



# PRODUCT GUIDE



**Local Service, Worldwide**



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The name of Jan Lammers should be very well-known to most motor racing followers. He is after all, one of the most versatile racers of the modern era, having driven everything from sports cars, trucks (in Paris - Dakar) and Indy cars, most forms of single seaters, touring cars and even rally machines. And, of course, he has driven in Formula One, a category in which he has the unique claim to fame of making a comeback away for more than 10 years, the longest gap between F1 starts in the history of Grand Prix racing. Jan Lammers promotes 77 Lubricants because of good results!

Jan Lammers



## ABOUT 77 LUBRICANTS

### HIGH QUALITY LUBRICANTS

77 Lubricants is one of the largest independent lubricating oil brands in Europe. 77 Lubricants produces and sells an extensive selection of high quality lubricants and specialties that are used in a wide range of applications. The products are developed and produced by specialists who can choose from a wide variety of base oils and additives, making sure they put together lubricants that meet the latest standards of the Original Equipment Manufacturers (OEM's) and International Standardization Committees.

The products of 77 Lubricants are produced in one of the largest and most advanced lubricant plants in the Netherlands. This plant, with an annual production capacity of 130.000 Metric Tons of finished lubricants, has an oil storage capacity of 17 million liters, more than 60 tanks for the storage of finished products and several warehouses for storing packaged products.

The ISO 9001 certified plant has a fully equipped laboratory at its disposal, which guarantees 100 percent product compliance. It also offers an oil analysis program.

77 Lubricants is a proud international brand that offers a sophisticated product line of the highest quality available in Europe. This is combined with excellent service from the sales staff and the technical team, who put the products on the market.

All products are sold by local distributors and supported by us to make sure we offer the best possible service to end-users.

Commitment and personal support of our partners and customers is in our DNA.

We act quickly and are very reliable. If you have any questions, please do not hesitate to contact us.

### 77 MARINE LUBRICANTS

77 Lubricants has an extensive marine lubricants portfolio, which includes high-performance diesel-engine cylinder oils, trunk-piston engine oils and special greases. We also provide a range of technical services and lubrication advice to support our customers in gaining optimum results when they use our 77 lubricants products. With a national supply chain of 6 bunker barges for lubricant transport and dedicated tank trucks, 77 Lubricants marine products are guaranteed to be delivered on demand in all Dutch ports.

World's biggest bunker barge in the Port of Rotterdam. The Port of Rotterdam, located in the city of Rotterdam, the Netherlands, is the largest port in Europe. Every year about 34.000 sea-going vessels and 100.000 inland vessels call at the Port of Rotterdam. The petrochemical industry and general cargo transshipment handlings are the most important activities in the Port of Rotterdam. For deliveries in the Rotterdam area, 77 Lubricants works with the world's biggest and most modern double hull lubricants bunker barge: the TNB Pride. Use our technical expertise to improve your productivity

As a leading supplier of marine lubricants, we have the resources to develop technology and services that immediately respond to your evolving lubrication needs. Our dedicated team of engineers and technicians offers unrivalled technical expertise. Through our oil analyses we can support you with our technical information and increase your productivity and profit.

For additional information on our services, please do not hesitate to contact us by mail at [info@77lubricants.nl](mailto:info@77lubricants.nl).

## Introduction

77 Lubricants est une des marques de lubrifiant indépendantes les plus diversifiées d'Europe. 77 Lubricants produit et introduit sur le marché une collection complète de lubrifiants de qualité supérieure, ainsi que des spécialités pour une vaste palette d'applications. Les produits sont développés et produits par des spécialistes qui font leur choix parmi une grande variété d'huiles de base et d'additifs en vue d'obtenir des lubrifiants conformes aux derniers standards de l'OEM (Original Equipment Manufacturers) et du Comité international de standardisation.

Tous les produits de 77 Lubricants sont fabriqués dans une des plus grandes usines de mélange de lubrifiant des Pays-Bas, et une des plus sophistiquées.

Sa capacité annuelle est de 13 000 tonnes de produit fini, sa capacité de stockage d'huile de base s'élève à 17 millions de litres, et elle compte plus de 60 réservoirs pour le stockage de produits finis et divers entrepôts pour le stockage de produits finis.

Certifiée ISO 9001, l'usine dispose d'un laboratoire entièrement équipé garantissant une conformité produits de 100%, et propose d'autre part un programme d'analyse « huiles en service ».

77 Lubricants est fier du caractère international de la marque, de son statut de vendeur d'une ligne de produits sophistiquée et d'excellente qualité - une des meilleures en Europe. Le service optimal du départe-

ment ventes et technique de 77 ne fait que faciliter le marketing de nos produits.

Tous les produits 77 Lubricant sont revendus par des distributeurs locaux, lesquels disposent du support total de l'usine de production aux Pays-Bas. Le résultat : un service excellent à destination des utilisateurs finaux de nos produits.

Fournir à nos partenaires et à nos clients un soutien individuel et personnel est notre seconde nature. Fiables, nous agissons rapidement et sommes à votre disposition pour répondre à vos questions.

## Introducción

77 lubricants es una de las marcas independientes de aceites lubricantes más grandes de Europa. 77 lubricants produce y comercializa una selección integral de lubricantes y especialidades de alta calidad, destinada a una gran variedad de aplicaciones. Los productos son desarrollados y producidos por especialistas que tienen a su disposición una amplia variedad de aceites base y aditivos para obtener lubricantes que cumplan con los estándares más recientes de los fabricantes de equipos originales (OEM) y los Comités Internacionales de Estandarización.

Todos los productos de 77 Lubricants son producidos en una de las plantas mezcladoras de lubricantes más grandes y avanzadas de los Países Bajos. Esta planta, con una capacidad de producción anual de 130.000

toneladas métricas de lubricantes terminados, tiene una capacidad de almacenamiento de 17 millones de litros, más de 60 tanques para el almacenamiento de productos terminados y varias instalaciones de almacenamiento para productos envasados.

La planta que cuenta con el certificado ISO 9001, dispone de un laboratorio totalmente equipado lo cual le permite garantizar un cumplimiento absoluto con los requisitos del producto y además ofrece un programa para el análisis de los aceites producidos.

77 Lubricants está orgullosa por ser una marca internacional, que ofrece un producto sofisticado y de la mayor calidad disponible en Europa. La comercialización de los productos cae bajo la responsabilidad

del personal de ventas y el equipo técnico de 77, ofreciendo siempre el mejor servicio posible.

Todos los productos son vendidos por distribuidores locales que disfrutan de un soporte incondicional por parte de la fábrica en los Países Bajos. Esto garantiza el mejor servicio posible para los usuarios finales de nuestros productos.

La combinación de compromiso y el apoyo individual y personalizado en el trato con nuestros socios y clientes, es nuestra segunda naturaleza.

Trabajamos con rapidez y fiabilidad y estamos a su total disposición para responder cualquier pregunta.



## RACING OIL 10W-60

Product Code 42010



**RACING OIL 10W-60** is a high performance fully synthetic motor oil of exceptional quality, delivering extreme performance in gasoline-, diesel- and LPG fueled engines in passenger cars with or without turbocharger, working under severe temperature and load conditions.

**RACING OIL 10W-60** is based on high quality 100% synthetic Poly Alpha Olefin (PAO) in combination with an unique additive package to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersant and detergent properties.
- Excellent cold temperature properties for a smooth cold start.
- Excellent protection against wear, corrosion and foam.
- Suited for extreme and severe conditions.

Meets: API SN, ACEA A3/B4

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-60
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	160.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	23.9
Viscosity Index		ASTM D2270	171
HTHS viscosity @150°C	mPa.s	ASTM D4683	5.7
Viscosity CCS @-25°C, max	cP	ASTM D5293	4580
MRV @ -30°C	mPa.s	ASTM D4684	26019
Flash Point COC	°C	ASTM D92	238
Noack	%	ASTM D5800	6.2
Pour Point	°C	ASTM D7346	-54
Total Base Number	mgKOH/g	ASTM D2896	10.2
Sulphated Ash	%Wt	ASTM D874	1.09

## RACING OIL 5W-50

Product Code 42020



**RACING OIL 5W-50** is a high performance motor oil based on 100% synthetic technology with exceptional quality, delivering extreme performance in gasoline-, diesel- and LPG fueled engines in passenger cars with or without turbocharger, working under severe temperature and load conditions.

**RACING OIL 5W-50** is based on high quality synthetic base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersant and detergent properties.
- Excellent cold temperature properties for a smooth cold start.
- Excellent protection against wear, corrosion and foam.
- Suited for extreme and severe conditions.

Meets: API SP, ACEA A3/B4, VW 501.01, VW 505.00

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	104.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18
Viscosity Index		ASTM D2270	189
HTHS viscosity @150°C	mPa.s	ASTM D4683	4.2
Viscosity CCS @-30°C, max	cP	ASTM D5293	3890
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	11.2
Sulphated Ash	%Wt	ASTM D874	1.3



## MOTOR OIL HT 0W-40

Product Code 42290



**MOTOR OIL HT 0W-40** is a fully synthetic oil for the latest generation engines and specially formulated to meet the requirements of the latest generation gasoline & diesel engines. This multi-grade oil provides excellent protection against wear and good lubrication to help saving fuel and reduction of emissions.

**MOTOR OIL HT 0W-40** is formulated with high quality synthetic base oils, PolyAlphaOlefin (PAO), in combination with a special selected additive package to ensure the following properties:

- Excellent thermal and oxidation stability.
- Excellent cold temperature properties for an easy cold start.
- Very good dispersant and detergent properties.
- Very good antifoam, antiwear and anti-corrosion properties.
- Long oil change interval possible.

Approved: MB-Approval 229.5

Exceeds: ACEA A3/B4, API SN, VW 502.00/505.00, Porsche A40, BMW LL-01 > until 2019, Renault RN0700/0710, MB 229.3, Ford M2C937-A

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	842.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	78.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.9
Viscosity Index		ASTM D2270	184
Viscosity CCS @-35°C, max	cP	ASTM D5293	5520
HTHS @150°C	mPa.s	ASTM D4683	3.8
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51
Total Base Number	mgKOH/g	ASTM D2896	10.3

## MOTOR OIL SYNTHETIC LE 5W-30

Product Code 42255



**MOTOR OIL SYNTHETIC LE 5W-30** is a high performance fuel saving MID SAPS engine oil based on 100% synthetic technology for use in the latest generation gasoline and diesel engines of passenger car and light vans with or without turbocharger.

**MOTOR OIL SYNTHETIC LE 5W-30** is developed for use in engine which are equipped with or without an exhaust gas after treatment system.

**MOTOR OIL SYNTHETIC LE 5W-30** is based on high performance 100% synthetic base oil in combination with a specially selected additive technology to ensure the following properties:

- Good thermal and oxidation stability.
- MID SAPS technology.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.

- Equipped for diesel engines with an exhaust after treatment system.
- Fuel saving properties.
- Excellent detergency and dispersency properties.

Approved: MB-Approval 229.52, MB-Approval 229.51, BMW LL-04

Meets: ACEA C3, API SP, Renault RN17, MB 229.31, MB 226.52, DEXOS 2, VW 040 1547 - G30, VW 040 1547 - D30

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	853.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.8
Viscosity Index		ASTM D2270	170
Viscosity CCS @-30°C, max	cP	ASTM D5293	6310
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	9.7
Sulphated Ash	%Wt	ASTM D874	0.8

## MOTOR OIL SYNTHETIC LE 5W-40

Product Code 42265



**MOTOR OIL SYNTHETIC LE 5W-40** is a high performance fuel saving MID SAPS engine oil based on 100% synthetic technology for use in the latest generation gasoline and diesel engines of passenger car and light vans with or without turbocharger.

**MOTOR OIL SYNTHETIC LE 5W-40** is developed for use in engine which are equipped with or without an exhaust gas after treatment system.

**MOTOR OIL SYNTHETIC LE 5W-40** is based on high performance 100% synthetic base oil in combination with a specially selected additive technology to ensure the following properties:

- Good thermal and oxidation stability.
- MID SAPS technology.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.

- Equipped for diesel engines with an exhaust after treatment system.
- Fuel saving properties.
- Excellent detergency and dispersency properties.

Approved: MB-Approval 229.52, MB-Approval 229.51, BMW LL-04

Exceeds: ACEA C3, API SP, MB 229.31, VW 505.00/505.01

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	67.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13
Viscosity Index		ASTM D2270	175.7
Viscosity CCS @-30°C, max	cP	ASTM D5293	5150
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	7.2
Sulphated Ash	%Wt	ASTM D874	0.8

## MOTOR OIL CT 5W-30

Product Code 42315



**MOTOR OIL CT 5W-30** is a cost effective fuel saving MID SAPS technology and used in light duty vehicles fitted with direct injection, turbochargers and after-treatment systems, gasoline catalytic converter, or diesel particulate filter technology.

**MOTOR OIL CT 5W-30** is based on high performance base oils in combination with a specially selected additive technology to ensure the following properties:

- Strong Fuel Economy Performance
- Excellent Engine Durability
- Excellent Engine Compatibility
- Good thermal and oxidation stability.
- MID SAPS technology.
- Good protection against wear, foam and corrosion.
- Good low temperature properties, to ensure a smooth cold start.
- Equipped for diesel engines with an exhaust after treatment system.

Meets: API SP, ACEA C3, ACEA C2, DEXOS 2, API SN/CF, MB 229.52, MB 229.51, MB 229.31, BMW LL-04 (<- 2019 applications)

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	73.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	165
Viscosity CCS @-30°C, max	cP	ASTM D5293	6190
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	8.2
Sulphated Ash	%Wt	ASTM D874	0.79



## MOTOR OIL CT 5W-40

Product Code 42325



**MOTOR OIL CT 5W-40** is a cost effective fuel saving MID SAPS technology and used in light duty vehicles fitted with direct injection, turbochargers and after-treatment systems, gasoline catalytic converter, or diesel particulate filter technology.

