation of harmful deposits in high temperature bearings and other hot areas of the turbine. The rust inhibitor protects system components against corrosion. Good water separability ensures rapid settling of water accumulated from steam condensate or leakage from salt water cooling.
- Non-silicone foam inhibitor allows rapid release of entrained air while minimizing foam formation to enable reliable operation of sensitive hydraulic control devices. The multipurpose nature of the formulation allows it to be used in a wide range of industrial applications, potentially simplifying oil inventories and reducing the possibility of using the wrong lubricant.

KEY PROPERTIES

ISO VG	32	46
Density, kg/L @15°C	0.844	0.849
Kinematic Viscosity, mm ² /s @ 40°C	32.2	46.2
Kinematic Viscosity, mm ² /s @ 100°C	5.8	7.4
Viscosity Index	127	124
Pour Point °C	-24	-21
Flash Point °C	232	284
Oxidation Stability (RPVOT Value), min.	+2700	+2800
Package (Liters)	20, 200	20, 200



GH Turbine

High Performance Turbine Oil

ISO VG 32, 46, 68, 100, SIEMENS, ALSTOM

DESCRIPTION

GH Turbine is a premium quality inhibited turbine oil. It contains highly effective rust, oxidation and foam inhibitors and it is formulated to have good air release properties and good oxidation stability.

APPLICATIONS

- Steam and hydraulic turbines operating under all service conditions
- Centrifugal, rotary and reciprocating compressors, turbo-blowers, submersible pumps and centrifugal pumps, requiring a rust and oxidation inhibited oil (not recommended for use in breathing air compressors)
- Hydroelectric turbines
- Other applications where high quality rust and oxidation inhibited oils are required.

PERFORMANCE STANDARDS

- Siemens TLV 9013 04/05 approved
- Alstom HTGD 90117 approved
- Meets the requirements of major turbine builders including GE, Westinghouse, ABB

CUSTOMER BENEFITS

Long service life assured by outstanding resistance

Excellent thermal and oxidation Stability

Excellent Filterability even in the presence of water and non turbine oil contaminants such as hydraulic oils.

Maintains high power output by resisting air entrainment in oil circulation

Allows easy removal of water

Robust demulsibility control such that excess water, which is commonplace in steam turbines, can be drained easily from the lubrication system, minimizing corrosion and premature wear.

Protects against rust and corrosion

Prevents the formation of rust and guards against the onset of corrosion ensuring the protection of the equipment following expo-

sure to humidity or water during operation and during shut down.

Allows one oil to be used for both turbine and non-turbine application

KEY PROPERTIES

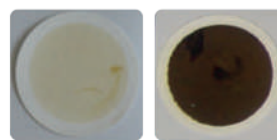
ISO VG	32	46	68	100
Density, kg/L @15°C	0.843	0.850	0.858	0.868
Kinematic Viscosity, mm ² /s @ 40°C	32.1	45.7	66.9	101.8
Kinematic Viscosity, mm ² /s @ 100°C	5.9	7.4	9.3	11.9
Viscosity Index	127	124	116	106
Pour Point °C	-24	-21	-18	-18
Flash Point °C	218	240	246	258
Air Release, min	1.9	2.6	3.2	3.9
Copper Corrosion, 100°C/3hr	1a	1a	1a	1a
Rust Prevention @ Proc B	Pass	Pass	Pass	Pass
Package (Liters)	20,200	20,200	20,200	200

UNIQUE FEATURES

- Formulation using Group III base Oil (for VG 32 and 46 products) provides excellent thermal stability.
- Outstanding oxidation stability compared with other turbine Oil ensures longer fluid life.

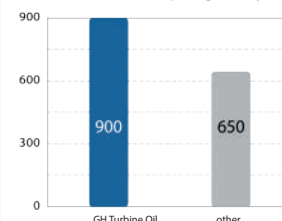
Excellent Thermal Stability

GH Turbine Oil produce less sludge than other products (test under 150°C, 168 hrs)



Longer service life

RPVOT Test Result (min @ 150°C)



GH Turbine GT

High Performance Gas Turbine Oil

ISO VG 32



DESCRIPTION

GH Turbine GT is a premium performance, specially inhibited turbine oil designed for the lubrication of modern, high severity, heavy-duty industrial gas turbines. Contains highly effective rust, oxidation and foam inhibitors and is formulated to provide good air release properties and good oxidation stability.

APPLICATIONS

- All types of heavy-duty, stationary industrial gas turbines, particularly where reservoir oil temperatures are up to 100°C, and gas temperatures in the bearing housings may reach 400°C
- Turbine gear sets and other related equipment where turbine oils without enhanced load carrying capacity are suitable
- High temperature, high pressure steam turbines
- All rotating machinery in gas and steam combined cycle cogeneration units.
- For aviation-type gas turbines in non-aviation service.

PERFORMANCE STANDARDS

- Meets the requirements of major turbine builders including GE, Westinghouse, ABB and Siemens
- General Electric GEK-46506D & 32568E

CUSTOMER BENEFITS

Long service life assured by outstanding resistance
Excellent thermal and oxidation stability
Excellent Filterability even in the presence of water and non turbine oil contaminants such as hydraulic oils
Maintains high power output by resisting air entrainment in oil circulation

Allows easy removal of water

Robust demulsibility control such that excess water, which is commonplace in steam turbines, can be drained easily from the lubrication system, minimizing corrosion and premature wear.

Protects against rust and corrosion

Prevents the formation of rust and guards against the onset of corrosion ensuring the protection of the equipment following exposure to humidity or water during operation and during shut down.

Allows one oil to be used for both turbine and non-turbine application

KEY PROPERTIES

ISO VG	32
Density, kg/L @15°C	0.841
Kinematic Viscosity, mm ² /s @ 40°C	30.7
Kinematic Viscosity, mm ² /s @ 100°C	5.7
Viscosity Index	130
Pour Point °C	-21
Flash Point °C	234
Air Release, min	1.8
Copper Corrosion, 100°C/3hr	1a
Rust Prevention @ Proc B	Pass
Oxidation Stability, RBOT	1200
Package (Liters)	200



GH Turbine R&O

Industrial Turbine Oil

ISO VG 32, 46

DESCRIPTION

GH Turbine R&O is a premium quality, inhibited turbine oil formulated from highly refined base stocks and special rust, oxidation and foam inhibitors.

APPLICATIONS

Steam and hydraulic turbines operating under all service conditions
Industrial gas turbines operating under moderate service conditions where the oil is not exposed to excessively high temperatures
Centrifugal, rotary and reciprocating compressors, turbo-blowers and centrifugal pumps, requiring a rust and oxidation inhibited oil (not recommended for use in breathing air compressors)
Bath and circulating systems supplying rolling element bearings of all types, lightly loaded gear sets, vacuum pumps, machine tools (including computer controlled units), conveyors, electric motors, and low to moderate pressure hydraulic pumps where anti-wear properties are not required

PERFORMANCE STANDARDS

- British Standard BS 489:1983 (ISO 32 to 68)
- German Standard DIN 51515 Part 1
- Meets the requirements of major turbine builders including GE, Westinghouse, ABB and Siemens
- David Brown Table M Gear Oil Grades OM, IM, 2M, 3M (ISO 32 to 100, respectively)
- ANSI/AGMA 9005-D94: AGMA Lubricant Nos. 1,2,3 (ISO 46, 68, 100, respectively)
- Cincinnati Milacron P-38, P-55, P-54 (ISO 32, 46, 68, respectively)

CUSTOMER BENEFITS

Prolonged oil service life

The superior oxidation stability provided by the multi-component inhibitor system resists oil breakdown during exposure to high temperature conditions for longer service life.

Saves on maintenance and downtime

The highly refined base stocks and multi-component oxidation inhibitor system resist the formation of harmful sludge and varnish deposits. The special rust inhibitor protects components against corrosion.

Trouble-free operation

The excellent water separability of the highly refined base stocks and special inhibitor system ensure rapid settling of harmful water accumulated from steam condensate. The non-silicone foam inhibitor allows rapid release of entrained air while minimizing foam formation to enable reliable operation of sensitive hydraulic control devices.

Saves on inventory

The premium quality rust and oxidation inhibited formulation has multipurpose capability in a wide range of industrial applications for which this type of product is recommended, simplifying oil inventories and reducing the possibility of using the wrong lubricant.

KEY PROPERTIES

ISO VG	32	46
Density, kg/L @15°C	0.851	0.856
Kinematic Viscosity, mm ² /s @ 40°C	31.3	43.8
Kinematic Viscosity, mm ² /s @ 100°C	5.5	7.0
Viscosity Index	115	115
Pour Point °C	-18	-15
Flash Point °C	220	232
Copper Corrosion, 100°C/3hr	1a	1a
Rust Prevention @ Proc B	Pass	Pass
D943, hrs to 2.0 Acid No.,	10,000+	15,000+
Package (Liters)	20,200	20,200



GH Compressor P

High Performance Reciprocating Compressor Oil

ISO VG 32, 46, 68, 100, 150

DESCRIPTION

Range of mineral compressor lubricants, meeting DIN 51 506 class VDL specifications and exhibiting high load carrying capacity. GH Compressor P are blended from selected high quality paraffinic base oils. A well balanced additive package provides excellent oxidation resistance, corrosion protection, and outstanding EP characteristics. It provides a smooth, economical compressor operation especially under severe conditions.

APPLICATIONS

GH Compressor P are recommended for stationary and portable compressors, operating at compression temperatures up to 220°C including compressors with oil lubricated pressure space, e.g. single and multistage reciprocating compressors or single or multistage centrifugal compressors.