**MOTOR OIL CT 5W-40** is based on high performance base oils in combination with a specially selected additive technology to ensure the following properties:

- Strong Fuel Economy Performance
- Excellent Engine Durability
- Excellent Engine Compatibility
- Good thermal and oxidation stability.
- MID SAPS technology.
- Good protection against wear, foam and corrosion.
- Good low temperature properties, to ensure a smooth cold start.
- Equipped for diesel engines with an exhaust after treatment system.

Meets: API SP, ACEA C3, MB 229.31, MB 229.51, API SN/CF, Dexos 2, BMW LL-01 <- 2019 applications

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	850.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	80.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.4
Viscosity Index		ASTM D2270	169
Viscosity CCS @-30°C, max	cP	ASTM D5293	5980
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	8.1

## MOTOR OIL SYNTHETIC 0W-16

Product Code 42160



**MOTOR OIL SYNTHETIC 0W-16** is the advanced synthetic energy conserving motor oil specially developed for the most modern high output gasoline and turbocharged engines in (Hybrid)passenger cars, sport utility vehicles and light-duty trucks, operating on ethanol-containing fuels up to E85. It is formulated to help improve & retain fuel economy and protect vehicle emission system & turbocharger components.

**MOTOR OIL SYNTHETIC 0W-16** is based on exceptional quality synthetic base oil in combination with a special selected additive package to reach to following properties:

- Improved protection against stochastic pre-ignition
- Improving sludge protection, piston cleanliness, turbo-charger protection, seal compatibility, wear protection
- Special friction modifiers used in this Energy conserving oil help improving & retaining fuel economy.
- Offers excellent lubrication at low temperatures and protect engine at high temperatures.

- Superior volatility characteristics reduce oil consumption and hydrocarbon pollution (VOCs).
- Advanced additive chemistry helps in emission system durability.
- Compatible with ethanol-containing fuels up to E85.

Meets: API SP, API SN, API SN + RC, ILSAC GF-6B

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-16
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	848.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	37.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.4
Viscosity Index		ASTM D2270	161
Viscosity CCS @-15°C, max	cP	ASTM D5293	5960
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	8.4

## MOTOR OIL SYNTHETIC 0W-20

Product Code 42150



**MOTOR OIL SYNTHETIC 0W-20** is high performance fuel conserving engine oil based on 100% synthetic technology for all gasoline engines in passenger cars and light vans.

**MOTOR OIL SYNTHETIC 0W-20** is specially designed for the lubricating of the latest generation vehicles like hybrid and ECO models which require a SAE 0W-20 and running on gasoline and/or ethanol-containing fuels up to E85.

**MOTOR OIL SYNTHETIC 0W-20** is based on synthetic base oil in combination with a special additive package to obtain the following properties.

- Excellent thermal and oxidation stability.
- Excellent cold temperature properties for a smooth cold start.
- Very good dispersant and detergent properties.
- Fuel saving properties due to low friction properties

- Very good antifoam, antiwear and anticorrosion properties.
- Long oil change interval possible.

Meets: API SP, API SN, API SN + RC, ILSAC GF-6A, Dexos™1 Gen 3, Ford WSS-M2C962-A1, GM 4718M, Chrysler MS-6395

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	845.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	41.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.0
Viscosity Index		ASTM D2270	167
Viscosity CCS @-15°C, max	cP	ASTM D5293	5440
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	8.1
Sulphated Ash	%Wt	ASTM D874	0.86

## MOTOR OIL SYNTHETIC 0W-30

Product Code 42190



**MOTOR OIL SYNTHETIC 0W-30** is a high performance fully synthetic motor oil for gasoline- and diesel engines of modern passenger cars and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SYNTHETIC 0W-30** is formulated with high quality 100% synthetic base oil (Poly Alpha Olefin (PAO)) in combination with an unique additive package to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersant and detergent properties.
- Excellent cold temperature properties for a smooth cold start.
- Excellent protection against wear, corrosion and foam.
- Suited for extreme and severe conditions.

Meets: VCC 95200356, API SL, ACEA A3/B4, VW 502.00, VW 505.00, MB 229.3, MB 229.5, Renault RN 0700, Renault RN 0710

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	843.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	66.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.1
Viscosity Index		ASTM D2270	180
Viscosity CCS @-35°C,	max cP	ASTM D5293	5400
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51
Total Base Number	mgKOH/g	ASTM D2896	10.3
Sulphated Ash	%Wt	ASTM D874	1.51



## MOTOR OIL SYNTHETIC 5W-20

Product Code 42051



**MOTOR OIL SYNTHETIC 5W-20** is high performance fuel conserving engine oil based on 100% synthetic technology for all gasoline engines in passenger cars and light vans. MOTOR OIL SN 5W-20 is specially designed for the lubricating of the latest generation vehicles like hybrid and ECO models which require a SAE 5W-20 and running on gasoline and/or ethanol-containing fuels up to E85.

**MOTOR OIL SYNTHETIC 5W-20** is based on synthetic base oil in combination with a special additive package to obtain the following properties.

- Excellent thermal and oxidation stability.
- Excellent cold temperature properties for a smooth cold start.
- Very good dispersant and detergent properties.
- Fuel saving properties due to low friction properties
- Very good antifoam, antiwear and anticorrosion properties.
- Long oil change interval possible.

**Meets: API SP, API SN, API SN + RC, ILSAC GF-6A, Dexos™1 Gen 3, Ford WSS-M2C960-A1, GM 4718M, Chrysler MS-6395**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	850.7
Kin. Viscosity @40	°C mm <sup>2</sup> /s	ASTM D7042	47.9
Kin. Viscosity @100	°C mm <sup>2</sup> /s	ASTM D7042	8.6
Viscosity Index		ASTM D2270	160
HTHS viscosity @150°C	mPa.s	ASTM D4683	2.8
Viscosity CCS @-30°C	cP	ASTM D5293	4530
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-39

## MOTOR OIL SYNTHETIC 5W-40

Product Code 42040



**MOTOR OIL SYNTHETIC 5W-40** is an universal high performance fuel saving oil based on 100% synthetic technology for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SYNTHETIC 5W-40** is formulated with high quality synthetic base stocks in combination with a unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

**Meets: MB 229.3, VW 502.00 / 505.00, API SN, ACEA A3/B4, Renault RN 0700/0710, GM-LL-A-025, GM-LL-B-025, Porsche A40, BMW LL-01 > until 2019**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	852.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	86.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	172
HTHS viscosity @150°C	mPa.s	ASTM D4683	4.1
Viscosity CCS @-30°C, max	cP	ASTM D5293	6170
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	11.1
Sulphated Ash	%Wt	ASTM D874	1.3

## MOTOR OIL SYNTHETIC 10W-30

Product Code 42350



**MOTOR OIL SYNTHETIC 10W-30** is a high performance fuel saving engine oil based on synthetic technology to be used in gasoline- and diesel engines of the latest generation passenger cars and light vans where a ACEA A3/B4 specification is required and suitable for all engines which require an MB 229.3 and VW 502.00 performance specification.

**MOTOR OIL SYNTHETIC 10W-30** is based on synthetic technology base oil in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

**Meets: API SP\* (\*exceeds API SP performance, but does not meet phosphorus limit), ACEA A3/B4, MB 229.3**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	860.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	90.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	155
Viscosity CCS @-25°C	cP	ASTM D5293	5980
Flash Point COC	°C	ASTM D92	>215
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	11.3
Sulphated Ash	%Wt	ASTM D874	1.3

## MOTOR OIL SYNTHETIC 10W-40

Product Code 42340



**MOTOR OIL SYNTHETIC 10W-40** is an universal high performance fuel saving synthetic oil for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SYNTHETIC 10W-40** is formulated with high quality synthetic base stock in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

**Meets: MB 229.3, API SN, ACEA A3/B4, MB 226.5, RN 0700/0710, VW 501.01/505.00**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	860.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	90.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	155
Viscosity CCS @-25°C	cP	ASTM D5293	5980
Flash Point COC	°C	ASTM D92	>215
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	11.3
Sulphated Ash	%Wt	ASTM D874	1.3



## MOTOR OIL MP 5W-30

Product Code 42465



**MOTOR OIL MP 5W-30** is an high performance engine oil based on 100% synthetic technology for use especially in Mercedes-Benz, Renault and VW as well as in other gasoline-and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL MP 5W-30** is formulated with high quality synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

Meets: API SP\*, ACEA A3/B4, MB 226.5, MB 229.3, MB 229.5, Renault 0700/0710, GM-LL-025-A, GM-LL-025-B, VW 502.00/505.00

\* Exceeds API SP performance, but does not meet phosphorus limit

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	850.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.7
Viscosity Index		ASTM D2270	167
Viscosity CCS @-30°C	cP	ASTM D5293	5760
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	11.4
Sulphated Ash	%Wt	ASTM D874	1.3

## MOTOR OIL SEMI-SYNTH 5W-30

Product Code 45210



**MOTOR OIL SEMI-SYNTH 5W-30** is an universal high performance fuel saving oil based on semi-synthetic technology for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SEMI-SYNTH 5W-30** is formulated with high quality mineral and synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

Meets: API SN, API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	850
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	56.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.5
Viscosity Index		ASTM D2270	174
Viscosity CCS @-30°C	cP	ASTM D5293	3210
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45
Total Base Number	mgKOH/g	ASTM D2896	8.2

## MOTOR OIL SL 10W-40

Product Code 42060



**MOTOR OIL SL 10W-40** is an universal high performance fuel saving semi synthetic oil for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SL 10W-40** is formulated with high quality refined mineral and synthetic base stocks in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High Viscosity Index.

Approved: MB-Approval 229.1

Meets: ACEA A3/B3, API SL/CF, BMW LL-01 > until 2019, VW 501.01/505.00

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	854.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	88.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.9
Viscosity Index		ASTM D2270	161
HTHS viscosity @150°C	mPa.s	ASTM D4683	3.9
Viscosity CCS @-25°C	cP	ASTM D5293	4510
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	9.5
Sulphated Ash	%Wt	ASTM D874	1.1

## MOTOR OIL SL/CF 10W-40

Product Code 42090



**MOTOR OIL SL/CF 10W-40** is a universal high performance semi synthetic oil for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SL/CF 10W-40** is formulated with high quality re-refined mineral and synthetic base stocks in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

Meets: API SL, API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	854.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	89.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	164
HTHS viscosity @150°C	mPa.s	ASTM D4683	3.9
Viscosity CCS @-25°C, max	cP	ASTM D5293	3900
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	8.4
Sulphated Ash	%Wt	ASTM D874	1.05



## MOTOR OIL SL/CF BC 10W-40

Product Code 42091



**MOTOR OIL SL/CF BC 10W-40** is a universal high performance semi synthetic oil for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger. This product is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SL/CF BC 10W-40** is formulated with re-refined mineral and synthetic base stocks in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

**Exceeds: API SL, API CF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	861.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	92
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.1
Viscosity Index		ASTM D2270	158
Viscosity CCS @-25°C,	max cP	ASTM D5293	4950
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	9.0

## MOTOR OIL SL 15W-40

Product Code 42080



**MOTOR OIL SL 15W-40** is a high performance mineral engine oil suitable for gasoline-, LPG-, and diesel engines in modern passenger cars and light vans with or without turbochargers.

**MOTOR OIL SL 15W-40** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Good thermal and oxidation stability.
- Stay-in-grade.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.

**Meets: ACEA A3/B3, API SN, MB 229.1, VW 501.01, VW 505.00**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	88.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	152
HTHS viscosity @150°C	mPa.s	ASTM D4683	3.9
Viscosity CCS @-20°C, max	cP	ASTM D5293	3380
Flash Point COC	°C	ASTM D92	220
Pour Point °C	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	9.5
Sulphated Ash	%Wt	ASTM D874	1.1

## MOTOR OIL SL 20W-50

Product Code 42100



**MOTOR OIL SL 20W-50** is a high performance mineral engine oil suitable for gasoline-, LPG-, and diesel engines in modern passenger cars and light vans with or without turbochargers.

**MOTOR OIL SL 20W-50** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Good thermal and oxidation stability.
- Stay-in-grade.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.

**Meets: ACEA A3/B3, API SN, MB 229.1, VW 501.01, VW 505.00**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	869.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	147.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18
Viscosity Index		ASTM D2270	136
HTHS viscosity @150°C	mPa.s	ASTM D4683	4.8
Viscosity CCS @-15°C,	max cP	ASTM D5293	5210
Flash Point COC	°C	ASTM D92	220
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	9.6
Sulphated Ash	%Wt	ASTM D874	1.1

## MOTOR OIL SF 15W-40

Product Code 42120



**MOTOR OIL SF 15W-40** is a multi functional mineral engine oil for older gasoline-, diesel- and LGP engines of passenger car and light vans with or without turbo compressor. MOTOR OIL SF 15W-40 is not suited for engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SF 15W-40** is formulated with special selected base stocks in combination with unique additive package to reach the following properties:

- Stable viscosity index.
- Good protection against rust, corrosion and wear.
- Good dispersancy and detergency properties.
- Good antifoam properties.

**Meets: API SF, API CD**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	865.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	93.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.6
Viscosity Index		ASTM D2270	146
Viscosity CCS @-20°C, max	cP	ASTM D5293	3780
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	8.5
Sulphated Ash	%Wt	ASTM D874	0.66



## MOTOR OIL SF 20W-50

Product Code 42140



**MOTOR OIL SF 20W-50** is a multi functional mineral engine oil for older gasoline-, diesel- and LGP engines of passenger car and light vans with or without turbo compressor. MOTOR OIL SF 20W-50 is not suited for engines equipped with a Diesel Particulate Filter (DPF).

**MOTOR OIL SF 20W-50** is formulated with special selected base stocks in combination with unique additive package to reach the following properties:

- Stable viscosity index.
- Good protection against rust, corrosion and wear.
- Good dispersancy and detergency properties.
- Good antifoam properties.

### Meets: API SF, API CD

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	153.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	17.8
Viscosity Index		ASTM D2270	128
Viscosity CCS @-15°C, max	cP	ASTM D5293	6080
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	7.3
Sulphated Ash	%Wt	ASTM D874	0.66

## MOTOR OIL VX 0W-20

Product Code 42170



**MOTOR OIL VX 0W-20** is a fully synthetic fuel saving long life oil based for use in gasoline- and diesel engines of passenger cars and light vans where a VAG norm 508.00/509.00 has been prescribed.

Remark: This product is not backwards compatible with older vehicles that require the VW 504 00/507 00 specification.

**MOTOR OIL VX 0W-20** is formulated with high quality 100% Poly Alpha Olefin (PAO) base stocks in combination with a unique additive technology to achieve the following performance:

- Exceptional good low temperature properties.
- Excellent protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

- Extended oil drain interval.
- Improved fuel economy.

### Meets: VW 508.00, VW 509.00, VW TL 52577, Porsche C20, ACEA C5, Ford WSS-M2C956-A1

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	44.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.3
Viscosity Index		ASTM D2270	167
Viscosity CCS @-35°C, max	cP	ASTM D5293	5560
Flash Point COC	°C	ASTM D92	>205
Pour Point	°C	ASTM D7346	-51
Total Base Number	mgKOH/g	ASTM D2896	8.9
Sulphated Ash	%Wt	ASTM D874	0.8



## MOTOR OIL VX 0W-30

Product Code 45290



**MOTOR OIL VX 0W-30** is a high performance fuel saving LOW SAPS long life oil based on 100% synthetic technology for use in gasoline- and diesel engines of passenger cars and light vans where a VAG norm 504.00/507.00 has been prescribed.

**MOTOR OIL VX 0W-30** is formulated with high quality synthetic base stocks (PolyAlphaOlefine) in combination with an unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.
- Extended oil drain interval.
- Also suitable for engines equipped with other catalyst like TWC.

Meets: ACEA C3, VW 504.00, VW 507.00, Porsche C30, BMW LL-04

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	843.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	64.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.3
Viscosity Index		ASTM D2270	193
Viscosity CCS @-35°C, max	cP	ASTM D2270	5800
Flash Point COC	°C	ASTM D92	210
Pour Point	°C	ASTM D7346	-53
Total Base Number	mgKOH/g	ASTM D2896	8.2
Sulphated Ash	%Wt	ASTM D874	0.7

## MOTOR OIL VX 5W-30

Product Code 42240



**MOTOR OIL VX 5W-30** is a high performance fuel saving MID SAPS long life oil based on 100% synthetic technology for use in gasoline- and diesel engines of passenger cars and light vans where a VAG norm 504.00/507.00 has been prescribed and also suitable for vehicles where MB 229.51 and BMW LL-04 are required. Also suitable for use for vehicles where originally VW 506.01 is required.

**MOTOR OIL VX 5W-30** is formulated with high quality synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

- Extended oil drain interval.
- Also suitable for engines equipped with other catalyst like TWC

Approved: VW 504.00 / 507.00, MB-approval 229.52

Meets: MB 229.51, ACEA C3, API SN, BMW LL-04, Porsche C3

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	69.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	174
Viscosity CCS @-30°C,	max cP	ASTM D5293	5940
Flash Point COC	°C	ASTM D92	>210
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	8.3
Sulphated Ash	%Wt	ASTM D874	0.7

## MOTOR OIL XT 5W-30

Product Code 42310



**MOTOR OIL XT 5W-30** is a high performance fuel saving MID SAPS long life oil based on 100% synthetic technology for out-of-warranty service fill use in gasoline- and diesel engines of passenger cars and light vans where a VAG norm 504.00/507.00 has been prescribed.

**MOTOR OIL XT 5W-30** is suitable for vehicles where MB 229.51 and BMW LL-04 are required.

**Remark:** not suitable for R5- and V10 TDI engines and engines where VAG norm VW 506.01 is being advised.

**MOTOR OIL XT 5W-30** is formulated with high quality synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.

- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.
- Extended oil drain interval.
- Also suitable for engines equipped with other catalyst like TWC.

Meets: ACEA C3, VW 504.00, VW 507.00, MB 229.52, BMW LL-04, API SN

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	73.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	164
Viscosity CCS @-30°C, max	cP	ASTM D5293	6270
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	9.3
Sulphated Ash	%Wt	ASTM D874	0.79

## MOTOR OIL SFP 5W-30

Product Code 42438



**MOTOR OIL SFP 5W-30** is a very high performance fuel saving engine oil based on 100% synthetic technology for use in the latest generation gasoline and diesel engines of passenger cars and light vans. Specially designed to meet the requirements of the Stellantis FPW9.55535/03 specification.

**MOTOR OIL SFP 5W-30** is formulated with high quality synthetic base stocks in combination with special selected additive technology to achieve the following performance:

- Good thermal and oxidation stability.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Fuel saving properties.
- Excellent detergency and dispersancy properties.

Meets: ACEA C3, API SP, Stellantis FPW9.55535/03

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	75.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	160
Viscosity CCS @-30°C	cP	ASTM D5293	6200
Total Base Number	mgKOH/g	ASTM D2896	9.9
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Sulphated Ash	%Wt	ASTM D874	0.75



## MOTOR OIL ASP 5W-30

Product Code 42320



**MOTOR OIL ASP 5W-30** is a high performance fuel saving MID SAPS engine oil based on 100% synthetic technology to be used in gasoline- and diesel engines of the latest generation passenger cars and light vans where a PSA B71 2290 specification is required and suitable for all engines which require an C2 performance specification.

**MOTOR OIL ASP 5W-30** is based on high performance synthetic base oil in combination with a specially selected additive technology to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Fuel saving properties.
- Excellent protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Long oil drain interval possible.

**Meets: API SP, ACEA C2, ACEA C3, PSA B 71 2290, IVECO 18-1811 SC1**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	854.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	66.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.5
Viscosity Index		ASTM D2270	169
Viscosity CCS @-30°C, max	cP	ASTM D5293	6240
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	9.6
Sulphated Ash	%Wt	ASTM D874	0.8

## MOTOR OIL CP 0W-20

Product Code 42435



**MOTOR OIL CP 0W-20** is a very high performance fuel saving oil based on Synthetic technology for use in the very latest gasoline and diesel engines of passenger cars equipped with exhaust particle filters. Designed to meet the requirements for the latest Peugeot/Citroën vehicles that require PSA B71 2010 and suitable for all engines which require an ACEA C5/C6 performance specification.

**MOTOR OIL CP 0W-20** is formulated with high quality synthetic base stocks in combination with special selected additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Excellent high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- Excellent dispersancy and detergency level.
- Very high viscosity index.

**Meets: ACEA C5, ACEA C6, API SP, PSA B71 2010, Fiat 9.55535-GSX, Fiat 9.55535-DM1**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	0W-20
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	847.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	41.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.9
Viscosity Index		ASTM D2270	165
Viscosity CCS @-35°C	cP	ASTM D5293	6100
Flash Point COC	°C	ASTM D92	218
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	9.5
Sulphated Ash	%Wt	ASTM D874	0.76

## MOTOR OIL CP 0W-30

Product Code 42430



**MOTOR OIL CP 0W-30** is a high performance fuel saving engine oil based on 100% synthetic technology to be used in gasoline- and diesel engines of the latest generation passenger cars and light vans where a ACEA C2 specification is required and suitable for all engines which require an PSA B71 2290 performance specification.

**MOTOR OIL CP 0W-30** is based on high performance 100% synthetic technology oil in combination with a specially selected additive technology to ensure the following properties:

- Excellent thermal and oxidation stability.
- Fuel saving properties.
- Excellent protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Long oil drain interval possible.

**Meets: ACEA C2, PSA B71 231, Ford M2C950-A, JLR 03.5007, API SP, PSA B71 2302, VW C 53035, Fiat 9.55535-GS1, Fiat 9.55535-DS1, ACEA A5/B5**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	50
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.5
Viscosity Index		ASTM D2270	178
Viscosity CCS @-35°C	cP	ASTM D5293	6000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	10.4
Sulphated Ash	%Wt	ASTM D874	0.79

## MOTOR OIL RN 5W-30

Product Code 42330



**MOTOR OIL RN 5W-30** is a high performance fuel saving LOW SAPS oil based on 100% synthetic technology for use in gasoline- and diesel engines of passenger cars and light vans specially designed for the latest generation Renault and Nissan diesel engines equipped with a Diesel Particulate Filter (DPF) and all other engines where an ACEA C4 product is required.

**MOTOR OIL RN 5W-30** is based on high performance synthetic base oil in combination with a specially selected additive technology to ensure the following properties:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

- Extend oil drain interval.
- Also suitable for engines equipped with other catalyst like TWC.

**Meets: ACEA C4, Renault RN0720, MB 226.51**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	844.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.9
Viscosity Index		ASTM D2270	172
Viscosity CCS @-30°C,	cP	ASTM D5293	4870
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	7.9
Sulphated Ash	%Wt	ASTM D874	≤ 0.5



## MOTOR OIL DX1 0W-30

Product Code 42355



MOTOR OIL DX1 0W-30 is the advanced synthetic energy conserving motor oil specially developed for the most modern high output gasoline and turbocharged engines in passenger cars, sport utility vehicles and light-duty trucks, operating on ethanol-containing fuels up to E85. It is formulated to help improve & retain fuel economy and protect vehicle emission system & turbocharger components.

MOTOR OIL DX1 0W-30 is based on exceptional quality synthetic base oil in combination with a special selected additive package to reach to following properties:

- Improved protection against stochastic pre-ignition
- Improving sludge protection, piston cleanliness, turbo-charger protection, seal compatibility, wear protection
- Special friction modifiers used in this Energy conserving oil help improving & retaining fuel economy.
- Offers excellent lubrication at low temperatures and protect engine at high temperatures.

- Superior volatility characteristics reduce oil consumption and hydrocarbon pollution (VOCs).
- Advanced additive chemistry helps in emission system durability.
- Compatible with ethanol-containing fuels up to E85.

Meets: API SP, API SN, API SN + RC, ILSAC GF-6A, Ford WSS-M2C962-A1, Dexos™1 Gen 3, Chrysler MS-13340

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	840
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	56
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.8
Viscosity Index		ASTM D2270	190
Viscosity CCS @-35°C	cP	ASTM D5293	5000
Flash Point COC	°C	ASTM D92	>210
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	7.1

## MOTOR OIL DX1 5W-30

Product Code 42360



**MOTOR OIL DX1 5W-30** is the advanced synthetic energy conserving motor oil specially developed for the most modern high output gasoline and turbocharged engines in passenger cars, sport utility vehicles and light-duty trucks, operating on ethanol-containing fuels up to E85. It is formulated to help improve & retain fuel economy and protect vehicle emission system & turbocharger components while meeting the latest GM Dexos™1: 2015 demands.

**MOTOR OIL DX1 5W-30** is based on exceptional quality synthetic base oil in combination with a special selected additive package to reach to following properties:

- Improved protection against stochastic pre-ignition
- Improving sludge protection, piston cleanliness, turbo-charger protection, seal compatibility, wear protection
- Special friction modifiers used in this Energy conserving oil help improving & retaining fuel economy.
- Offers excellent lubrication at low temperatures and protect engine at high temperatures.

- Superior volatility characteristics reduce oil consumption and hydrocarbon pollution (VOCs).
- Advanced additive chemistry helps in emission system durability.
- Compatible with ethanol-containing fuels up to E85.

Meets: API SP, API SN, API SN + API RC, ILSAC GF-6A, Dexos™1 Gen 3, Ford WSS-M2C961-A1, GM 6094M, GM 4718M, Chrysler MS-6395, Chrysler MS-13340

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	848.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	58.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.6
Viscosity Index		ASTM D2270	171
Viscosity CCS @-30°C, max	cP	ASTM D5293	3910
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	8.4

## MOTOR OIL FEB 5W-20

Product Code 42180



**MOTOR OIL FEB 5W-20** is a high quality fuel saving engine oil based on 100% synthetic technology specially designed for the latest Ford EcoBoost gasoline engines. **MOTOR OIL FEB 5W-20** is also suited for engines where ACEA A1/B1 or API SN is recommended

**MOTOR OIL FEB 5W-20** is based on high performance synthetic oil in combination with a specially selected additive technology to ensure the following properties.

- Excellent thermo- and oxidation stability.
- Very high detergency and dispersion.
- Very good low temperature properties.
- Protection to wear by cold start.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High and stable viscosity index.
- Low Fuel Consumption.

Meets: Ford WSS M2C-948B, ACEA C5, API SP, STJLR.03.5004

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	852.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	44.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.1
Viscosity Index		ASTM D2270	156
Viscosity CCS @-30°C,	max cP	ASTM D5293	4850
Flash Point COC	°C	ASTM D92	219
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	8.5
Sulphated Ash	%Wt	ASTM D874	0.78

## MOTOR OIL FEC 5W-30

Product Code 42270



**MOTOR OIL FEC 5W-30** is a high performance fuel saving oil based on 100% synthetic technology for use in gasoline- and diesel engines of passenger car and light vans with or without turbocharger and designed for the last generation Ford vehicles and other vehicles where an ACEA A5/B5 is been required. This product is not to be used in diesel engines equipped with a Diesel Particulate Filter (DPF) except on Ford engines that require Ford WSS M2C913C/D.

**MOTOR OIL FEC 5W-30** is formulated with high quality synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.

- High viscosity index.
- Longer oil drain interval.