The 46 grade is primarily recommended for use in oil-flooded screw compressors as well as centrifugal compressors. At high compression pressures, such as in multistage reciprocating compressors, the higher viscosity grade may be used. GH Compressor P has been tested and approved by "Rheinische-Westfälischer Überwachungsverein e.V." in Germany and it meets DIN 51 506 VDL.

CUSTOMER BENEFITS

Oxidation Stability

Resistance to oxidation at high temperatures prevents carbon formation in the air compressor chambers, discharge lines and air vessels.

Rust Protection

Assures protection against rust and corrosion.

Antifoam Properties

Prevents accumulation of surface foam in the crankcase.

Low Evaporation Loss

Guarantees minimum consumption of product.

KEY PROPERTIES

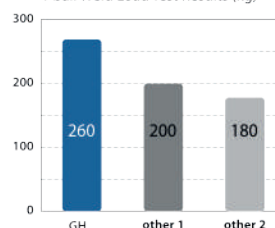
ISO VG	32	46	68	100	150
Density, kg/L @15°C	0.858	0.864	0.867	0.867	0.875
Kinematic Viscosity, mm ² /s @40°C	32.87	46.07	68.16	98.51	146
Kinematic Viscosity, mm ² /s @100°C	5.622	6.865	8.969	11.66	15.1
Viscosity Index	109	104	106	107	104
Pour Point °C	-36	-36	-42	-39	-30
Flash Point °C	222	250	250	284	265
Rust test, distilled water	Pass	Pass	Pass	Pass	Pass
Package (Liters)	20,200	20,200	20,200	20,200	20,200

UNIQUE FEATURES

- A well balanced additive package provides excellent corrosion protection and outstanding EP characteristics.
- It provides a smooth, economical compressor operation especially under severe conditions.

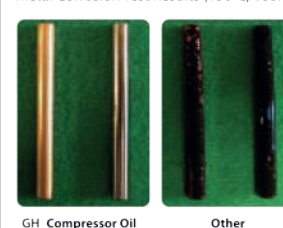
Outstanding EP characteristics

4-ball Weld Load Test Results (kg)



Excellent Corrosion Protection

Metal Corrosion Test Results (150°C, 168hr)





GH Compressor S

High Performance Rotary Screw Compressor Oil

ISO VG 32, 46, DIN 51506 VDL

DESCRIPTION

GH Compressor S is a premium performance, hydrocracked synthetic based compressor oil containing a special oxidation inhibitor and a rust inhibitor. It is designed specifically for use in oil flood lubricated positive displacement rotary compressor.

APPLICATIONS

- Oil flood lubricated rotary screw air compressors.
- Oil flood lubricated sliding vane air compressors.
(Not recommended for use in breathing air compressors.)

PERFORMANCE STANDARDS

- DIN 51506 VDL
- ISO 6521
- ISO L DAA/DAB/DAH/DAG

CUSTOMER BENEFITS

Extended Oil Service Life

The outstanding oxidation stability of the hydrocracked synthetic base oil and special inhibitor system resists oil breakdown at the elevated temperatures encountered during intimate inter-mixing of oil and air in rotary compressor service.

Minimum maintenance and downtime

The outstanding oxidation stability also resists the formation of harmful varnish and sludge deposits which are promoted by contact with condensed water vapor, dust and other particulate contaminants. The highly effective film forming corrosion inhibitor plates out on metal surface to protect the system against rust.

Trouble-free operation

The excellent air release and anti-foam properties of the highly refined base oil and inhibitor system minimize lubricant carry-over, protect against interruption of lubrication due to air entrained in the oil, and minimize the possibility of foaming and overflow in tanks and reservoirs. Excellent water separating characteristics make it easy to remove water by draining.

KEY PROPERTIES

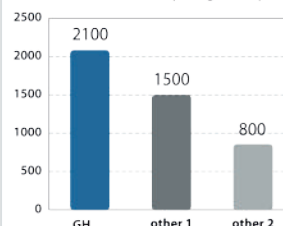
ISO VG	32	46
Color, ASTM	L0.5	L0.5
Density, kg/L @15°C	0.848	0.8519
Kinematic Viscosity, mm ² /s @ 40°C	32.4	46.95
Kinematic Viscosity, mm ² /s @ 100°C	5.78	7.371
Viscosity Index	121	119
Pour Point °C	-39	-36
Flash Point °C	224	250
Copper Corrosion, 100°C/3hr	1a	1a
Package (Liters)	20,200	20,200

UNIQUE FEATURES

- The outstanding oxidation stability of the hydrocracked synthetic base oil and special inhibitor system
- The superior thermal stability resists the formation of harmful varnish and sludge deposits

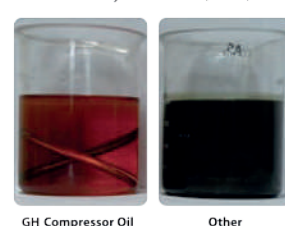
Outstanding Oxidation Stability

RPVOT Test Result (min @ 150°C)



Superior Thermal Stability

Thermal Stability Test Results (150°C, 168hr)



GH Gear EP S

Extreme Pressure Synthetic Industrial Gear Oil

ISO VG 150, 220, 320



DESCRIPTION

GH Gear EP S is PAO based advanced synthetic heavy duty industrial gear oil. It offers outstanding lubrication under severe operating conditions, help reducing friction and provides longer service life. High resistance to micro-pitting for optimal gear protection.

APPLICATIONS

- Recommended for many types of enclosed gearboxes especially those running continuously at temperatures up to 120°C or exposed to very low temperatures.
- Suitable for severe service conditions such as heavy loads and low speeds.
- Particularly recommended for certain systems where extra long oil life is required such as wind turbines or systems which are inaccessible or require infrequent lubrication.

PERFORMANCE STANDARDS

- Flender Industrial Gear Revision 9 2005
- AGMA 9005-E02 [EP]
- U.S. Steel 224
- David Brown Table E S1.53.101
- DIN 51517 Part 3
- Cincinnati Machine P-74

CUSTOMER BENEFITS

- Excellent Gear Wear & Corrosion protection
- Longer Oil life, reduced maintenance
- Energy Saving – reduced operating costs
- Protects against rust and corrosion.

KEY PROPERTIES

ISO VG	150	220	320
Kinematic Viscosity, mm ² /s @ 40 °C	143.5	212.9	316.6
Kinematic Viscosity, mm ² /s @ 100 °C	18.7	25.3	34.8
Viscosity Index	148	150	155
Pour Point °C	-39	-33	-30
Flash Point °C	276	280	260
Timken Ok Load, kg	27	27	27
FZG, Load Stage	>12	>12	>12
Package (Liters)	20, 200	20, 200	20, 200



GH Gear EP

Extreme Pressure Industrial Gear Oil

ISO VG 68, 100, 150, 220, 320, 460, 680

DESCRIPTION

GH Gear EP is an EP industrial gear lubricant based on a sulfur-phosphorus additive system.

APPLICATIONS

- Recommended for all types of industrial and mobile equipment requiring mild EP gear lubricants. Particularly recommended for enclosed gear drives and speed reducers, ranging from small gearboxes to large, high-power units such as metal rolling mills, cement mills, sugar mills and mine hoists.
- Also suitable for chain cases, sprockets, slide guides, flexible couplings, and plain and rolling element bearings.

PERFORMANCE STANDARDS

- ANSI/AGMA 9005-E02[EP]
- U.S. Steel 224
- AGMA 250.04[EP]
- AGMA 251.02[EP]
- David Brown Table E approved

CUSTOMER BENEFITS

- Extends gear life due to high load carrying capacity and has an outstanding ability to keep gear surfaces free of deposits.
- Provides long oil service life thanks to its excellent oxidation resistance.
- Allows rapid separation of water.
- Protects against rust and corrosion.

KEY PROPERTIES

ISO VG	68	100	150	220	320	460	680
Density, kg/L @15°C	0.869	0.868	0.874	0.881	0.885	0.893	0.886
Kinematic Viscosity, mm ² /s @40°C	70.25	97.88	157.4	219.1	321.31	445.4	634.3
Kinematic Viscosity, mm ² /s @100°C	9.1	11.58	15.92	19.83	24.03	31.75	40.12
Viscosity Index	104	106	104	104	103	103	103
Pour Point °C	-39	-33	-33	-18	-12	-15	-15
Flash Point °C	235	244	248	256	260	268	277
Timken Ok Load, kg	27	27	27	27	27	27	27
FZG, Load Stage	12	12	12	12	12	12	12
Package (Liters)	20,200	20,200	20,200	20,200	20,200	20,200	20,200

GH Machine PM

Paper Machine Lubricant

ISO VG 220



DESCRIPTION

GH Machine PM is a premium performance circulating oil specifically designed for use in the centralized lubrication system of paper machines, including wet-end system, dryer bearing and calendar stacks.

APPLICATIONS

- Circulating oil system of paper machines, particularly those equipped with ultra-fine filters, superheated steam, or those susceptible to water contamination.
- Suction box pumps, vacuum and white water pumps, agitators, reduction gears and gear head motors
- Pulp grinders and pulp refiner oil circulation system
- Gear drive units and pumps in industrial applications
- Plain and antifriction bearings at elevated ambient temperatures as high as 80°C.

PERFORMANCE STANDARD

- Meet or exceeds all the lubricant specification requirements of today's pulp and paper industry.

CUSTOMER BENEFITS

Minimizes unscheduled down time

High oxidation stability provides excellent resistance to deposit formation. The detergent/dispersant additive system enables quick removal of deposit from hot bearing surfaces, and the suspension of small particle, rendering them harmless.