Meets: API SL, API CF, ACEA A1/B1, ACEA A5/B5, Renault 0700, Ford WSS M2C913C, Ford WSS M2C913D, VWC 53036

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	849.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	56.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.3
Viscosity Index		ASTM D2270	172
Viscosity CCS @-30°C, max	cP	ASTM D5293	3850
Flash Point COC	°C	ASTM D92	210
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	9.9
Sulphated Ash	%Wt	ASTM D874	1.08



## MOTOR OIL VLV 0W-20

Product Code 42440



**MOTOR OIL VLV 0W-20** is a fuel saving oil based on 100% synthetic technology specially designed for use in Volvo passenger cars with or without turbocharger where Volvo VCC RBS0-2AE is required.

- High viscosity index.
- Added fuel economy

**MOTOR OIL VLV 0W-20** can also be used for applications where an oil according to ACEA A1/B1 or API SN is recommended by the manufacturer.

**MOTOR OIL VLV 0W-20** is formulated with high quality synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Protection to wear by cold start.
- Very good low temperature properties.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.

**Meets: Volvo VCC RBS0/2AE, ACEA C5, API SP**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	845.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	47.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9
Viscosity Index		ASTM D2270	177
Viscosity CCS @-35°C	cP	ASTM D5293	5900
Flash Point COC	°C	ASTM D92	230
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	8.3
Sulphated Ash	%Wt	ASTM D874	0.80

## MOTOR OIL VLV 0W-30

Product Code 45410



**MOTOR OIL VLV 0W-30** is a fuel saving oil based on 100% synthetic technology specially designed for use in Volvo 5 cylinder Petrol and 6 Cylinder Petrol engines with or without turbocharger where Volvo VCC 95200377 is required.

- High dispersancy and detergency level.
- High viscosity index.
- Added fuel economy

**MOTOR OIL VLV 0W-30** can also be used for applications where an oil according to ACEA A5/B5 or API SL is recommended by the manufacturer.

**MOTOR OIL VLV 0W-30** is formulated with high quality synthetic base stocks in combination with an unique additive technology to achieve the following performance:

- Protection to wear by cold start.
- Very good low temperature properties.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.

**Approved: Volvo VCC 95200377**  
**Exceeds: API SL, ACEA A5/B5**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	844
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	52.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10
Viscosity Index		ASTM D2270	180
Viscosity CCS @-35°C, max	cP	ASTM D2270	5100
Flash Point COC	°C	ASTM D92	230
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	10.1
Sulphated Ash	%Wt	ASTM D874	1.00

## MOTOR OIL HM 10W-40

Product Code 42390



**MOTOR OIL HM 10W-40** is a universal performance semi synthetic oil for use in older (1995-2010) gasoline- and diesel engines of passenger car and light vans with or without turbocharger specially formulated to help demands of "High-Mileage" engines which have been running for more than 100.000 km.

- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level + high viscosity index

This product is unsuitable for diesel engines equipped with a Diesel Particle Filter (DPF) and not intended for vehicles predating 1990 that need increased zinc/phosphorus (ZDDP) oils.

**MOTOR OIL HM 10W-40** is formulated with high quality refined mineral and synthetic base stocks in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Maximize the life of the engine.
- Special formulated additive helps to stop/reduce small oil leaks on seals.

**Meets: ACEA A3/B4, API SL, API CF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	88.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.9
Viscosity Index		ASTM D2270	162
Viscosity CCS @-25°C	cP	ASTM D2270	3980
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	7.8

## MOTOR OIL CLASSIC 10W-40

Product Code 42420



**MOTOR OIL CLASSIC 10W-40** is a high quality multi-grade SAE 10W-40 oil for gasoline and diesel engines for use in classic and "young-timer" cars predating 1990. Formulated with supplementary ZDDP (Zinc dialkyldithiophosphate) additives to maximize wear protection of camshafts and cam followers. The composition of this product may affect the durability of certain modern type catalytic convertors.

**Meets: API: S6/CF, CCMC G1/G2/G3/G4, CCMC PD-1/PD-2, MB 227.1 / 227.5, VW 500.00 / 501.01 / 505.00, MIL-L-2104A/B, Ford M2C101 A/B/C, Ford M2C9001-AA**

**MOTOR OIL CLASSIC 10W-40** is formulated with high quality refined mineral and synthetic base stocks in combination with a special additive technology to achieve the following performance:

- Very good low temperature properties.
- Protection to wear by cold start.
- Very high thermal- and oxidation stability.
- Excellent resistance against foaming, corrosion and wear.
- High dispersancy and detergency level.
- High viscosity index.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	857.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	90.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.1
Viscosity Index		ASTM D2270	161
Viscosity CCS @-25°C	cP	ASTM D2270	4630
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	9.3
Zinc content	ppm	ASTM D6443-04	1480
Phosphorus content	ppm	ASTM D6443-04	1330







## ENGINE OIL VFE 5W-30

Product Code 42542



**ENGINE OIL VFE 5W-30** is a fuel saving MID SAPS, lowered HTHS, super high performance engine oil based on 100% synthetic technology designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year.

**ENGINE OIL VFE 5W-30** is intended use in specific Euro-6 engines; please consult the owner's manual and/or the 77 oil-finder to check suitability.

**ENGINE OIL VFE 5W-30** is formulated on high refined synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.

- Excellent protection against "Bore Polishing".
- Extended drain intervals up to 150.000 km.
- Suitable for engines equipped with a Diesel Particulate Filter (DPF).
- Fuel conserving

**Approved:** Volvo VDS 5, Mack E0S-5, Renault VI RLD-5, DTRF 15C130  
**Meets:** API FA-4, ACEA F01, API SN, JASO DH-2, Cummins CES 20087, DDC 93K223, Ford WSS-M2C214-B1

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	856
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	54.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.8
Viscosity Index		ASTM D2270	167
Viscosity CCS @ -30°C	cP	ASTM D5293	5800
HTHS @150°C	mPa*s	ASTM 4683	3.0
Total Base Number	mgKOH/g	ASTM D2896	9.8
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36

## ENGINE OIL SYNTHETIC UHPD 5W-20

Product Code 42801



**ENGINE OIL SYNTHETIC UHPD 5W-20** is an ultra high performance diesel engine oil engineered to provide outstanding protection and fuel economy potential in modern, high performance, low emissions engines used in severe on-highway applications.

**ENGINE OIL SYNTHETIC UHPD 5W-20** is specifically designed to meet the latest MAN M3977 and Scania LDF-5 requirements for modern diesel engines equipped with Diesel Particulate Filters (DPF).

**ENGINE OIL SYNTHETIC UHPD 5W-20** is formulated with advanced synthetic technology base oils which provide excellent low temperature fluidity, high temperature viscosity retention, volatility control and contribute to fuel economy improvement potential, in combination with a special additive package to reach the following properties.

- Excellent protection against bore polishing, wear and corrosion
- Excellent low temperature fluidity
- Efficient and extended durability of emission exhaust systems fitted with DPF
- Excellent Fuel conserving.

**Approved:** MAN M3977  
**Meets:** Scania LDF-5

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	44.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.9
Viscosity Index		ASTM D2270	149
Viscosity CCS @-25°C, max	cP	ASTM D5293	5140
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	13.1
Sulphated Ash	%Wt	ASTM D874	0.90

## ENGINE OIL SYNTHETIC UHPD 5W-30

Product Code 45020



**ENGINE OIL SYNTHETIC UHPD 5W-30** is a fuel conserving super high performance "MID SAPS" oil based on 100% synthetic technology designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year and running on low Sulphur Diesel Fuel (max. 50 ppm). **ENGINE OIL SYNTHETIC UHPD 5W-30** is formulated for use in Euro-5 and Euro-6 engines equipped with Diesel Particulate Filter (DPF). This product is also suitable for vehicles equipped with EGR and/or SCR after treatment systems.

**ENGINE OIL SYNTHETIC UHPD 5W-30** is formulated on high refined synthetic base stock in combination with an special additive package to reach the following properties.

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.

- Excellent protection against "Bore Polishing".
- Extended drain intervals up to 150.000 km.
- Suitable for engines equipped with a Diesel Particulate Filter (DPF).
- Fuel conserving.

**Approved:** MAN M3677, MB-approval 228.51, MAN M3477  
**Exceeds:** API CJ-4, ACEA E4/E6/E7/E9, MTU Type 3.1, Volvo VDS-4, Renault RLD-3 Scania LDF-4, Mack EO-N, Deutz DQC IV-10-LACAT ECF-3, JASO DH-2, Detroit Diesel 93K218, Cummins CES 20081

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	854.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	70.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.1
Viscosity Index		ASTM D2270	162
Viscosity CCS @-30°C	cP	ASTM D5293	6220
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	13.2
Sulphated Ash	%Wt	ASTM D874	0.98

## ENGINE OIL SPECIAL UHPD 10W-40

Product Code 42790



**ENGINE OIL SPECIAL UHPD 10W-40** is a fuel conserving super high performance "MID SAPS" oil, designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year and running on low sulphur diesel fuel (max. 50 ppm).

**ENGINE OIL SPECIAL UHPD 10W-40** is formulated for use in Euro 5 and Euro 6 engines equipped with Diesel Particulate Filter (DPF). This product is also suitable for vehicles equipped with EGR and/or SCR after treatment system.

**ENGINE OIL SPECIAL UHPD 10W-40** is formulated on high refined 100% synthetic base stock in combination with an special additive package to reach the following properties.

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against "Bore Polishing".
- Extended drain intervals up to 150.000 km.

- Suitable for engines equipped with a Diesel Particulate Filter (DPF).

**Approved:** Mack E0S-4.5, Volvo VDS-4.5, Renault VI RLD-3, MTU Type 3.1, DTRF 15C110 (MB 228.51)  
**Meets:** ACEA E4/E7/E8/E11, API CK-4, Renault VI RLD-4, DAF PSQL 2.1E-LD, Detroit 93K222, Cat ECF-3, Scania Low-Ash, MTU Type 2.1, Cummins CES 20081, MAN M3775, MAN M3477, MAN M3271-1, Cummins CES 20086, Jaso DH-2-17, DTRF 15C100 (MB 228.31), DTRF 15C120 (MB 228.52)

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	94.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.4
Viscosity Index		ASTM D2270	158
Viscosity CCS @-25°C, max	cP	ASTM D5293	6200
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	13.5
Sulphated Ash	%Wt	ASTM D874	0.98



## ENGINE OIL SUPER UHPD 10W-40

Product Code 42670



**ENGINE OIL SUPER UHPD 10W-40** is a high performance fully synthetic engine oil to be used in diesel engines in light- and heavy commercial vehicles with or without turbocharger.

**ENGINE OIL SUPER UHPD 10W-40** is designed for use in Euro-II, Euro-III and EURO-IV emission requirements and engines equipped with EGR and/or SCR exhaust after treatment system. **ENGINE OIL SUPER UHPD 10W-40** may not be used in diesel engines equipped with a Diesel Particulate Filter (DPF). Suited for Scania engines which require a LDF-3 performance oil

**ENGINE OIL SUPER UHPD 10W-40** is based on high performance synthetic base oil in combination with especially selected additive technology to ensure the following properties.

- Excellent thermal and oxidation stability.
- Excellent protection against forming of "Bore Polishing".
- Suitable for Low emission engine equipped with EGR and SCR technology

- Excellent protection against wear, foam en corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Extended oil drain interval possible

**Meets: ACEA E4, ACEA E7, API CI-4, Cummins CES 20077, Cummins CES 20078, MTU type 3, Deutz DQC IV-18, Volvo VDS-3, Renault RLD-2, Mack EO-N, Scania LDF-3, DAF HP-1, DAF HP-2; Renault RXD,MAN M3277, Voith Class B, DTRF 15B120 (MB 228.5),DTRF 13D110 (MB 235.28)**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	869.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	93.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.6
Viscosity Index		ASTM D2270	148
Viscosity CCS @ -25°C, max	cP	ASTM D5293	6600
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	14.4
Sulphated Ash	%Wt	ASTM D874	1.85

## ENGINE OIL TLE 5W-30

Product Code 42511



**ENGINE OIL TLE 5W-30** is a fuel saving MID SAPS super high performance universal oil based on 100% synthetic technology designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-4, Euro-5 and Euro-6 engines equipped with a Diesel Particle Filter (DPF) and suited for diesel engines equipped with EGR and/or SCR after treatment system.

**ENGINE OIL TLE 5W-30** is formulated on high refined synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against "Bore Polishing".
- Extended drain intervals up to 150.000 km.

- Suitable for engines equipped with a Diesel Particulate Filter (DPF).
- Fuel conserving.

**Approved: Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, DTRF 15C110 (MB 228.51)**  
**Exceeds: API CK-4, ACEA E7/E8/E11, API SN, CAT ECF-3, Scania LDF-4, MAN M3677, MAN M3777, MAN M3775, Cummins CES 20086, DDC 93K222, DAF, IVECO, MTU 3.1, Deutz DQC IV-18-LA, JASO DH-2**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	5W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	852.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	72.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	167
Viscosity CCS @ -30°C	cP	ASTM D5293	5900
Total Base Number	mgKOH/g	ASTM D2896	9.6
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-33
Sulphated Ash	%Wt	ASTM D874	0.9

## ENGINE OIL TLE 10W-30

Product Code 42512



**ENGINE OIL TLE 10W-30** is a fuel saving MID SAPS super high performance universal oil based on 100% synthetic technology designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-4, Euro-5 and Euro-6 engines equipped with a Diesel Particle Filter (DPF) and suited for diesel engines equipped with EGR and/or SCR after treatment system.

**ENGINE OIL TLE 10W-30** is formulated on high refined synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against "Bore Polishing".

- Extended drain intervals up to 150.000 km.
- Suitable for engines equipped with a Diesel Particulate Filter (DPF).