Compatible with ultra-fine filters

The specially balanced additive package and highly refined base stock provide the outstanding filterability essential for ultra-fine filters, even in the presence of water.

Trouble-free operation

Excellent water separability characteristics permit rapid separation of water in circulating oil system reservoirs, reducing the chance of premature filter plugging and increase metal-to-metal contact.

Less frequent circulating system changes

High oxidation stability ensures long lubricant service life, particularly in newer design machine with smaller, tighter oil reservoirs.

KEY PROPERTIES

ISO VG	220
Density, kg/L @15°C	0.873
Kinematic Viscosity, mm ² /s @ 40°C	144.4
Kinematic Viscosity, mm ² /s @ 100°C	15.6
Viscosity Index	112
Copper Corrosion, 3hr@100°C	1a
Flash Point °C	238
Package (Liters)	200



GH Machine

General Purpose Industrial Lubrication Oil

ISO VG 32

DESCRIPTION

GH Machine is highly refined paraffinic mineral oil suitable for industrial circulating system and general purpose lubrication where straight mineral oils are acceptable.

APPLICATIONS

- General purpose industrial lubrication, particularly in "once-through" lubrication systems
- Industrial circulating systems, particularly those incorporating clay filters to remove high levels of contamination
- Light duty gear cases
- Plain and rolling element bearings
- Engine air cleaners
- Machine tools
- Process or extenders oils in the rubber and plastics industries
- Vacuum pumps
- Heat transfer fluid, where uninhibited oils are recommended

CUSTOMER BENEFITS

Low maintenance

This highly refined straight mineral oil offers excellent filterability with all commercial filters, and performs exceptionally well with filters using fuller's earth maximizing filter change intervals.

Long oil service life

Natural oxidation stability resists oil degradation and protects against oil thickening.

Trouble-free operation

Superior water separating characteristics prevent sludge in low operating temperature conditions where condensation is a problem. Low carbon residue forming tendencies minimize deposit formation in air compressor service.

KEY PROPERTIES

ISO VG	32
Density, kg/L @15°C	0.858
Kinematic Viscosity, mm ² /s @ 40°C	31.0
Kinematic Viscosity, mm ² /s @ 100°C	5.4
Viscosity Index	110
Pour Point, °C	-18
Flash Point °C	220
Package (Liters)	200

GH Circulating

Industrial and Circulation System Oil

ISO VG 100, 150



DESCRIPTION

GH Circulating is a circulating oil formulated from high quality base stocks and a carefully balanced additive system. This provides excellent protection against wear for long bearing and gear life. GH Circulating has superior water separability properties and rust protection to deal with the severe water contamination that frequently occurs in circulating oil systems. Its outstanding oxidation stability minimizes deposit formation and leads to long lubricant life.

GH Circulating is a circulating oil designed for the steel industry. It is formulated to meet the needs of circulation systems serving high speed rollers and plain bearings in no-twist finishing mills as well as rod mills. It is also recommended for the lubrication of reduction gears and bearings where zinc-free oils are desired. GH Circulating 100 meets the demands of Morgan Construction Company high sped No-Twist Rod Mills, as well as the requirement of Danieli Rod Mills.

APPLICATIONS

- Industrial circulating systems
- Hydraulic systems with vane, gear or piston pumps
- Enclosed moderate duty gear systems
- Industrial hydraulic systems where high viscosity anti-wear hydraulic fluids are required

CUSTOMER BENEFITS

High resistance to oxidation and degradation

Long lubricant life and resistance to formation of sludge and varnish on bearings and gears.

Outstanding wear protection

Long bearing life and protects gears from scuffing or scoring.

Excellent water separability

Resist the formation of oil-water emulsions and have excellent water separability for circulating oil systems subject to severe water contamination

Good resistance to foaming

Reduces the amount of entrained air in the oil, minimizing the possibility of pump cavitation and also prevents surface foam.

KEY PROPERTIES

ISO VG	100	150
Density, kg/L @15°C	<1.0	<1.0
Kinematic Viscosity, mm ² /s @ 40°C	103.1	154.2
Kinematic Viscosity, mm ² /s @ 100°C	12.03	15.76
Viscosity Index	107	105
Pour Point, °C	-34	-29
Flash Point °C	272	272
Package (Liters)	200	200



GH Way Lube

Machine Tool Slideway Lubricant

ISO VG 32, 68, 220

DESCRIPTION

GH Way Lube is a high quality, machine tool slideway lubricant formulated from highly refined mineral oil, EP and tackiness additives, friction modifier, and rust and corrosion inhibitors.

APPLICATIONS

- Machine tool slideways and guides
- Horizontal slideways (ISO 68)
- Light-to-moderate applications (ISO 68)
- Vertical slideways (ISO 220)
- More severe applications (ISO 220)
- Suitable for use with Bijur Automatic Lubricant delivery systems
- Other industrial applications requiring a tacky, non-corrosive product with EP properties.
- Cincinnati Machine specification P-53 Combination Hydraulic and Way oil (ISO 32)
- Cincinnati Machine specification P-47 Heavy-Medium Way oil (ISO 68)
- Cincinnati Machine specification P-50 Heavy Way oil (ISO 220)

CUSTOMER BENEFITS

Smooth, chatter-free operation

Special friction modifier provides high lubricity to reduce friction and drag which can cause stick-slip and machine tool chatter, adversely affecting surface finish on machined pieces.

Accurate table positioning

Friction modifier and tackiness additive provides a high strength, thick oil film that enables accurate table positioning and prevents wear of system components.

Reduced downtime

EP additive system produces a protective film under heavily loaded conditions to prevent scoring of slideways and guides. Rust and corrosion inhibitor protects machine fluids.

Stay in place

Special tackiness agent prevents fluid from draining away from lubricated surfaces, particularly on vertical ways. Tackness and high film strength minimizes squeeze-out of the lubricant on heavily loaded ways, and prevents fluid wash out by emulsifiable cutting fluids.

KEY PROPERTIES

ISO VG	32	68	220
Density, kg/L @15°C	0.854	0.868	0.881
Kinematic Viscosity, mm ² /s @ 40°C	29.48	71.14	205.2
Kinematic Viscosity, mm ² /s @ 100°C	5.41	9.43	19.65
Viscosity Index	120	110	110
Copper Corrosion, 3hr@100°C	1a	1a	1a
Pour Point, °C	-39	-30	-24
Package (Liters)	200	200	200

GH Spindle

Spindle Oil

ISO VG 10, 15



DESCRIPTION

GH Spindle is a premium, low viscosity spindle bearing oil formulated from highly refined mineral oil, antiwear agents and rust and oxidation inhibitors. It is designed for the lubrication of high speed textile machines and automated tools.

APPLICATIONS

- Textile machine spinning frame spindles
- Automated machine tools
- High speed, lightly loaded spindles, or where the use of higher viscosity oils leads to unacceptably high temperatures (ISO 10)
- Industrial circulating oil system
- Hydraulic systems where lower viscosity, anti-wear lubricants are recommended
- Cincinnati-Miacron specification P-62 (ISO 10) for light spindle oils

CUSTOMER BENEFITS

Maximizes equipment life

The anti-wear additive package protects bearing surfaces from wear when increasing load and temperature can cause breakdown of the oil film.

Reduces maintenance cost

Selected oxidation inhibitors help prevent formation of damaging deposits and varnish at elevated temperatures. Effective rust and corrosion inhibitors protect equipment under humid operating conditions.

Long service life

Highly refined base oils and effective oxidation inhibitor system provide excellent resistance to degradation and thickening of the oil in service.

KEY PROPERTIES

ISO VG	10	15
Density, kg/L @15°C	0.852	0.855
Kinematic Viscosity, mm ² /s @ 40°C	9.85	15.73
Kinematic Viscosity, mm ² /s @ 100°C	2.59	3.51
Viscosity Index	89	100
Copper Corrosion, 3hr@100°C	1a	1a
Rust Prevent Characteristics	Pass	Pass
TAN, mg KOH/g	0.07	0.08
Package (Liters)	20,200	20,200



GH Rockdrill

Pneumatic Percussion Tool Lubricant

ISO VG 100

DESCRIPTION

GH Rockdrill is a high performance lubricant for percussion-type air tools, which is formulated from highly refined mineral oils, EP, oiliness and tackiness additives, emulsifiers, rust and corrosion inhibitors, and antifoam and anti-fogging agents.

APPLICATIONS

- Percussion-type air tools operating under wet or dry conditions, including: Rock drills
- Concrete and pavement breakers (jackhammers)
- Tampers
- Rammers
- Riveting and chipping hammers, etc.
- Centralized lubricators of larger crawler-mounted drill rigs
- Ambient temperature guidelines for adequate atomization of air-line lubricators: 5°C to 25°C

CUSTOMER BENEFITS

Maximum working life of equipment

Special EP and high film strength oiliness additives withstand shock loads under boundary lubrication conditions and protect components against wear.

Protects surfaces in wet conditions

Superior emulsification properties prevent water wash-off from critical areas when operating with wet air, or during hollow rod "wet drilling" operations.

Effective rust and corrosion inhibitor system protects critical components in wet air or "wet drilling" operation.

Trouble-free operation

Highly refined base oils with low carbon forming characteristics and special oxidation inhibitor prevent the formation of sludge and deposits which can produce sluggish valve action.

Effective anti-foam inhibitor resists foaming in air-line lubricators to enable easy control of oil feed by ensuring regular supply of lubricant to the tool.

Special anti-misting additive minimizes oil fog formation in equipment exhausts.