**Approved: Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, DTRF 15C110 (MB 228.51)**  
**Exceeds: API CK-4, ACEA E7/E8/E11, MAN M3775, DDC 93K222, CAT ECF-3, Deutz DQC III-18-LA, Cummins CES 20086, MTU Type 3.1, DAF PSQL 2.1 E, DAF PSQL 2.1 E LD DTRF 10C100 (MB 228.31)**

Property	Unit	Test Method	Typical Value
SAE Grade		J306	10W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	852.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	82.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	146
Viscosity CCS @ -25°C	cP	ASTM D5293	5650
Total Base Number	mgKOH/g	ASTM D2896	10.1
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-33
Sulphated Ash	%Wt	ASTM D874	0.9

## ENGINE OIL TLE 10W-40

Product Code 42513



**ENGINE OIL TLE 10W-40** is a fuel saving MID SAPS super high performance universal oil based on 100% synthetic technology designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-4, Euro-5 and Euro-6 engines equipped with a Diesel Particle Filter (DPF) and suited for diesel engines equipped with EGR and/or SCR after treatment system.

**ENGINE OIL TLE 10W-40** is formulated on high refined synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against "Bore Polishing".

- Extended drain intervals up to 150.000 km.
- Suitable for engines equipped with a Diesel Particulate Filter (DPF).

**Approved: Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3**  
**Exceeds: API CK-4, ACEA E7/E8/E11, MAN M3775, MTU Type 3.1, Cummins CES 20086, Deutz DQC IV-18 LA, JASO DH-2, DDC 93K222, CAT ECF-3, DAF, IVECO, DTRF 15C110 (MB 228.51), DTRF 15C100 (MB 228.31)**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	91
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.6
Viscosity Index		ASTM D2270	155
Viscosity CCS @ -25°C	cP	ASTM D5293	5430
Total Base Number	mgKOH/g	ASTM D2896	10.0
Flash Point COC	°C	ASTM D92	224
Pour Point	°C	ASTM D7346	-33
Sulphated Ash	%Wt	ASTM D874	0.9

## ENGINE OIL TLE 15W-40

Product Code 42514



**ENGINE OIL TLE 15W-40** is a fuel saving MID SAPS super high performance universal oil based on 100% synthetic technology designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-4, Euro-5 and Euro-6 engines equipped with a Diesel Particle Filter (DPF) and suited for diesel engines equipped with EGR and/or SCR after treatment system.

**ENGINE OIL TLE 15W-40** is formulated on high refined synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against "Bore Polishing".

- Extended drain intervals up to 150.000 km.
- Suitable for engines equipped with a Diesel Particulate Filter (DPF).

**Approved: Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, DTFR 15C100 (MB 228.31)**  
**Meets: API CK-4, ACEA E6/E7/E11, Cummins CES 20086, Deutz DQC III-18-LA, MAN M3775, CAT ECF-3, DDC 93K222, MTU Type 3.1, JASO DH-2**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	877.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	119.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.1
Viscosity Index		ASTM D2270	131
Viscosity CCS @ -20°C	cP	ASTM D5293	6210
Total Base Number	mgKOH/g	ASTM D2896	11.0
Flash Point COC °	°C	ASTM D92	222
Pour Point	°C	ASTM D7346	-27
Sulphated Ash	%Wt	ASTM D874	0.9

## ENGINE OIL EHPD 10W-40

Product Code 42500



**ENGINE OIL EHPD 10W-40** is a high performance fully synthetic engine oil to be used in diesel engines in light- and heavy commercial vehicles with or without turbocharger designed for use in Euro-II, Euro-III and EURO-IV emission requirements and engines equipped with EGR and/or SCR exhaust after treatment system. **ENGINE OIL EHPD 10W-40** is unsuitable for diesel engines equipped with a Diesel Particulate Filter (DPF)

**ENGINE OIL EHPD 10W-40** is based on high performance synthetic base oil in combination with a specially selected additive technology to ensure the following properties:

- Excellent thermal and oxidation stability.
- Excellent protection against forming of "Bore Polishing".
- Suitable for Low emission engine equipped with EGR and SCR technology

- Excellent protection against wear, foam en corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Extended oil drain interval possible.

**Meets: Renault RLD-2; Volvo VDS-3; Mack EO-N; MAN M3277; MAN M3377; Deutz DQC IV-18; DTFR 15B120 (MB 228.5); API CI-4; ACEA E4/E7; MTU Type 3; Deutz DQC IV-10; Renault RXD; Scania LDF-2**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	862.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	99.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.6
Viscosity Index		ASTM D2270	153
Viscosity CCS @ -25°C,	max cP	ASTM D5293	5900
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	12.4
Sulphated Ash	%Wt	ASTM D874	1.5

## ENGINE OIL HDX 10W-40

Product Code 42550



**ENGINE OIL HDX 10W-40** is an extra high performance universal semi synthetic engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-3, Euro-4 and Euro-5 engines equipped with EGR and/or SCR. This product is not suitable for vehicles equipped with DPF filters.

**ENGINE OIL HDX 10W-40** is formulated with high refined solvent mineral and synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.

- Extended drain intervals.

**Approved: MACK EO-N, Volvo VDS-3, Renault RLD-2, DTFR 15B110 (MB 228.3)**  
**Meets: API CI-4/SL, ACEA E7, ACEA A3/B4, MB 229.1H, MAN M3275, MTU Type 2, Mack EO-M+, JASO DH-1, Global DHD-1, DDC 93K215, CAT ECF-1a, ECF-2, Deutz DQC-III-10, Cummins CES 20077/20078, Voith retarder B, Allison TES-439**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	869.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	98.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.5
Viscosity Index		ASTM D2270	151
Viscosity CCS @-25°C, max	cP	ASTM D2270	6450
Flash Point COC	°C	ASTM D92	230
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	11.6
Sulphated Ash	%Wt	ASTM D874	1.5

## ENGINE OIL HDX 15W-40

Product Code 42560



**ENGINE OIL HDX 15W-40** is an extra high performance universal engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-3, Euro-4 and Euro-5 engines equipped with EGR and/or SCR. This product is not suitable for vehicles equipped with DPF filters.

**ENGINE OIL HDX 15W-40** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

**Approved: DTFR 15B110 (MB 228.3), Volvo VDS-3, Renault RLD-2, MACK EO-N**  
**Meets: API CI-4/SL, ACEA E7, MAN M 3275, MB 228.1, Global DHD-1, JASO DH-1, Deutz DQC-III, MTU Type 2, CAT ECF-1a / ECF-2, Cummins CES 2077/20078, DDC 93K215**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	886.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	99.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.7
Viscosity Index		ASTM D2270	138
Viscosity CCS @-25°C, max	cP	ASTM D5293	5690
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	11.2
Sulphated Ash	%Wt	ASTM D874	0.98



## ENGINE OIL HDX 15W-50

Product Code 45230



**ENGINE OIL HDX 15W-50** is an extra high performance universal engine oil de-signed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-3, Euro-4 and Euro-5 engines equipped with EGR and/or SCR. This product is not suitable for vehicles equipped with DPF filters.

**ENGINE OIL HDX 15W-50** is formulated with high refined solvent mineral base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

**Meets: API CI-4; API SL; ACEA E7; JASO DH-1; MAN M3275; Volvo VDS-3; Deutz DQC-III; Renault RLD-2; Mach EO-N; MTU Type 2; Global DHD-1; DDC 93K215; DTRF 15B110 (MB 228.3); CAT ECF-1a; Cummins CES 20077; Cummins CES 20078**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	15W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	884
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	126
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	17.7
Viscosity Index		ASTM D2270	156
Viscosity CCS @-20°C, max	cP	ASTM D2270	4900
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	12.2
Sulphated Ash	%Wt	ASTM D874	1.5

## ENGINE OIL HDX 20W-50

Product Code 42480



**ENGINE OIL HDX 20W-50** is an extra high performance universal engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-3, Euro-4 and Euro-5 engines equipped with EGR and/or SCR. This product is not suitable for vehicles equipped with DPF filters.

**ENGINE OIL HDX 20W-50** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

**Meets: API CI-4; API SL; ACEA E7; JASO DH-1; MAN M 3275; Volvo VDS-3, Deutz DQC-III, MTU Type 2, Mack EO-N, Cummins CES 20077, Cummins CES 20078, Caterpillar ECF-1a, Renault RLD-2, DDC 93K215, DTRF 15B110 (MB 228.3), Caterpillar ECF-2, Global DHD-1**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	888.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	160.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.8
Viscosity Index		ASTM D2270	132
Viscosity CCS @-15°C, max	cP	ASTM D2270	6780
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	11.2
Sulphated Ash	%Wt	ASTM D874	1.5

## ENGINE OIL HDX 25W-60

Product Code 42450



**ENGINE OIL HDX 25W-60** is an extra high performance universal engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-3, Euro-4 and Euro-5 engines equipped with EGR and/or SCR. This product is not suitable for vehicles equipped with DPF filters.

**ENGINE OIL HDX 25W-60** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

**Meets: API CI-4; API SL; ACEA E7; JASO DH-1; MAN M 3275; Volvo VDS-3, Deutz DQC-III, MTU Type 2, Mack EO-N, Cummins CES 20077, Cummins CES 20078, Caterpillar ECF-1a, Renault RLD-2, DDC 93K215, DTRF 15B110 (MB 228.3), Caterpillar ECF-2, Global DHD-1**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	25W-60
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	895
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	241.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	23.7
Viscosity Index		ASTM D2270	122
Viscosity CCS @-10°C,	max cP	ASTM D2270	7800
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
Total Base Number	mgKOH/g	ASTM D2896	11.5
Sulphated Ash	%Wt	ASTM D874	1.5

## ENGINE OIL HDX EXTRA 15W-40

Product Code 42630



**ENGINE OIL HDX EXTRA 15W-40** is an extra high performance, extra high TBN, universal engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions in combination with high-sulphur diesel fuels.

**ENGINE OIL HDX EXTRA 15W-40** is suitable for use in engine with (EGR and SCR) and without exhaust gas after treatment systems, making the product suitable for engines of Euro-1 up to Euro-5. This product is not suitable for vehicles equipped with DPF filters.

**ENGINE OIL HDX EXTRA 15W-40** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Extra protection against high sulphur fuels.

- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

**Meets: API CI-4; API SL; ACEA E7, MAN M 3275, Volvo VDS-3, Caterpillar ECF-2, Renault RLD-2, Mack EO-N, DDC 93K215, Caterpillar ECF-1a, Global DHD-1, JASO DH-1, Deutz DQC-III, DTRF 15B110 (MB 228.3), Cummins CES 20077, Cummins CES 20078, MTU Type 2**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	877.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	113.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.1
Viscosity Index		ASTM D2270	139
Viscosity CCS @-20°C, max	cP	ASTM D5293	5570
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	16.6
Sulphated Ash	%Wt	ASTM D874	1.5

## ENGINE OIL HDL 10W-40

Product Code 42570



**ENGINE OIL HDL 10W-40** is a high performance universal semi synthetic engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under heavy operating conditions through the whole year for use in Euro I, Euro II and Euro III engines. This product is not suitable for vehicles equipped with particulate filters.

**ENGINE OIL HDL 10W-40** is formulated with high refined solvent mineral and synthetic base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Not suitable for engine equipped with a Diesel Particulate Filter (DPF).

Meets: **API CH-4, API SL, ACEA A3/B4, MAN M 3275, DTRF 15B110 (MB 228.3), MB 229.1, JASO DH-1, MTU Type 2**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	866.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	97.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	150
Viscosity CCS @-25°C, max	cP	ASTM D5293	6370
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	11.1
Sulphated Ash	%Wt	ASTM D874	1.26

## ENGINE OIL HDL 15W-40

Product Code 42580



**ENGINE OIL HDL 15W-40** is a high performance universal diesel engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under heavy operating conditions through the whole year for use in Euro I, Euro II, Euro III, Euro IV and Euro V engines. This product is not suitable for vehicles equipped with particulate filters.

**ENGINE OIL HDL 15W-40** is formulated with high refined solvent mineral base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Not suitable for engine equipped with a Diesel Particulate Filter (DPF)

Meets: **API CH-4, API SJ, ACEA E7, Volvo VDS-3, Renault RLD-2, Deutz DQC-III, MTU type 2, Cat ECF-1a, Cummins CES 20077, MAN M 3275, MB 228.1, Mack EO-N, DTRF 15B110 (MB 228.3)**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	885.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	104.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	139
Viscosity CCS @-20°C, max	cP	ASTM D5293	6200
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	11
Sulphated Ash	%Wt	ASTM D874	1.26

## ENGINE OIL D MX IV 20W-50

Product Code 45370



**ENGINE OIL D MX IV 20W-50** is an extra high performance universal engine oil designed for high loaded diesel engines in light- and heavy commercial vehicles working under severe operating conditions through the whole year for use in Euro-1, Euro-2 and Euro-3 engines equipped with EGR and/or SCR.

**ENGINE OIL D MX IV 20W-50** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

Meets: **API CH-4, API SJ, MB 228.3/228.1, Mack EO-M, MAN M 3275, Volvo VDS-3, CAT ECF-1a, Deutz DQC-II, MTU Typ 2.0, Cummins CES 20077**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	884.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	159.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.9
Viscosity Index		ASTM D2270	134
Viscosity CCS @-15°C	cP	ASTM D2270	5580
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	11.3
Sulphated Ash	%Wt	ASTM D874	1.3

## ENGINE OIL HD 15W-40

Product Code 42600



**ENGINE OIL HD 15W-40** is a mineral based "High Performance Diesel" (HPD) engine oil providing good performance in high output, high speed, turbo charged engines operating under severe conditions.

**ENGINE OIL HD 15W-40** is formulated with high quality mineral base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Controlling deposits and viscosity increase
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.

Meets: **API CG-4, API SH, ACEA E2, Volvo VDS, MTU Type 1, MAN M271, MB 228.1, Renault RD**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	880.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	101.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.0
Viscosity Index		ASTM D2270	140
Viscosity CCS @-20°C, max	cP	ASTM D5293	5660
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.9
Sulphated Ash	%Wt	ASTM D874	1.27



## ENGINE OIL HD 20W-50

Product Code 42610



**ENGINE OIL HD 20W-50** is a mineral based "High Performance Diesel" (HPD) engine oil providing good performance in high output, high speed, turbo charged engines operating under severe conditions.