KEY PROPERTIES

ISO VG	100
Kinematic Viscosity, mm ² /s @ 40°C	96.0
Kinematic Viscosity, mm ² /s @ 100°C	11.5
Viscosity Index	107
Copper Corrosion, 3hr@100°C	1a
Pour Point °C	-27
Package (Liters)	200



GH Process

Process Oil

2, 4, 6, 8, 150, 220

DESCRIPTION

GH Process is a highly saturated paraffinic process oil with very good color and low aromatic content. Golden Horse modern all hydroprocessing technology assures that these oils have a light color and are odorless.

APPLICATIONS

GH Process oils function as processing aids or as extender oils in rubber compounding.

They are used to :

- Reduce the amount of time required for mixing
- Reduce the amount of heat generated in mixing
- Maximize the dispersion of components
- Extend product volume
- Reduce product cost while maintaining the physical properties of the rubber compound

GH Process oils are ideal for use in compounding a wide variety of finished rubber products, including :

- Footwear
- Agricultural spray
- Furniture polish
- Textiles
- Wire and cable insulation
- Adhesive, sealants and coatings
- Polymer modified asphalts
- Asphalt extender
- Automobile interior moldings
- Automotive under hood parts
- Tires, tire whitewalls, tubes and inner liners
- Insulation
- Gels
- Dielectric fluids
- Drilling fluids
- Carpet underlayment
- Heat transfer fluids

- Foam
- Household products
- Roofing compounds
- Rubber membranes
- Weather-stripping

CUSTOMER BENEFITS

GH Process oils deliver value through :

- Exceptional oxidation stability
- Very good color stability
- Low volatility and low weight loss

GH Process oils are recommended for applications where discoloration, staining, sludging, or fogging must be minimized.

KEY PROPERTIES

Product	PO 2	PO 4	PO 6	PO 8	PO 150	PO 220
Density, kg/L @15°C	0.8993	0.8312	0.8394	0.8447	0.8547	0.8562
Kinematic Viscosity, mm ² /s @40°C	7.232	19.03	31.07	49.39	28.61	43.32
Kinematic Viscosity, mm ² /s @100°C	2.157	4.136	5.761	7.896	5.160	6.799
Viscosity Index	98	120	129	129	110	112
Saybolt Color	30	30	30	30	30	30
Pour Point, °C	-45	-18	-20	-20	-19	-30
Aniline Point, °C	96.5	113.7	119.3	124.7	110.6	116.6
Carbon type % Paraffinic	65.18	79.62	77.65	79.15	68.99	71.5
Carbon type % Naphthenic	34.46	20.38	22.35	20.35	31.01	28.5
Carbon type % Aromatic	0.36	0	0	0	0	0
Flash Point °C	158	226	234	260	224	240
Package (Liters)	200	200	200	200	200	200



GH Trans I

Inhibited Transformer Oil

IEC 60296:2012

DESCRIPTION

GH Trans I is a highly refined, inhibited transformer oil for use in severe conditions, such as high ambient temperatures. It should also be used where oxidation resistance and thermally stable insulating oils are needed. It meets the IEC 60296:2012 transformer oil specifications.

APPLICATIONS

- Transformers
- Oil-immersed switchgear
- Circuit breakers
- Oil-filled capacitors
- Tap changers
- Electrical reclosures
- Fuses

PERFORMANCE STANDARDS

- IEC 60296:2012 Inhibited

CUSTOMER BENEFITS

Extended Service Life

Effective anti-oxidation inhibitor limits the formation of sludges, deposits and soluble compounds which break down the electrical properties of the oil in severe, high ambient temperature or extended service conditions.

Prolongs transformer life

Excellent conductive heat transfer properties improve cooling of transformer components.

Low solvency protects electrical wire enamels.

Maximizes life of oil-immersed switches

Rapid quenching of arcs reduces contact erosion.

Maintains transformer efficiency

High dielectric strength and low dissipation factor provide excellent insulating characteristics.

KEY PROPERTIES

IEC 60296:2012 Type	Inhibited
Breakdown Voltage, KV	70
Kinematic Viscosity, mm ² /s @ 40°C	7.57
Kinematic Viscosity, mm ² /s @ 100°C	2.23
PCB Contents	Not detected
Pour Point, °C	-45
Flash Point, PM, °C	146
Corrosive Sulfur	Non corrosive
Package (Liters)	200

GH Therm AB 20

Linear Alkyl Benzene Synthetic Heat Transfer Fluid



DESCRIPTION

GH Therm AB 20 is a synthetic heat transfer fluid suitable for use in a wide range of industry processes. GH Therm AB 20 is produced from Linear Alkyl Benzene and high quality base oil produced by Golden Horse and shows superior thermal and oxidation stability at high temperature.

APPLICATIONS

GH Therm AB 20 is recommended for usage at temperature range -10~+300°C and can be used in dyeing plants, heating system in chemical plants, injection molding system, pulp and paper industry and other wide range of heating systems.

PERFORMANCE STANDARDS

- KS M 2501
- GB 23971-2009

CUSTOMER BENEFITS

- Superior oxidation stability enables long period usage at high temperature.
- Superior rust and corrosion preventive technology that protects the system in use.
- Superior thermal stability and minimize sludge formation.
- Extends the lifetime of equipment by minimizing sludge and oxidized material formation.
- Superior low temperature performance for usage at cold climate.
- Can be used in mixture with mineral oil or other alkyl benzene type heat transfer fluid.

KEY PROPERTIES

Density, kg/L @15°C	0.8568
Kinematic Viscosity, mm²/s @ 40°C	20.4
Kinematic Viscosity, mm²/s @ 100°C	4.03
Kinematic Viscosity, mm²/s @ 200°C	1.17
Kinematic Viscosity, mm²/s @ 300°C	0.65
Pour Point, °C	-33
TAN, mgKOH/g	0.00
Flash Point, °C	218
Ignition Point, °C	379
Distillation 5%, °C	337
Distillation 95%, °C	473
Molecular Weight	359
Maximum oil film temperature, °C	360
Highest operating temperature, °C	320
Package (Liters)	200

HANDLING AND STORAGE

- Avoid direct sunlight contact and store at cool and dry areas.
- Apply cover when storing outdoor to prevent rain water or other materials mixing with product.
- For more information please refer to MSDS.



GH Therm

Heat Transfer Fluid

ISO VG 32, 46

DESCRIPTION

GH Therm is a highly refined, thermally stable paraffinic petroleum oil formulated for use as a heat transfer fluid in both closed and open heat transfer systems with forced circulation.

APPLICATIONS

- Open systems operating at temperatures up to 200°C.
- Closed systems (sealed with cold oil or inert gas) operating at bulk oil temperatures up to 320°C.

For long, trouble-free service in closed systems, the maximum film temperature on the heater surfaces should be limited to 340°C. Systems must have forced circulation of the heat transfer fluid.

CUSTOMER BENEFITS

Maximum energy efficiency

Excellent heat transfer properties enable easy circulation and efficient transfer of heat.

Resists deposit formation

Outstanding oxidation and thermal stability resists formation of sludges and coke deposits, providing long oil service life.

Rapid response at start-up

Low temperature flow characteristics allow prompt circulation.

Economical low pressure operation

Low vapor pressure at elevated temperatures minimizes evaporation, vapor lock and pump cavitation, allowing efficient operation at lower system pressures, avoiding the need for expensive high pressure high pressure piping and heat exchangers.

KEY PROPERTIES

ISO VG	32	46
Density, kg/L @15°C	0.861	0.867
Kinematic Viscosity, mm ² /s @ 40°C	30.28	43.27
Kinematic Viscosity, mm ² /s @ 100°C	5.236	6.6
Viscosity Index	103	104
Copper Corrosion, 3hr@100°C	1a	1a
Flash Point °C	230	238
Package (Liters)	200	200

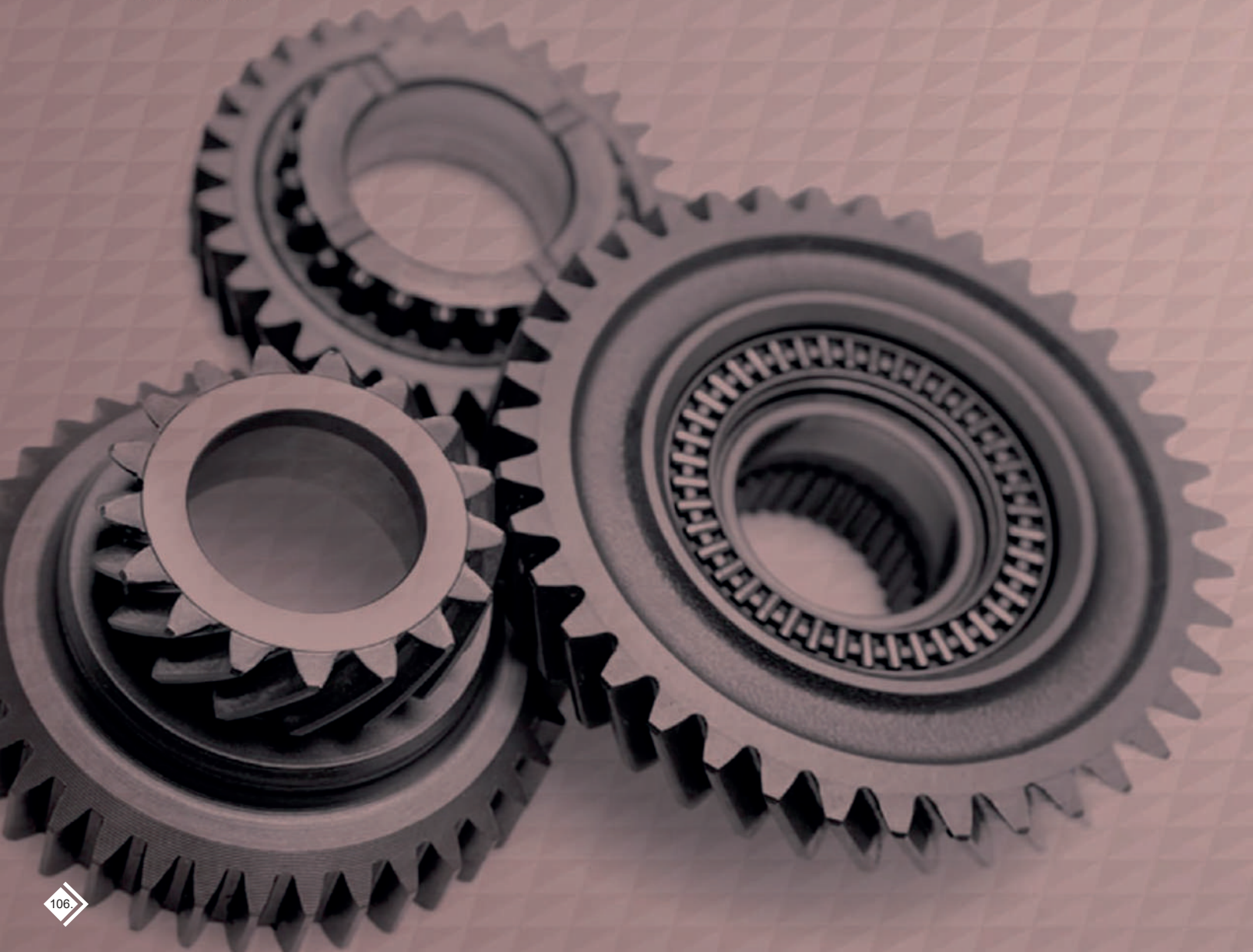
Golden Horse

The perfect fit for your machinery

07 Grease



GH Grease Liplax
GH Grease Moly EP
GH Grease Therma
GH Grease EP
GH Grease



Grease

GH Grease Liplax

Automotive Wheel Bearing & Chassis Grease

NLGI 2, GC-LB



DESCRIPTION

GH Grease Liplax is a premium, multipurpose EP automotive wheel bearing and chassis grease containing a lithium complex thickener, EP additives, rust and oxidation inhibitors and tackiness additives. It is red in color.

APPLICATIONS

- Automotive wheel bearings
- Chassis lubrication
- Highway and off-highway applications
- Construction equipment
- Agricultural tractors
- Heavy-duty transport
- General industrial greasing

Usable temperature range in continuous service: -30 to 165°C
Maximum temperature for short term exposure is 220°C.

PERFORMANCE STANDARD

- NLGI Service Category GC-LB

CUSTOMER BENEFITS

Saves maintenance costs

Effective EP additive protects against bearing wear under severe conditions and shock loading. The effective rust and corrosion inhibitors protect metal surfaces, even in conditions of severe water exposure.

Minimizes downtime

High dropping point minimizes leakage from bearings at elevated temperatures and excellent oxidation resistance ensures long grease life. The natural water resistance of the lithium complex thickener, combined with the additional tackiness additive, prevents water washout.

Minimizes inventory costs

Multipurpose capability allows use in a wide range of automotive and industrial applications, reducing the number of different greases required and eliminating product misapplication.

KEY PROPERTIES

NLGI Grade	2
Dropping Point, °C	263
Oil Viscosity, mm ² /s @ 40°C	200
Penetration, Worked @ 25°C	280
Thickener Type	Lithium Complex
Thickener (Lithium Complex), m %	11
Water Washout @ 79°C, 1hr	0.65
4 ball EP, kgf	250
Package (kg)	15, 180



GH Grease Moly EP

Heavy Load EP Grease

NLGI 2

DESCRIPTION

GH Grease Moly EP is a dark gray, multipurpose EP grease primarily designed for construction, mining and agricultural equipment where an extra measure of protection in shock loading conditions is required. It contains a highly refined ISO VG 220 mineral base oil, lithium soap thickener, EP additives, rust and oxidation inhibitors, plus molybdenum disulfide solid film lubricant.

APPLICATIONS

- Automotive
- Construction
- Earthmoving, quarrying and mining
- Agricultural equipment
- Chassis grease point lubrication
- Pins, bushings and other sliding surface or pivot points
- All types of anti-friction bearings
- Ball joints
- Universal joints (U-joints)
- High and shock load applications

Usable temperature range in continuous service is -30 to 130°C. Maximum temperature for short term exposure is 175°C.

CUSTOMER BENEFITS

Saves on heavy-duty maintenance

Effective EP additive and molybdenum disulfide solid film lubricant protect against component wear under high load conditions and/or shock loading. Rust and corrosion inhibitors protect metal surfaces in wet operating conditions. Even if insufficient grease is used, some molybdenum disulfide tends to stay in place and protect metal surfaces.

Long service life

Excellent oxidation resistance ensures enhanced grease service life.

Ease of application

Good pumpability characteristics of the lithium thickener provide suitable flow properties for grease pump application systems.

Wide range of applications

Multipurpose capability allows use in a wide range of heavy-duty automotive and industrial applications, reducing the number of different greases

KEY PROPERTIES

NLGI Grade	2
Dropping Point, °C	195
Molybdenum Disulfide, m %	3
Oil Viscosity, mm ² /s @ 40°C	208
Oil Viscosity, mm ² /s @ 100°C	18.2
Penetration, Worked @ 25°C	275
Thickener (Lithium), m %	7.5
Package (kg)	15,180

GH Grease Therma

High Temperature Grease

NLGI 2, GC-LB



DESCRIPTION

GH Grease Therma is a non-melting, EP grease formulated from a highly refined ISO 100 mineral base oil, an organoclay (bentonite) thickener, and an effective EP agent for high temperature applications where frequent re-application is available.

APPLICATIONS

- Industrial ball and roller bearings in high temperature applications.
- Exhaust fan bearings
- Furnace door bearings
- Kiln car wheel bearings
- Roll neck bearings
- High temperature conveyor bearings
- Rotary kiln bearings

Usable temperature range: Continuous service -20 to 135°C
With frequent relubrication 260°C

CUSTOMER BENEFITS

Minimizes equipment failure

The special non-melting organoclay thickener prevents grease loss from bearings at high temperature.

Wide temperature range application

May be used in applications up to 135°C with normal re-greasing, and up to 260°C with very frequent regreasing, making it suitable for use in a wide range of high temperature industrial applications.

Prevents failure in wet conditions

Organoclay thickener gives excellent resistance to water washout.

KEY PROPERTIES

NLGI Grade	2
Penetration, Worked @ 25°C	280
Dropping Points, °C	Not applicable
Thickener (modified bentonite)	12
Oil Viscosity mm ² /s @ 40°C	92.5
Oil Viscosity mm ² /s @ 100°C	10.5
Timken OK Load, kg	20
Package (kg)	15



GH Grease EP

Centralized Lubrication System Grease

NLGI 000 / 00

DESCRIPTION

GH Grease EP is a semi-fluid type grease containing lithium thickener, mineral base oil, EP additives, rust and oxidation inhibitors, for use in centralized lubrication systems and concrete pump cars.

APPLICATIONS

- Concrete pump cars
 - Centralized lubricating systems
 - Application where EP semi-fluid grease is required
- Usable temperature range in continuous service is : -30 to 120°C

CUSTOMER BENEFITS

Long service life

Good oxidation stability enables long service life.

Anti-wear property

Good anti-wear property protects equipment.

Good pumpability

Good pumpability allows pumping at low temperature.

Rust and corrosion protection

Rust and corrosion inhibitors protects equipment against rust and corrosion.

KEY PROPERTIES

NLGI Grade	000	00
Dropping Point, °C	164	183
Oxidation stability, kgf/cm ²	0.35	0.35
Copper Corrosion @ 100°C, 24h	No Tarnish	No Tarnish
Penetration, Worked @ 25°C	460	417
Evaporation loss, wt%	0.30	0.25
Package (kg)	15	15

GH Grease EP

Multipurpose EP Grease

NLGI 0, 1, 2, 3



DESCRIPTION

GH Grease EP is a multipurpose EP grease containing highly refined mineral base oils, lithium thickener, extreme pressure (EP) additives and rust and oxidation inhibitors. It is suitable as a multipurpose automotive grease for general purpose applications.

APPLICATIONS

- Automotive wheel bearings
- Chassis grease point lubrication
- Industrial plain and rolling element bearings
- General plant lubrication
- Centralized lubrication systems (NLGI 0 and 1)
- Construction equipment bearings
- Earthmoving, quarrying and mining
- Agricultural equipment

Usable temperature range in continuous service is:

NLGI 1 -30 to 130°C

NLGI 2 -30 to 130°C

NLGI 3 -20 to 130°C

Maximum temperature for short term exposure is 175°C (NLGI 1, 2 and 3).

CUSTOMER BENEFITS

Saves maintenance costs

Effective EP additive protects against component wear under high load conditions. Rust and corrosion inhibitors protect metal surfaces.

Long service life

Excellent oxidation resistance ensures enhanced grease service life.

Ease of application

Good pumpability characteristics of the lithium thickener provide suitable flow properties for grease pump application systems (NLGI 2)

Minimizes inventory costs

Multipurpose capability allows use in a wide range of industrial and automotive applications reducing the number of different greases required and eliminating product misapplication.