**ENGINE OIL HD 20W-50** is formulated with high quality mineral base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Controlling deposits and viscosity increase
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.

**Meets: API CG-4, MB 228.1, MAN M271, Volvo VDS, MTU Type 1, ACEA E2, Renault RD**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	886.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	156.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.3
Viscosity Index		ASTM D2270	130
Viscosity CCS @-15°C, max	cP	ASTM D5293	6720
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	8.6
Sulphated Ash	%Wt	ASTM D874	1.27

## MONO ENGINE OIL CF 10W

Product Code 42620



**MONO ENGINE OIL CF 10W** is a heavy duty diesel engine oil developed to meet the requirements of a variety of diesel engines operating under severe conditions.

**MONO ENGINE OIL CF 10W** is suitable for use in a wide range of on- and off-highway applications where an API CF oil is recommended.

**MONO ENGINE OIL CF 10W** is based on high quality refined virgin base oil in combination with a special additive package to ensure the following properties:

- High thermal and oxidation stability.
- Effective in preventing from wear, corrosion and foam.
- High dispersancy and detergency properties.

**Meets: API CF-4, API SG, ACEA E2, Volvo VDS, MB 228.0, MB 228.1, MAN 270, MAN 271, Deutz DQC I-02, ZF TE-ML 04A, ZF TE-ML 04P, ZF TE-ML 07D**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	884.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	40
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.4
Viscosity Index		ASTM D2270	110
Viscosity CCS @-25°C, max	cP	ASTM D5293	6490
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	11.8

## MONO ENGINE OIL CF 20W-20

Product Code 42640



**MONO ENGINE OIL CF 20W-20** is a heavy duty diesel engine oil developed to meet the requirements of a variety of diesel engines operating under severe conditions.

**MONO ENGINE OIL CF 20W-20** is suitable for use in a wide range of on- and off-highway applications where an API CF oil is recommended.

**MONO ENGINE OIL CF 20W-20** is based on high quality refined virgin base oil in combination with a special additive package to ensure the following properties:

- High thermal and oxidation stability.
- Effective in preventing from wear, corrosion and foam.
- High dispersancy and detergency properties.

**Meets: API CF-4, API SG, ACEA E2, Volvo VDS, MB 228.0, MB 228.1, MAN 270, MAN 271, Deutz DQC I-02, ZF TE-ML 04A, ZF TE-ML 04P, ZF TE-ML 07D**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-20
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	889.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	67.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.0
Viscosity Index		ASTM D2270	108
Viscosity CCS @-15°C, max	cP	ASTM D5293	3780
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	11.8
Sulphated Ash	%Wt	ASTM D874	1.5

## MONO ENGINE OIL CF 30

Product Code 42660



**MONO ENGINE OIL CF 30** is a heavy duty diesel engine oil developed to meet the requirements of a variety of diesel engines operating under severe conditions.

**MONO ENGINE OIL CF 30** is suitable for use in a wide range of on- and off-highway applications where an API CF oil is recommended.

**MONO ENGINE OIL CF 30** is based on high quality refined virgin base oil in combination with a special additive package to ensure the following properties:

- High thermal and oxidation stability.
- Effective in preventing from wear, corrosion and foam.
- High dispersancy and detergency properties.

**Meets: API CF-4, API SG, ACEA E2, Volvo VDS, MB 228.0, MB 228.1, MAN 270, MAN 271, Deutz DQC I-02, ZF TE-ML 04A, ZF TE-ML 04P, ZF TE-ML 07D, API CH-4**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	890.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	98
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.5
Viscosity Index		ASTM D2270	105
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	11.7



## MONO ENGINE OIL CF 40

Product Code 42680



**MONO ENGINE OIL CF 40** is a heavy duty diesel engine oil developed to meet the requirements of a variety of diesel engines operating under severe conditions.

**MONO ENGINE OIL CF 40** is suitable for use in a wide range of on- and off-highway applications where an API CF oil is recommended.

**MONO ENGINE OIL CF 40** is based on high quality refined virgin base oil in combination with a special additive package to ensure the following properties:

- High thermal and oxidation stability.
- Effective in preventing from wear, corrosion and foam.
- High dispersancy and detergency properties.

**Meets: API CF-4, API SG, ACEA E2, Volvo VDS, MB 228.0, MB 228.1, MAN 270, MAN 271, Deutz DQC I-02, ZF TE-ML 04A, ZF TE-ML 04P, ZF TE-ML 07D, API CH-4**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	897.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	140.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.5
Viscosity Index		ASTM D2270	102
Flash Point C0C	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-21
Total Base Number	mgKOH/g	ASTM D2896	12.2
Sulphated Ash	%Wt	ASTM D874	1.85

## MONO ENGINE OIL CF 50

Product Code 42700



**MONO ENGINE OIL CF 50** is a heavy duty diesel engine oil developed to meet the requirements of a variety of diesel engines operating under severe conditions.

**MONO ENGINE OIL CF 50** is suitable for use in a wide range of on- and off-highway applications where an API CF oil is recommended.

**MONO ENGINE OIL CF 50** is based on high quality refined virgin base oil in combination with a special additive package to ensure the following properties:

- High thermal and oxidation stability.
- Effective in preventing from wear, corrosion and foam.
- High dispersancy and detergency properties.

**Meets: API CF-4, API SG, ACEA E2, Volvo VDS, MB 228.0, MB 228.1, MAN 270, MAN 271, Deutz DQC I-02, ZF TE-ML 04A, ZF TE-ML 04P, ZF TE-ML 07D**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	902.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	210.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.9
Viscosity Index		ASTM D2270	101
Flash Point C0C	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15
Total Base Number	mgKOH/g	ASTM D2896	12.3

## RAILROAD ENGINE OIL 413

Product Code 42710



**RAILROAD ENGINE OIL 413** is a high performance, zinc-free and chlorine-free oil specially designed to provide excellent engine cleanliness and oil filter life in the modern railroad diesel locomotive engines.

**RAILROAD ENGINE OIL 413** is recommended for railroad diesel locomotive engines specifying LMOA Generation 7 quality oils & for medium speed two-cycle and four-cycle railroad engines, including newer diesel locomotive engines of GE and EMD of General Motors.

**RAILROAD ENGINE OIL 413** is also suited for marine and stationary engines for power generation or off-shore drilling requiring zinc-free oils and for Detroit Diesel 149 series engines operating under severe conditions and stationary engines requiring API CF and CF-2 quality oils.

**RAILROAD ENGINE OIL 413** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Exceptional detergency and dispersancy provides excellent engine cleanliness, especially engine top decks.
- Excellent retention of TBN facilitates extended drain intervals.
- High thermo-oxidative.
- Zinc-free formulation protects silver bearings against corrosion.
- Non-chlorinated additive package helps in reducing used oil disposal costs.

**Approved: Electro-Motive Diesel (EMD)**

**Meets: API CF / CF-2, LMOA Generation 7, GE Generation 4 Long Life**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	898
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	154
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.5
Viscosity Index		ASTM D2270	102
Flash Point C0C	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	13.9
Sulphated Ash	%Wt	ASTM D874	1.5

## RAILROAD ENGINE OIL 175 20W-40

Product Code 42715



**RAILROAD ENGINE OIL 175 20W-40** is a high performance, Zinc-free and chlorine-free multigrade oil specially designed to provide excellent engine cleanliness and oil filter life in the modern railroad diesel locomotive engines.

**RAILROAD ENGINE OIL 175 20W-40** is recommended for railroad diesel locomotive engines specifying LMOA Generation 7 quality oils & for medium speed two-cycle and four-cycle railroad engines, including newer diesel locomotive engines of GE and EMD of General Motors.

**RAILROAD ENGINE OIL 175 20W-40** is also suited for marine and stationary engines for power generation or off-shore drilling requiring zinc-free oils and for Detroit Diesel 149 series engines operating under severe conditions and stationary engines requiring API CF and CF-2 quality oils.

**RAILROAD ENGINE OIL 175 20W-40** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Exceptional detergency and dispersancy provides excellent engine cleanliness, especially engine top decks.
- Excellent retention of TBN facilitates extended drain intervals.
- High thermo-oxidative.
- Zinc-free formulation protects silver bearings against corrosion.
- Non-chlorinated additive package helps in reducing used oil disposal costs.

**Meets: API CF / CF-2, LMOA Generation 7, EMD of General Motors, GE as Generation 4 Long Life Oils, GE Diesel Engines**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-40
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	877.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	128.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.2
Viscosity Index		ASTM D2270	122
Total Base Number	mgKOH/g	ASTM D2896	17.5
Sulphated Ash	%Wt	ASTM D874	1.5
Flash Point C0C	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30



## MOTOR CYCLE OIL 2T

Product Code 42920



**MOTOR CYCLE OIL 2T** is a high quality mineral lubricant specially developed for 2-stroke air cooled gasoline engines fitted with oil-injection or premix systems.

**MOTOR CYCLE OIL 2T** is based on a high quality virgin mineral base oils in combination with a special selected additive package to obtain the following properties:

- Outstanding protection against piston scuffing and premature wear of engine components.
- Excellent control against engine deposits, exhaust system blocking.
- Extended engine life without power loss.
- Low ash additive technology prevents pre-ignition and spark plug fouling.
- Easy miscibility with gasoline ensures stable homogeneous mixture even at low ambient temperatures.

Meets: API TC, JASO FB, ISO-L-EGC

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	879.8
Color Visual	amber		
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	71.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.4
Viscosity Index		ASTM D2270	111
Flash Point COC	°C	ASTM D92	85
Pour Point	°C	ASTM D7346	-30
Total Base Number	mg KOH/g	ASTM D2896	1.2
Sulphated Ash	%Wt	ASTM D78	0.25

## MOTOR CYCLE OIL 2T EXTRA

Product Code 42940



**MOTOR CYCLE OIL 2T EXTRA** is a high quality semi-synthetic lubricant specially developed for high powered 2-stroke air and water cooled gasoline engines fitted with oil-injection or premix systems.

**MOTOR CYCLE OIL 2T EXTRA** is based on a high quality virgin and synthetic base oils in combination with a special selected additive package to obtain the following properties:

- Outstanding protection against piston scuffing and premature wear of engine components.
- Excellent control against engine deposits, exhaust system blocking.
- Extended engine life without power loss.
- Low ash additive technology prevents pre-ignition and spark plug fouling.
- Specially selected synthetic base fluid reduces visible exhaust smoke.
- Easy miscibility with gasoline ensures stable homogeneous mixture even at low ambient temperatures.

Meets: API TC, JASO FD, ISO-L-EGD, TISI

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	863.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	62.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.1
Viscosity Index		ASTM D2270	123
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	1.2
Sulphated Ash	%Wt	ASTM D78	0.14

## MOTOR CYCLE OIL 2T EXTRA (RED)

Product Code 44860



**MOTOR CYCLE OIL 2T EXTRA (RED)** is a high quality semi-synthetic lubricant specially developed for high powered 2-stroke air cooled gasoline engines fitted with oil-injection or premix systems.

**MOTOR CYCLE OIL 2T EXTRA (RED)** is based on a high quality virgin and synthetic base oils in combination with a special selected additive package to obtain the following properties:

- Outstanding protection against piston scuffing and premature wear of engine components.
- Excellent control against engine deposits, exhaust system blocking.
- Extended engine life without power loss.
- Low ash additive technology prevents pre-ignition and spark plug fouling.
- Specially selected synthetic base fluid reduces visible exhaust smoke.
- Easy miscibility with gasoline ensures stable homogeneous mixture even at low ambient temperatures.

Meets: API TC, JASO FD, ISO-L-EGD

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	863.0
Color Visual	Red		
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	62.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.1
Viscosity Index		ASTM D2270	123
Flash Point COC	°C	ASTM D92	85
Pour Point	°C	ASTM D7346	-37
Total Base Number	mgKOH/g	ASTM D2896	1.1
Sulphated Ash	%Wt	ASTM D78	0.14



## MOTORCYCLE OIL RACING 4T 5W-50

Product Code 42922



**MOTOR CYCLE OIL RACING 4T 5W-50** is a high performance 4-stroke gasoline engine oil and has been specially developed for the perfect lubrication of high performance and high powered gasoline and diesel engines. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures.

**MOTOR CYCLE OIL RACING 4T 5W-50** is based on a mixture of synthetic Poly Alpha Olefin (PAO) base stock in combination with esters and a special selected additive package to obtain the following properties:

- Outstanding thermo-oxidative stability.
- Exceptional anti-wear, anti-rust and anti-corrosion properties.
- Controlled frictional properties eliminate clutch slippage.
- Increased power/ fuel economy and improves drivability.
- Excellent dispersancy and detergency properties.
- Excellent shear stability maintains viscosity under high temperature-

- high shear environment and provides improved wear protection.
- Outstanding low temperature properties enable easy starting at low ambient temperatures and ensure effective lubrication and wear protection at start up.
- Low volatility characteristics reduce oil consumption and hydrocarbon pollution

Meets: API SN, JASO MA/MA2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	847.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	124.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	19.4
Viscosity Index		ASTM D2270	178
Viscosity CCS @-30°C,max	cP	ASTM D5293	4660
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45
Total Base Number	mgKOH/g	ASTM D2896	8.6

## MOTOR CYCLE OIL 4T 10W-50

Product Code 42930



**MOTOR CYCLE OIL 4T 10W-50** is a semi synthetic 4-stroke gasoline engine oil developed specifically to meet the special requirements of latest high performance air cooled 4-stroke motorcycles. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures.

**MOTOR CYCLE OIL 4T 10W-50** is based on a high quality mineral and synthetic base oils in combination with a special selected additive package to obtain the following properties:

- Outstanding thermo-oxidative stability.
- Exceptional anti-wear, anti-rust and anti-corrosion properties.
- Controlled frictional properties eliminate clutch slippage.
- Increased power/ fuel economy and improves drivability.
- Excellent dispersancy and detergency properties.
- Excellent shear stability maintains viscosity under high temperature-high shear environment.