KEY PROPERTIES

NLGI Grade	0	1	2	3
Dropping Point, °C	188	223	258	214
Penetration, Worked @ 25°C	364	314	269	235
Thickener Type	Lithium	Lithium	Lithium	Lithium
Thickener Content, mass %	20	20	20	20
Water Washout @ 79°C, 1hr		7.5	3	1.6
Package (kg)	15, 180	15, 180	15, 180	15, 180



GH Grease

General Purpose Automotive and Industrial Grease

NLGI 2, 3

DESCRIPTION

GH Grease is a smooth, buttery texture, yellowish, translucent, general purpose automotive and industrial grease with adhesive properties manufactured from lithium soap and containing an oxidation inhibitor.

APPLICATIONS

- Most automotive grease applications including wheel bearings, ball joints, universal joints and linkages.
- Industrial ball and roller bearing, plain bearing, niddle bearing.
- General industrial applications where EP characteristics are not needed.

CUSTOMER BENEFITS

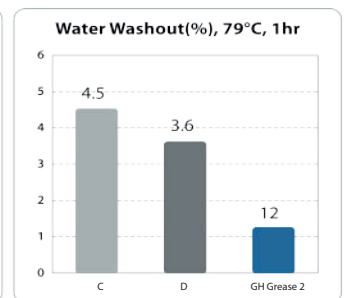
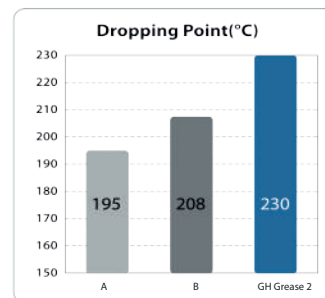
- Protects bearings from damage under light-load or shock-load conditions.
- Lubricates effectively in wet conditions due to its resistance to water washout.
- Provides long service life through high oxidation stability.
- Resists leakage from bearing through good mechanical stability.
- Does not run down and gives continuous lubrication thanks to its excellent tackiness.

KEY PROPERTIES

NLGI Grade	2	3
Dropping Point, °C	235	263
Penetration, Worked @ 25 °C	272	236
Thickener Type	Lithium	Lithium
Thickener Content, mass %	8.5	10
Water Washout @ 79°C, 1hr	2.49	1.27
4 ball EP, kgf	200	200
Life Performance, hrs @ 165 °C	80	80
Usable Temperature Range	-30 to 150	-20 to 160
Package (kg)	0.5, 1, 3, 15, 180	0.5, 1, 3, 15, 180

UNIQUE FEATURES

GH Grease is a is multipurpose grease with ISO 220 base oil, oxidation and corrosion inhibitors. It has high drop point leading to wide usable temperature range.



Golden Horse

The perfect fit for your machinery

08 Marine



GH Marine C
GH Marine S
GH Marine 10
GH Marine 20
GH Marine 30
GH Marine 40
GH Marine 50
GH Outboard 2T



Marine



GH Marine C

Cross Head Cylinder Oil for Low Sulfur



DESCRIPTION

GH Marine C is a high-performance SAE 50 cylinder lubricant intended for lubricating slow-speed engines at very high mechanical and thermal loads. It is blended from highly refined, paraffinic base oils and carefully selected additives to provide superior ring and liner wear protection and excellent piston cleanliness in slow-speed crosshead engines. It is developed specifically for high pressure and high-temperature applications.

APPLICATIONS

- Recommended for lubricating the cylinders of all large slow-speed marine diesel engines operating at high specific power outputs and high thermal loads

CUSTOMER BENEFITS

Wear Protection

Ensures protection against excessive cylinder liner and piston ring wear, thus allowing prolonged service intervals.

Detergent and Dispersant Properties

Prevents ring sticking and minimizes deposit formation throughout the combustion chamber exhaust areas.

Excellent Lubrication Properties

Maintains an oil film under severe, high load conditions, thereby reducing frictional wear and preventing scuffing of liners, pistons and rings.

Storage Stability

Completely stable at all ambient temperatures. Will not separate or deteriorate in long term storage.

Compatibility

Fully miscible and compatible with single-phase alkaline diesel cylinder lubricants generally known to the international marine trade.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	40	55	70
SAE Grade	50	50	50
Kinematic Viscosity, mm ² /s @ 40°C	231.6	230	220
Kinematic Viscosity, mm ² /s @ 100°C	21.0	20.0	20.5
Viscosity Index	107	106	105
FZG Fail Load Stage	11	11	11
Sulfated Ash, m %	9	9	9
Pour Point, °C	-21	-17	-15
Package(Liters)	200	200	200



GH Marine S

Cross Head System Oil

DESCRIPTION

GH Marine S is a premium quality, alkaline diesel engine oil designed for crankcase (system) lubrication of large, low speed diesel engines in marine and stationary applications.

APPLICATIONS

Crankcase lubrication of:

- Large, low speed (less than 250 rpm), two-cycle crosshead diesel engines
- Particularly suitable for engines with oil-cooled pistons
- Older-type marine trunk piston engines with separate cylinder lubrication
- Marine and stationary applications

CUSTOMER BENEFITS

Time Extension Between Overhauls

Special detergent and ashless dispersant additive system ensures crankcases and lubricating oil lines are kept free of deposits. The combination of detergency and excellent oxidation stability provides clean piston cooling galleries and chambers.

Protection of Bearings from Corrosive Wear

Level of alkalinity reserve ensures that acidic combustion products (which enter the crankcase due to leaks in the connecting rod seals) are effectively neutralized to protect bearings and bright metals against corrosive wear.

Easy Oil Purification

Combination of highly refined basestocks and special detergent additive system provides excellent water tolerance and separation properties which enable efficient purifier operation. Therefore, water washing is neither necessary nor recommended.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	5.3	5.4
SAE Grade	20	30
Kinematic Viscosity, mm ² /s @ 40°C	65.5	108
Kinematic Viscosity, mm ² /s @ 100°C	8.5	11.9
Viscosity Index	100	98
FZG Fail Load Stage	12	12
Sulfated Ash, m %	0.7	0.7
Package(Liters)	200	200

SERVICE CONSIDERATIONS

Marine system oils are designed for use with active purification systems. As such systems continuously remove contaminants from the oil, long service lives are possible and it is not usual to change out the lubricant on a fixed schedule. Accordingly, it is important that the oil's condition be monitored and the change-out period be determined by means of regular oil analysis and interpretation in accordance with manufacturers' guidelines. While GH Marine S has excellent water separation properties, water washing is neither necessary nor recommended. However, contamination with other engine oils may drastically affect its ability to maintain these excellent water separation characteristics.



GH Marine 10

10-TBN Trunk Piston Engine Oil

DESCRIPTION

GH Marine 10 is a lower alkaline reserve (12 Base Number) trunk piston engine oil (TPEO). It is designed for use in medium-speed trunk piston engines burning distillate fuels with sulfur content up to 1.5% in marine or stationary service.

APPLICATIONS

- Medium-speed trunk piston engines in stationary power generation
- Medium-speed trunk piston engines (marine service)
- Engine reduction gears

CUSTOMER BENEFITS

Maintains power output

The detergent/dispersant additive system provides control of high temperature deposits in areas such as the undercrown of the piston and the piston ring belt area, enabling piston rings to function efficiently.

Prolongs oil life

Base Number (BN) level and superior alkalinity retention characteristics maintain sufficiently high BN under all service conditions to ensure corrosive acids formed by the combustion of fuel sulfur are effectively neutralized, thereby minimizing liner wear.

Efficient purifying system performance

Excellent water separation characteristics enable water to be centrifuged out with essentially no loss of additive.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	12	12
SAE Grade	30	40
Viscosity, mm ² /s @ 40°C	96.0	137
Viscosity, mm ² /s @ 100°C	11.0	14.0
Viscosity Index	99	98
FZG Fail Load Stage	11	11
Sulfated Ash, m %	1.6	1.6
Package(Liters)	200	200



GH Marine 20

20-TBN Trunk Piston Engine Oil

DESCRIPTION

GH Marine 20 is a medium alkaline reserve (20 Base Number) trunk piston engine oil (TPEO). Specifically designed for use in high specific output medium speed trunk piston engines burning lower sulfur content (up to 2.0%) heavy residual fuels or marine diesel fuel. Particularly suited to high load factor operations in marine or stationary service and where heavy fuels with high asphaltene content (such as those containing visbroken residues) are used.

APPLICATIONS

- Medium-speed trunk piston engines including latest designs in stationary power generation, especially in high load factor operations
- Medium-speed trunk piston engines in marine service

CUSTOMER BENEFITS

Wear Protection

High alkalinity levels control cylinder liner wear effectively and protect bearings from corrosion. High-performance antiwear additives provide excellent protection against adhesive wear for cams, camshaft and bearings. GH Marine 20 also provides a high degree of water tolerance and antifoam protection.

Detergent-Dispersant Properties

Keeps crankcase and oil control rings clean. Prevents deposit formation throughout the engine. Reduces lube oil filter blockage. Effectively handles insolubles.

Oxidation Stability

Oxidation inhibitors protect the oil against thermal stresses, protect engine parts from corrosion and reduce undercrown deposits while promoting extended lubricant life.

Rust Prevention

Prevents corrosion of engine parts when engine is not in operation.

Balanced Additive Combination

Provides minimum maintenance and downtime, long engine life and economical operation.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	20	20
SAE Grade	30	40
Viscosity, mm ² /s @ 40°C	97.5	139
Viscosity, mm ² /s @ 100°C	11.0	14.0
Viscosity Index	98	97
FZG Fail Load Stage	12	12
Sulfated Ash, m %	2.5	2.5
Package(Liters)	200	200



GH Marine 30

30-TBN Trunk Piston Engine Oil

DESCRIPTION

GH Marine 30 is a high alkaline reserve (30 Base Number) trunk piston engine oil (TPEO) designed for use in high specific output medium speed trunk piston engines burning residual fuels (up to 4.5% sulfur). Particularly suited to high load factor operations in marine or stationary service and where heavy residual fuels with high asphaltene content (via broken residue) are used.

APPLICATIONS

- Medium-speed trunk piston engines including latest designs in stationary power generation, especially in high load factor operations
- Medium-speed trunk piston engines in marine service

CUSTOMER BENEFITS

Wear Protection

High alkalinity levels control cylinder liner wear effectively and protect bearings from corrosion. High-performance antiwear additives provide excellent protection against adhesive wear for cams, camshaft and bearings. GH Marine 30 also provides a high degree of water tolerance and antifoam protection.

Detergent-Dispersant Properties

Keeps crankcase and oil control rings clean. Prevents deposit formation throughout the engine. Reduces lube oil filter blockage. Effectively handles insolubles.

Oxidation Stability

Oxidation inhibitors protect the oil against thermal stresses, protect engine parts from corrosion and reduce undercrown deposits while promoting extended lubricant life.

Rust Prevention

Prevents corrosion of engine parts when engine is not in operation.

Balanced Additive Combination

Provides minimum maintenance and downtime, long engine life and economical operation.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	30	30
SAE Grade	30	40
Viscosity, mm ² /s @ 40°C	96.8	136
Viscosity, mm ² /s @ 100°C	11.1	14.2
Viscosity Index	100	102
FZG Fail Load Stage	12	12
Sulfated Ash, m %	3.6	3.4
Package(Liters)	200	200



GH Marine 40

40-TBN Trunk Piston Engine Oil

DESCRIPTION

GH Marine 40 is a high alkaline reserve (40 Base Number) trunk piston engine oil (TPEO) designed for use in high specific output medium speed trunk piston engines burning residual fuels (up to 4.5% sulfur). Particularly suited to high load factor operations in marine or stationary service and where heavy residual fuels with high asphaltene content (via broken residue) are used.

APPLICATIONS

- Medium-speed trunk piston engines including latest designs in stationary power generation, especially in high load factor operations
- Medium-speed trunk piston engines in marine service

CUSTOMER BENEFITS

Wear Protection

High alkalinity levels control cylinder liner wear effectively and protect bearings from corrosion. High-performance antiwear additives provide excellent protection against adhesive wear for cams, camshaft and bearings. GH Marine 40 also provides a high degree of water tolerance and antifoam protection.

Detergent-Dispersant Properties

Keeps crankcase and oil control rings clean. Prevents deposit formation throughout the engine. Reduces lube oil filter blockage. Effectively handles insolubles.

Oxidation Stability

Oxidation inhibitors protect the oil against thermal stresses, protect engine parts from corrosion and reduce undercrown deposits while promoting extended lubricant life.

Rust Prevention

Prevents corrosion of engine parts when engine is not in operation.

Balanced Additive Combination

Provides minimum maintenance and downtime, long engine life and economical operation.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	40
SAE Grade	40
Viscosity, mm ² /s @ 40°C	139
Viscosity, mm ² /s @ 100°C	14.0
Viscosity Index	97
FZG Fail Load Stage	12
Sulfated Ash, m %	4.8
Package(Liters)	200

GH Marine 50

50-TBN Trunk Piston Engine Oil



DESCRIPTION

GH Marine 50 is a high alkaline reserve (50 Base Number) trunk piston engine oil (TPEO) designed for use in the newer generation, high specific output medium speed trunk piston engines burning residual fuels (up to 4.5% sulfur). Particularly suited to high load factor operations in marine or stationary service and where heavy residual fuels with high asphaltene content (via broken residue) are used.

APPLICATIONS

- Medium-speed trunk piston engines including latest designs in stationary power generation, especially in high load factor operations
- Medium-speed trunk piston engines in marine service

CUSTOMER BENEFITS

Wear Protection

High alkalinity levels control cylinder liner wear effectively and protect bearings from corrosion. High-performance antiwear additives provide excellent protection against adhesive wear for cams, camshaft and bearings. GH Marine 50 also provides a high degree of water tolerance and antifoam protection.

Detergent-Dispersant Properties

Keeps crankcase and oil control rings clean. Prevents deposit formation throughout the engine. Reduces lube oil filter blockage. Effectively handles insolubles.

Oxidation Stability

Oxidation inhibitors protect the oil against thermal stresses, protect engine parts from corrosion and reduce under crown deposits while promoting extended lubricant life.

Rust Prevention

Prevents corrosion of engine parts when engine is not in operation.

Balanced Additive Combination

Provide minimum maintenance and downtime, long engine life and economical operation.

KEY PROPERTIES

TBN (Base Number, mg KOH/g)	50
SAE Grade	40
Viscosity, mm ² /s @ 40°C	138
Viscosity, mm ² /s @ 100°C	14.3
Viscosity Index	101
FZG Fail Load Stage	12
Sulfated Ash, m %	6.1
Package(Liters)	200



GH Outboard 2T

Two-Stroke Outboard Motor Oil

TC-W3 RECOMMENDED

DESCRIPTION

Premium performance, two-stroke, marine outboard motor oil formulated with a special ashless additive system. Pre-diluted with special solvent to facilitate mixing easily with gasoline at all temperatures. Designed for engines requiring NMMA TC-W3® lubricants, operating in all service conditions.

APPLICATIONS

- All water-cooled, two-stroke, marine outboard engines, including the latest designs under warranty protection
- Oil-injected engines
- Air-cooled, two-stroke engines where NMMA certified oils are specified

PERFORMANCE STANDARDS

- National Marine Manufacturers Association (NMMA) TC-W3® Recommended
- NMMA TC-WII®, TC-W® Recommended

CUSTOMER BENEFITS

Maintains high power output

The special blend of ash-less additive system provides superior piston cleanliness and protection against ring sticking by minimizing deposit formation, thus maintaining combustion efficiency and protecting against power loss.

Trouble-free operation

The ash-less additive system ensures that ash-induced deposits are not formed in the combustion chamber, eliminating the risk of destructive pre-ignition.

Maximizes spark plug life

The ash-less additive system reduces spark plug fouling under all operating conditions.

KEY PROPERTIES

SAE Grade (J1536)	F/M 3
Ash, mass %	<0.01
Viscosity, mm ² /s @ 40°C	45.25
Viscosity, mm ² /s @ 100°C	7.59
Viscosity Index	135
Pour Point °C	-39
Package(Liters)	1,200

Performance Classification Gear Oil

Worm gear 	GRADE	Type	APPLICATION
	GL-1	Straight Mineral Oil	Truck manual transmissions
	GL-2	Usually contains fatty materials	Worm gear drives, industrial gear oils
	GL-3	Contains mild EP additives.	Manual Transmission and spiral bevel final drives
	GL-4	Equivalent to obsolete Mil-L-2105 specification, usually satisfied with 50% of GL-5 additive level	Manual Transmissions, and Spiral bevel and hypoid gears in moderate service.
Spiral bevel gear 			
Hypoid gear API 	GL-5	Virtually equivalent to present Mil-L-2105D, Primary field service recommendation of most passenger	Moderate and severe service in hypoid and other types of gears. May also be used in manual transmissions car and truck builders worldwide

Viscosity grade : SAE-Engine Oil

SAE J300 Nov. 2007

(SAE: Society of Automotive Engineers)

SAE Viscosity Grade	Low Temp. Cranking Vis., Max at Temp, cP at °C	Low Temp. Pumping Vis., Max with no yield stress at Temp, cP at °C	High Temp. Vis. cSt at 100°C		High Temp. High Shear Vis. At 150°C, cP
			Min.	Max.	
0W	6,200 at -35	60,000 at -40	3.8	-	-
5W	6,600 at -30	60,000 at -35	3.8	-	-
10W	7,000 at -25	60,000 at -30	4.1	-	-
15W	7,000 at -20	60,000 at -25	5.6	-	-
20W	9,500 at -15	60,000 at -20	5.6	-	-
25W	13,000 at -10	60,000 at -15	9.3	-	-
20	-	-	5.6	< 9.3	2.6
30	-	-	9.3	< 12.5	2.9
40	-	-	12.5	< 16.3	3.5 / 3.7
50	-	-	16.3	< 21.9	3.7
60	-	-	21.9	< 26.1	3.7

5W-30 is satisfied with the specification of 5W and 30 simultaneously.

Viscosity Grades : SAE-Gear Oil

(SAE J306 OCT. 91)

SAE Viscosity Grade	Maximum Temperature for Viscosity of 150,000cP	Viscosity at 100°C, cSt	
		Min.	Max.
70W	-55	4.1	-
75W	-40	4.1	-
80W	-26	7.0	-
85W	-12	11.0	-
80	-	7.0	11.0
85	-	11.0	13.5
90	-	13.5	< 24.0
140	-	24.0	< 41.0
250	-	41.0	-

Multigrade: 75W-85W, 80W-90, 85W-140 etc.

Viscosity Grades : ISO-Industrial Oil

(ISO: International Organization for Standardization)

ISO Viscosity Grade	Viscosity at 40°C, cSt	
	Min.(-10%)	Max.(+10%)
32	28.8	35.2
46	41.4	50.6
68	61.2	74.8
100	90.0	110
150	135.0	165
220	198.0	242
~	~	~
1500	1350.0	1650

Multigrade: 75W-85W, 80W-90, 85W-140 etc.

Which oil is right for you?