- Provides improved wear protection.
- Outstanding low temperature properties enable easy starting at low ambient temperatures.
- Ensure effective lubrication and wear protection at start up.
- Low volatility characteristics reduce oil consumption and hydrocarbon pollution.

Meets: API SN, JASO MA/MA-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	858
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	114
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	17.4
Viscosity Index		ASTM D2270	168
Viscosity CCS @-25°C, max	cP	ASTM D5293	5230
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.4
Sulphated Ash	%Wt	ASTM D874	1.15

## MOTOR CYCLE OIL SYN 2T

Product Code 42950



**MOTOR CYCLE OIL SYN 2T** is a high performance low smoke 2-stroke motorcycle oil based on 100% synthetic technology to be used in 2-stroke motorcycle, scooter, snow mobiles and other variety gasoline engines.

**MOTOR CYCLE OIL SYN 2T** is based on high performance synthetic base oil in combination with a specially selected additive technology to ensure the following properties.

- Excellent engine protection on cleanliness.
- Low smoke even under extreme operation conditions.
- High thermal and oxidation stability.
- Exceptional protection against piston scuffing.
- High anti-wear and anti-corrosion properties.
- Homogeneous mixture even at low ambient temperatures.

Meets: API TC, JASO FD, Husqvarna 372, ROTAX 253, ISO 6743-15, Husqvarna 346, Husqvarna 372, ISO-L-EGD

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	876.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	49.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.7
Viscosity Index		ASTM D2270	158
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-54
Total Base Number	mgKOH/g	ASTM D2896	2.2
Sulphated Ash	%Wt	ASTM D78	0.15

## MOTOR CYCLE OIL 4T 10W-40

Product Code 42990



**MOTOR CYCLE OIL 4T 10W-40** is a synthetic technology based 4-stroke gasoline engine oil developed specifically to meet the special requirements of latest high performance air and liquid cooled 4-stroke motorcycles. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures.

**MOTOR CYCLE OIL 4T 10W-40** is based on a high quality synthetic technology base oils in combination with a special selected additive package to obtain the following properties:

- Excellent anti-wear, anti-rust and anti-corrosion properties.
- Good thermo-and oxidative stability.
- Controlled frictional properties eliminate clutch slippage and improves drivability.
- Excellent dispersant and detergent properties.

Meets: API SN, JASO MA/MA-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	855.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	87.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	161
Viscosity CCS @-25°C, max	cP	ASTM D5293	45000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	9.4
Sulphated Ash	%Wt	ASTM D874	1.1



## MOTOR CYCLE OIL 4T 20W-50

Product Code 45160



**MOTOR CYCLE OIL 4T 20W-50** is a high performance mineral engine oil especially developed for use in air-, oil-, and water-cooled 4-stroke motorcycles to provide excellent protection towards engine, gearbox and wet clutches and ensures the highest possible reliability even under the most severe operation conditions.

**MOTOR CYCLE OIL 4T 20W-50** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Good thermal and oxidation stability.
- Stay-in-grade.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Controlled frictional properties eliminate clutch slippage, effectively improving the driveability of the vehicle.

Meets: API SN, JASO MA/MA-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	869.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	147.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.0
Viscosity Index		ASTM D2270	136
Viscosity CCS @-15°C	cP	ASTM D2270	5200
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	9.5
Sulphated Ash	%Wt	ASTM D874	1.1

## MOTOR CYCLE OIL 4T 25W-60

Product Code 45220



**MOTOR CYCLE OIL 4T 25W-60** is a high performance mineral engine oil especially developed for use in air-, oil-, and water-cooled 4-stroke motorcycles to provide excellent protection towards engine, gearbox and wet clutches and ensures the highest possible reliability even under the most severe operation conditions.

**MOTOR CYCLE OIL 4T 25W-60** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Good thermal and oxidation stability.
- Stay-in-grade.
- Good protection against wear, foam and corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Controlled frictional properties eliminate clutch slippage, effectively improving the driveability of the vehicle.

Meets: API SL, JASO MA/MA-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	25W-60
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	896.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	286.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	25.9
Viscosity Index		ASTM D2270	117
Viscosity CCS @-10°C, max	cP	ASTM D2270	10000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
Total Base Number	mgKOH/g	ASTM D2896	7.9

## MOTOR CYCLE OIL 4T EXTRA 5W-40

Product Code 42980



**MOTOR CYCLE OIL 4T EXTRA 5W-40** is a high performance 4-stroke gasoline engine oil developed specifically to meet the special requirements of latest high performance air cooled 4-stroke motorcycles. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures.

**MOTOR CYCLE OIL 4T EXTRA 5W-40** is based on 100% synthetic Poly Alpha Olefin (PAO) base stock in combination with esters and a special selected additive package to obtain the following properties:

- Outstanding thermo-oxidative stability.
- Exceptional anti-wear, anti-rust and anti-corrosion properties.
- Controlled frictional properties eliminate clutch slippage.
- Increased power/ fuel economy and improves drivability.
- Excellent dispersancy and detergency properties.
- Excellent shear stability maintains viscosity under high temperature-

high shear environment and provides improved wear protection.

- Outstanding low temperature properties enable easy starting at low ambient temperatures and ensure effective lubrication and wear protection at start up.
- Low volatility characteristics reduce oil consumption and hydrocarbon pollution.

Meets: API SN, JASO MA/MA-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	850.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	84.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.3
Viscosity Index		ASTM D2270	159
Viscosity CCS @-30°C, max	cP	ASTM D5293	6000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51
Total Base Number	mgKOH/g	ASTM D2896	8.3
Sulphated Ash	%Wt	ASTM D874	1.2

## MOTORCYCLE OIL SYN 4T 10W-40

Product Code 42995



**MOTOR CYCLE OIL SYN 4T 10W-40** is a high performance 4-stroke gasoline engine oil developed specifically to meet the special requirements of latest high performance air/water-cooled 4-stroke motorcycles. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures

**MOTOR CYCLE OIL SYN 4T 10W-40** is based on high quality synthetic technology Hydrocracked and hydro treated base stocks in combination with a special selected additive package to obtain the following properties following properties:

- Outstanding thermo-oxidative stability.
- Exceptional antiwear, antirust and anticorrosion properties.
- Controlled frictional properties eliminate clutch slippage.
- Increased power/ fuel economy and improves drivability.
- Excellent dispersancy and detergency properties.
- Excellent shear stability maintains viscosity under high temperature-high shear environment and provides improved wear protection.

- Outstanding low temperature properties enable easy starting at low ambient temperatures and ensure effective lubrication and wear protection at start up.
- Low volatility characteristics reduce oil consumption and hydrocarbon pollution.

Meets: API SN, JASO MA/MA2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	96.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.6
Viscosity Index		ASTM D2270	157
Viscosity CCS @-25°C	cP	ASTM D5293	5400
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	8.4



## MOTORCYCLE OIL SYN 4T 10W-50

Product Code 42935



**MOTOR CYCLE OIL SYN 4T 10W-50** is a ultra-high performance 4-stroke gasoline engine oil developed specifically to meet the special requirements of latest high performance air and water-cooled 4-stroke motorcycles, even with catalytic converters. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures.

**MOTOR CYCLE OIL SYN 4T 10W-50** is based on a mixture of synthetic Poly Alpha Olefin (PAO) base stock in combination with esters and a special selected additive package to obtain the following properties:

- Outstanding thermo-oxidative stability.
- Exceptional anti-wear, anti-rust and anti-corrosion properties.
- Controlled frictional properties eliminate clutch slippage.
- Increased power/ fuel economy and improves drivability.
- Excellent dispersancy and detergency properties.

- Excellent shear stability maintains viscosity under high temperature-high shear environment and provides improved wear protection.
- Outstanding low temperature properties enable easy starting at low ambient temperatures and ensure effective lubrication and wear protection at start up.
- Low volatility characteristics reduce oil consumption and hydrocarbon pollution

Meets: API SN, JASO MA/MA2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	128.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.6
Viscosity Index		ASTM D2270	164
Viscosity CCS @-25°C	cP	ASTM D5293	5800
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	8.4

## MOTORCYCLE OIL SYN 4T 15W-50

Product Code 42975



**MOTOR CYCLE OIL SYN 4T 15W-50** is a high performance 4-stroke gasoline engine oil developed specifically to meet the special requirements of latest high performance air and water-cooled 4-stroke motorcycles.. It provides excellent protection to engine, gearbox and wet clutch used in 4-stroke motorcycles and ensures highest degree of reliability even under severe operating conditions and temperatures.

**MOTOR CYCLE OIL SYN 4T 15W-50** is based on high quality synthetic technology Hydrocracked and hydro treated base stocks in combination with a special selected additive package to obtain the following properties.

- Outstanding thermo-oxidative stability.
- Exceptional anti-wear, anti-rust and anti-corrosion properties.
- High friction properties to eliminate clutch slippage.
- Increased power/ fuel economy and improves drivability.
- Excellent dispersancy and detergency properties.

- Excellent shear stability maintains viscosity under high temperature-high shear environment and provides improved wear protection.
- Outstanding low temperature properties enable easy starting at low ambient temperatures and ensure effective lubrication and wear protection at start up.

Meets: API SN, JASO MA/MA2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	861.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	125.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.6
Viscosity Index		ASTM D2270	163
Viscosity CCS @-20°C, max	cP	ASTM D5293	3700
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.1

## SNOW MOBILE OIL SYN 2T

Product Code 42910



**SNOW MOBILE OIL SYN 2T** is a fully synthetic excellent performance lubricant developed for air & water cooled 2-stroke engines. The special formulation ensures excellent engine protection, cleanliness and low smoke, even under extreme operating conditions.

**SNOW MOBILE OIL SYN 2T** is based on a high quality fully synthetic base oils in combination with a special selected additive package to obtain the following properties:

- Outstanding protection against piston scuffing and premature wear of engine components.
- Excellent control against engine deposits, exhaust system blocking.
- Extended engine life without power loss.
- Low ash additive technology prevents pre-ignition and spark plug fouling.
- Specially selected synthetic base fluid reduces visible exhaust smoke.

- Easy miscibility with gasoline ensures stable homogeneous mixture even at very low ambient temperatures.

Meets: API TC, JASO FD, ISO-L-EGD, ROTAX 253, Husqvarna 346, Husqvarna 372

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	876.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	49.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.7
Viscosity Index		ASTM D2270	158
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-54
Total Base Number	mgKOH/g	ASTM D2896	2.2
Sulphated Ash	%Wt	ASTM D78	0.15

## KART 2T RACING

Product Code 43000



**KART 2T RACING** is a high performance ultimate lubricant based on synthetic ester and castor proven base oil. KART 2T is specially developed for high revving 2-stroke air- and/or water-cooled kart engines which run under severe/ racing conditions.

**KART 2T RACING** is formulated with high quality synthetic ester and castor base stocks in combination with an unique additive technology to achieve the following performance:

- More power and better bearing protection.
- Very high film strength and affinity for hot metal.
- Excellent scuff protection.
- Exceptional Piston Cleanliness.
- Low carbon residue, reduces smoke.

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	924.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	172.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	19.6
Viscosity Index		ASTM D2270	131
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45



## OUTBOARD ENGINE OIL 2T

Product Code 42960



**OUTBOARD ENGINE OIL 2T** is a high performance ashless 2-stroke engine oil for use in modern cooled outboard engines where NMMA TC-W3 is required

**OUTBOARD ENGINE OIL 2T** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties.

- Excellent lubricity.
- Protection against wear and rust.
- High protection against scuffing and deposit forming.
- Easy mixing and stable mixture even at low temperatures

Meets: NMMA TC-W3®

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	877.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	45.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.1
Viscosity Index		ASTM D2270	114
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.6
Sulphated Ash	%Wt	ASTM D78	0.15

## 4-STROKE OUTBOARD OIL 10W-30

Product Code 43280



**4-STROKE OUTBOARD OIL 10W-30** is a premium 4-stroke engine oil specially designed for the most modern high output gasoline power, water cooled outboard / inboard and personal watercraft engines. It is specially developed to exceed the performance requirements of National Marine Manufacturers Association's specification NMMA FC-W® (Four Cycle-Water specification) and various manufacturers like Yamaha, Honda, and Tohatsu/Nissan marine.

**4-STROKE OUTBOARD OIL 10W-30** is based on a high quality hydro processed base oils in combination with a special selected additive package to obtain the following properties:

- Exceptional shear stability.
- Advanced rust inhibitors guard against rust & corrosion even in marine salt water environment.
- Good Low temperature fluidity assists easy cold start.
- Active cleaning agents provide superior engine cleanliness

Meets: NMMA FC-W Catalyst Compatible®

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	10W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	861.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	74.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.5
Viscosity Index		ASTM D2270	147
Viscosity CCS @-25°C, max	cP	ASTM D2270	5300
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	7.0

## 4 STROKE OUTBOARD OIL 10W-40

Product Code 43281



**4-STROKE OUTBOARD 10W-40** is a premium 4-stroke engine oil specially designed for the most modern high output gasoline power, water cooled outboard / inboard and personal watercraft engines. It is specially developed to exceed the performance requirements of National Marine Manufacturers Association's specification NMMA FC-W Catalyst Compatible® (Four Cycle-Water specification).