1. API

The current and previous API Service Categories are listed below. Vehicle owners should refer to their owner's manuals before consulting these charts. Oils may have more than one performance level.

For automotive gasoline engines, the latest engine oil service category includes the performance properties of each earlier category. If an automotive owner's manual calls for an API SJ or SL oil, an API SN oil will provide full protection. For diesel engines, the latest category usually - but not always - includes the performance properties of an earlier category.

Gasoline Engines

Category	Status	Service
SP	Current	Introduced in May 2020, designed to provide protection against low-speed pre-ignition (LSPI), timing chain wear protection, improved high temperature deposit protection for pistons and turbochargers, and more stringent sludge and varnish control. API SP with Resource Conserving matches ILSAC GF-6A by combining API SP performance with improved fuel economy, emission control system protection and protection of engines operating on ethanol-containing fuels up to E85.
SN	Current	For 2020 and older automotive engines.
SM	Current	For 2010 and older automotive engines.
SL	Current	For 2004 and older automotive engines.
SJ	Current	For 2001 and older automotive engines.
SH	Obsolete	CAUTION: Not suitable for use in most gasoline-powered automotive engines built after 1996. May not provide adequate protection against build-up of engine sludge, oxidation, or wear.
SG	Obsolete	CAUTION: Not suitable for use in most gasoline-powered automotive engines built after 1993. May not provide adequate protection against build-up of engine sludge, oxidation, or wear.
SF	Obsolete	CAUTION: Not suitable for use in most gasoline-powered automotive engines built after 1988. May not provide adequate protection against build-up of engine sludge.
SA - SE	Obsolete	WE do not produce this grade.

Diesel Engines

Category	Status	Service
CK-4	Current	API Service Category CK-4 describes oils for use in high-speed four-stroke cycle diesel engines designed to meet 2017 model year on-highway and Tier 4 non-road exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or oil drain interval. These oils are especially effective at sustaining emission control system durability where particulate filters and other advanced aftertreatment systems are used. API CK-4 oils are designed to provide enhanced protection against oil oxidation, viscosity loss due to shear, and oil aeration as well as protection against catalyst poisoning, particulate filter blocking, engine wear, piston deposits, degradation of low- and high-temperature properties, and soot-related viscosity increase. API CK-4 oils exceed the performance criteria of API CJ-4, CI-4 with CI-4 PLUS, CI-4, and CH-4 and can effectively lubricate engines calling for those API Service Categories. When using CK-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval recommendations.
CJ-4	Current	For high-speed four-stroke cycle diesel engines designed to meet 2010 model year on-highway and Tier 4 non-road exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or drain interval. API CJ-4 oils exceed the performance criteria of API CI-4 with CI-4 PLUS, CI-4, CH-4, CG-4 and CF-4 and can effectively lubricate engines calling for those API Service Categories. When using CJ-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval.
CI-4	Current	Introduced in 2002. For high-speed, four-stroke engines designed to meet 2004 exhaust emission standards implemented in 2002. CI-4 oils are formulated to sustain engine durability where exhaust gas recirculation (EGR) is used and are intended for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, CG-4, and CH-4 oils. Some CI-4 oils may also qualify for the CI-4 PLUS designation.
CH-4	Current	Introduced in 1998. For high-speed, four-stroke engines designed to meet 1998 exhaust emission standards. CH-4 oils are specifically compounded for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, and CG-4 oils.
CG-4	Obsolete	Introduced in 1995. For Severe duty, high-speed, four-stroke engines using fuel with less than 0.5% weight sulfur. CG-4 oils are required for engines meeting 1994 emission standards. Can be used in place of CD, CE, and CF-4 oils.
CF-4	Obsolete	Introduced in 1990. For high-speed, four-stroke, naturally aspirated and turbocharged engines. Can be used in place of CD, CE oils.
CF-2	Obsolete	Introduced in 1994. For severe duty, two-stroke cycle engines. Can be used in place of CD-II oils.
CF	Obsolete	Introduced in 1994. For off-road, indirect-injected and other diesel engines including those using fuel with over 0.5% weight sulfur. Can be used in place of CD oils.
CA - CE	Obsolete	We do not produce this grade.

Note: API intentionally omitted "SI" and "SK" from the sequence of categories. For more information about API's Engine Oil Program, visit our website at www.api.org/eolcs.

Which oil is right for you?

2. ACEA

The European Automobile Manufacturers' Association (or Association des Constructeurs Européens d'Automobiles in French, hence the ACEA abbreviation) is an organization that represents the 15 most important European motor vehicle manufacturers. According to their statement, ACEA is an advocate for the automobile industry in Europe, representing manufacturers of passenger cars, vans, trucks and buses with production sites in the EU.

Among many other activities ACEA defines specifications for engine oils so called ACEA Oil Sequences. The sequences are usually updated every few years to include the latest developments in engine and lubricant technology. ACEA itself does not approve the oils, they set the standards and oil manufacturers may make performance claims for their products if those satisfy the relevant requirements.

Each set of Oil Sequences is designated for consumer use by a 2-part code comprising a letter to define the CLASS (e.g. C), and a number to define the CATEGORY (e.g. C1).

In addition, for industry use, each sequence has a two-digit number to identify the YEAR of implementation of that severity level (e.g. A3/B4-16)

The CLASS indicates oil intended for a general type of engines – currently there are:

- **A/B** : Gasoline and Light Duty Diesel Engines
- **C** : Catalyst compatible oils for Gasoline and Light Duty Diesel Engines with After treatment devices
- **E** : Heavy Duty Diesel Engines

Other classes may be added in future if, for example, Natural Gas Engines may prove to require oil characteristics which cannot readily be incorporated into existing classes.

• A/B: Gasoline and Diesel Engine Oils – “High SAPS”

Category	Service
A1/B1	Category is removed with these Oil Sequences.
A3/B3	Stable, stay-in-grade Engine Oil intended for use in Passenger Car & Light Duty Van Gasoline & Diesel Engines with extended drain intervals where specified by the Engine Manufacturer, and for severe operating conditions as defined by the Engine Manufacturer.
A3/B4	Stable, stay-in-grade Engine Oil intended for use at extended Drain Intervals in Passenger Car & Light Duty Van Gasoline & DI Diesel Engines, but also suitable for applications described under A3/B3.
A5/B5	Stable, stay-in-grade Engine Oil intended for use at extended Drain Intervals in Passenger Car & Light Duty Van Gasoline & Diesel Engines designed to be capable of using Low Viscosity Oils with HTHS Viscosity of 2.9 to 3.5 mPa s. These Oils are unsuitable for use in certain Engines - consult vehicle-OEM's owner's manual / handbook in case of doubt.

• C: Catalyst & GPF/DPF compatible Engine Oils for Gasoline & Diesel Engines – “Low SAPS”

Note : These Oils will increase the DPF/GPF and TWC life and maintain the Vehicle's Fuel Economy.

Warning : Some of these Categories may be unsuitable for use in certain Engine Types – consult the vehicle-OEM's owner's manual/handbook in case of doubt.

Category	Service
C1	Stable, stay-in-grade Engine Oil with Lowest SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Low Viscosity Oils with a minimum HTHS Viscosity of 2.9 mPa.s.
C2	Stable, stay-in-grade Engine Oil with Mid SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Low Viscosity Oils with a minimum HTHS Viscosity of 2.9 mPa.s.
C3	Stable, stay-in-grade Engine Oil with Mid SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Oils with a minimum HTHS Viscosity of 3.5 mPa.s.
C4	Stable, stay-in-grade Engine Oil with Low SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Oils with a minimum HTHS Viscosity of 3.5 mPa.s.
C5	Stable, stay-in-grade Engine Oil with Mid SAPS-Level, for further improved Fuel Economy, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable and OEM-approved for use of Low Viscosity Oils with a minimum HTHS Viscosity of 2.6 mPa.s.

• **SAPS:** Sulphated Ash, Phosphorus, Sulphur • **HTHS:** High Temperature High Shear Viscosity

• **DI:** Direct Injection • **DPF:** Diesel Particle Filter • **GPF:** Gasoline Particle Filter • **TWC:** Three-Way Catalyst

• E: Heavy Duty Diesel Engine Oils

Category	Service
E4	Stable, stay-in-grade oil providing excellent control of piston cleanliness, wear, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under very severe conditions, e.g. significantly extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines without particulate filters, and for some EGR engines and some engines fitted with SCR NOx reduction systems. However, recommendations may differ between engine manufacturers so driver manuals and/or dealers shall be consulted if in doubt.
E6	Stable, stay-in-grade oil providing excellent control of piston cleanliness, wear, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV, Euro V and Euro VI emission requirements and running under very severe conditions, e.g. significantly extended oil drain intervals according to the manufacturer's recommendations. It is suitable for EGR engines, with or without particulate filters, and for engines fitted with SCR NOx reduction systems. E6 quality is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low sulphur diesel fuel. However, recommendations may differ between engine manufacturers so driver manuals and/or dealers shall be consulted if in doubt.
E7	Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines without particulate filters, and for most EGR engines and most engines fitted with SCR NOx reduction systems. However, recommendations may differ between engine manufacturers so driver manuals and/or dealers shall be consulted if in doubt.
E9	Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV, Euro V and Euro VI emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines with or without particulate filters, and for most EGR engines and for most engines fitted with SCR NOx reduction systems. E9 is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low Sulphur diesel fuel. However, recommendations may differ between engine manufacturers so driver manuals and/or dealers should be consulted if in doubt

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Golden Horse Petroleum

Refining, Transporting, Marketing and Suppling

GH Lubricant are engineered with premium quality base oil
produced here at Golden Horse Complex.