**4-STROKE OUTBOARD 10W-40** is based on a high quality hydro processed base oils in combination with a special selected additive package to obtain the following properties:

- Exceptional shear stability.
- Advanced rust inhibitors guard against rust & corrosion even in marine salt water environment.
- Good Low temperature fluidity assists easy cold start.
- Active cleaning agents provide superior engine cleanliness

Meets: NMMA, FC-W NMMA FC-W Catalyst Compatible®, API SM

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	862.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	91.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.7
Viscosity Index		ASTM D2270	151
Viscosity CCS @-25°C	cP	ASTM D2270	6100
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	7.1

## 4-STROKE MARINE ENGINE OIL 25W-40

Product Code 45510



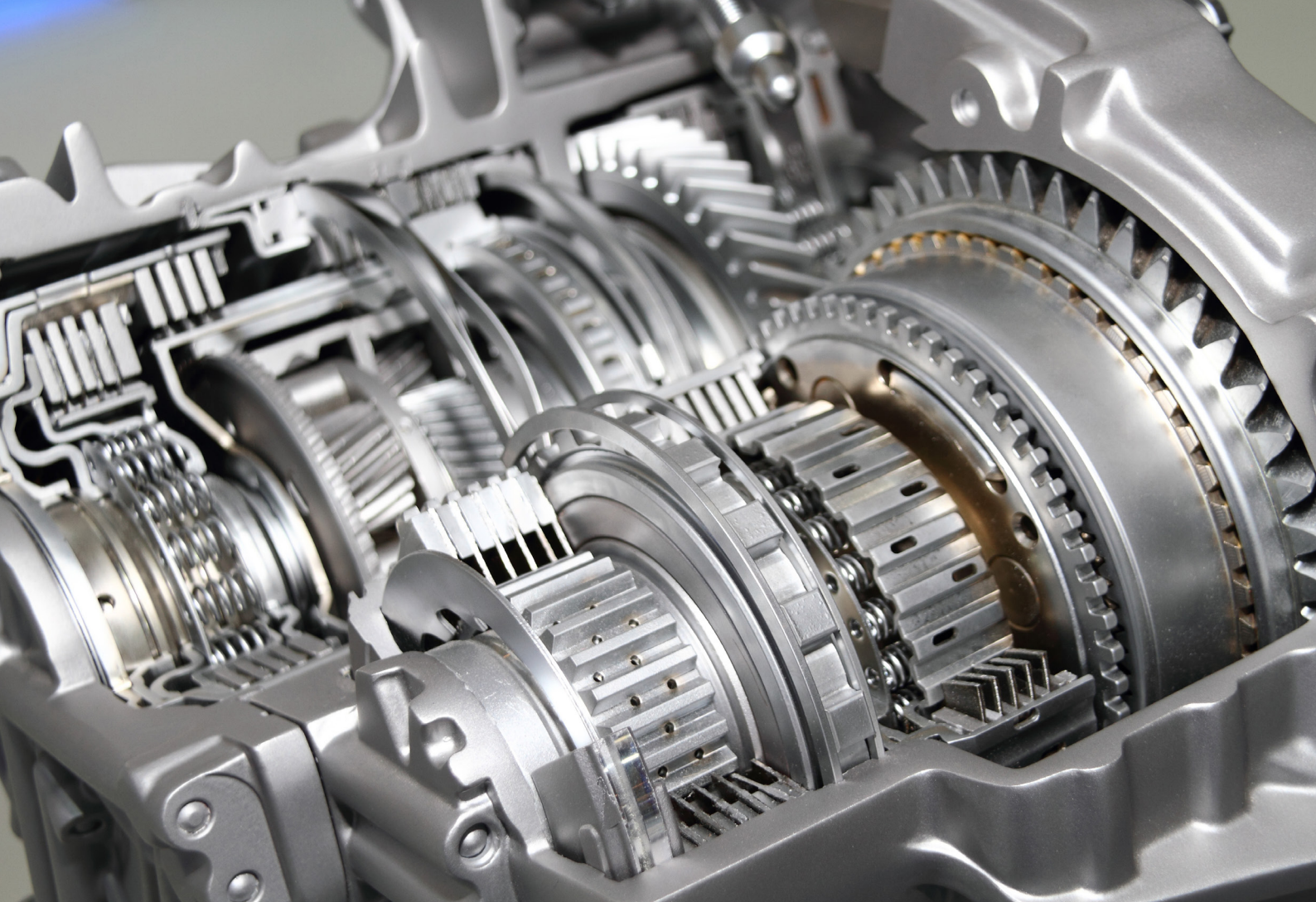
**4-STROKE MARINE ENGINE OIL 25W-40** is a premium 4-stroke engine oil specially designed for the most modern high output gasoline power, water cooled outboard / inboard and personal watercraft engines. It is specially developed to exceed the performance requirements of National Marine Manufacturers Association's specification NMMA FC-W Catalyst Compatible® and various manufacturers like Mercury and Mercruiser marine.

**4-STROKE MARINE ENGINE OIL 25W-40** is based on a high quality hydro processed base oils in combination with a special selected additive package to obtain the following properties:

- Exceptional shear stability.
- Advanced rust inhibitors guard against rust & corrosion even in marine salt water environment.
- Good Low temperature fluidity assists easy cold start.
- Active cleaning agents provide superior engine cleanliness

Meets: NMMA FC-W Catalyst Compatible®

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	25W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	872.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	119.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	113
Viscosity CCS @-10°C	cP	ASTM D2270	4080
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	7.4



## AUTOGEAR OIL GL-1 140

Product Code 43010



**AUTOGEAR OIL GL-1 140** is a oil for the lubrication of older gear-boxes and rear axles not requiring EP properties.

**AUTOGEAR OIL GL-1 140** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Good resistance against oxidation.
- Good resistance against sludge formation.
- Effectively offsets the formation of foam.

**Meets: API GL-1**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	902.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	420.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	28.9
Viscosity Index		ASTM D2270	95
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15

## AUTOGEAR OIL EP 80W-90

Product Code 43020



**AUTOGEAR OIL EP 80W-90** is an universal high performance mineral EP gear oil for use in manual transmission en transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture where a SAE 80W-90 GL-4 is been required.

**AUTOGEAR OIL EP 80W-90** is formulated with high refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Good Extreme Pressure and anti-wear properties.
- High thermal- and oxidation stability.
- Effective rust, wear and corrosion protection.
- Better low temperature provides easy start-up at low ambient temperatures.
- Good anti-foam properties ensure film strength for effective lubrication.
- Excellent seal compatibility.

**Meets: API GL-4, MIL-L-2105, BW-TL 9150-0010**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	880.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	127.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.4
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	61000
Viscosity Index		ASTM D2270	113
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33



## AUTOGEAR OIL EP 90

Product Code 43021



**AUTOGEAR OIL EP 90** is an universal performance mineral EP gear oil for use in manual transmission and transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture where a SAE 90 GL-4 is been required.

**AUTOGEAR OIL EP 90** is formulated with high refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Very good protection against wear.
- Very good performance against the forming of foam and corrosion.
- Good Oxidation- and thermal stability.

Meets: API GL-4, MIL-L-2105

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	880.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	127.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.4
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	61000
Viscosity Index		ASTM D2270	113
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33

## AUTOGEAR OIL EP 85W-140

Product Code 43040



**AUTOGEAR OIL EP 85W-140** is an universal high performance mineral EP gear oil for use in manual transmission en transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture where a SAE 85W-140 GL-4 is been required.

**AUTOGEAR OIL EP 85W-140** is formulated with high refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Good Extreme Pressure and anti-wear properties.
- High thermal- and oxidation stability.
- Effective rust, wear and corrosion protection.
- Better low temperature provides easy start-up at low ambient temperatures.
- Good anti-foam properties ensure film strength for effective lubrication.
- Excellent seal compatibility.

Meets: API GL-4, MIL-L-2105

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	902.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	376.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	27.3
Low-Temperature Brookfield Viscosity @ -12°	cP	ASTM D2983	52800
Viscosity Index		ASTM D2270	98
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-21

## AUTOGEAR OIL MP 75W-90

Product Code 43055



**AUTOGEAR OIL MP 75W-90** is a universal high performance multi-purpose gear oil for use in differentials, axles and some transmissions of passenger cars, vans, light- and seam commercial vehicles, off-highway equipment, mining and agriculture where a SAE 75W-90 GL-5 is been required.

**AUTOGEAR OIL MP 75W-90** is based on a high quality synthetic base oil in combination with a special additive package to ensure the following properties:

- Good extreme pressure and anti-wear properties.
- High thermal- and oxidation stability.
- Effective rust, wear and corrosion protection.
- Better low temperature provides easy start-up at low ambient temperatures.
- Good anti-foam properties ensure film strength for effective lubrication.

- Excellent seal compatibility.

Meets: API GL-5, MIL-L-2105D, MAN 342 M2, Volvo STD 1273.1, ZF TE-ML 05A, 7A, 16B, 17B, 21A

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	869.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	97.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.0
Viscosity Index		ASTM D2270	162
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45

## AUTOGEAR OIL MP 80W-90

Product Code 43060



**AUTOGEAR OIL MP 80W-90** is an universal high performance mineral multi purpose gear oil for use in different applications, such as; manual transmission and transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture, where a SAE 80W-90 GL-5 oil is been required.

**AUTOGEAR OIL MP 80W-90** is formulated with high refined mineral base stocks in combination with a special additive technology to achieve the following performance:

- Very good protection against wear.
- Very good performance against the forming of foam and corrosion.
- Good Oxidation- and thermal stability.

Meets: API GL-5, MIL-L-2105D, MAN 342 M2, Volvo STD 1273.1, ZF TE-ML 05A, ZF TE-ML 7A, ZF TE-ML 12E, ZF TE-ML 16B, ZF TE-ML 16C, ZF TE-ML 17B, ZF TE-ML 19B, ZF TE-ML 21A

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	885.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	124.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.1
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	60000
Viscosity Index		ASTM D2270	112
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36



## AUTOGEAR OIL MP 85W-90

Product Code 43070



**AUTOGEAR OIL MP 85W-90** is an universal high performance mineral multi-purpose gear oil for use in manual transmission en transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture where a SAE 85W-90 GL-5 is been required.

**AUTOGEAR OIL MP 85W-90** is based on high quality mineral base oil in combination with a special additive package to ensure the following properties:

- Good thermo-oxidative stability.
- Good load bearing characteristics.
- Effective rust and corrosion protection.
- High low temperature fluidity provides smoother shifting at low ambient temperatures.
- Exceptional shear stable.

**Meets: API GL-4, API GL-5, MB 235.6, MAN 342-M1, MAN 342-M2, MIL-PRF-2105D, Volvo 97310, Volvo 97316, Volvo STD 1273.21, SAE J2360, SCANIA STO 1.0, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 08, ZF TE-ML 12E, ZF TE-ML 16B, ZF TE-ML 16C, ZF TE-ML 17B, ZF TE-ML 19B, ZF TE-ML 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	888.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	154.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.9
Low-Temperature Brookfield Viscosity @ -12°	cP	ASTM D2983	13000
Viscosity Index		ASTM D2270	105
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27

## AUTOGEAR OIL MP 85W-140

Product Code 43080



**AUTOGEAR OIL MP 85W-140** is a universal high performance mineral multi-purpose gear oil for use in manual transmission en transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture where a SAE 85W-140 GL-5 is been required.

**AUTOGEAR OIL MP 85W-140** is based on high quality mineral base oil in combination with a special additive package to ensure the following properties:

- Good thermo-oxidative stability.
- Good load bearing characteristics.
- Effective rust and corrosion protection.
- High low temperature fluidity provides smoother shifting at low ambient temperatures.
- Exceptional shear stable.

**Meets: API GL-5, MIL-L-2105D, Volvo STD 1273.1, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 08, ZF TE-ML 12E, ZF TE-ML 16C, ZF TE-ML 16D, ZF TE-ML 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	908.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	390.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	27.7
Low-Temperature Brookfield Viscosity @ -12°	cP	ASTM D2983	69000
Viscosity Index		ASTM D2270	97
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15

## AUTOGEAR OIL MP 80W-140

Product Code 43090



**AUTOGEAR OIL MP 80W-140** is a universal high performance mineral multi-purpose gear oil for use in manual transmission en transaxles of passenger cars, vans, light- and heavy commercial vehicles, off-highway equipment, mining and agriculture where a SAE 80W-140 GL-5 is been required. This product is also suitable for applications where a SAE 85W-140 GL-5 is required.

**AUTOGEAR OIL MP 80W-140** is based on high quality mineral base oil in combination with a special additive package to ensure the following properties:

- Good thermo-oxidative stability.
- Good load bearing characteristics.
- Effective rust and corrosion protection.
- High low temperature fluidity provides smoother shifting at low ambient temperatures.
- Exceptional shear stable.

**Meets: API GL-5, MIL-L-2105D, MIL-L-2015E, SAE J2360, Scania STO 1:0, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 08, ZF TE-ML 12M, ZF TE-ML 16C, ZF TE-ML 16D, ZF TE-ML 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	896.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	243.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	26.5
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	< 150000
Viscosity Index		ASTM D2270	141
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33

## AUTOGEAR OIL SYN 75W-90

Product Code 43100



**AUTOGEAR OIL SYN 75W-90** is a high quality fuel conserving fully synthetic total driveline gear lubricants designed to meet the demanding requirements of light duty and heavy duty commercial vehicles and off-highway equipment operating in most severe operating conditions. Unique additive technology allows the use of a single lubricant in rear axles, synchronized and non-synchronized manual transmission.

**AUTOGEAR OIL SYN 75W-90** is formulated with high quality synthetic base oil in combination with a special additive package to reach the following properties:

- Unique additive technology allows the use of a single lubricant in rear axles, synchronised and non-synchronised manual transmissions and therefore helps in rationalisation of products.
- Exceptional thermo-oxidative stability and load bearing characteristics help in extending the life of the driveline components and the oil.
- Effective rust and corrosion protection, especially to copper and its alloys reduces wear, extends synchroniser life and improves shifting performance.

- Outstanding low temperature fluidity reduces wear at start up and provides smoother shifting at low ambient temperatures.
- Exceptional shear stability helps in retaining viscosity and film strength to protect against wear even under severe operating conditions.
- Superior frictional properties provide improved fuel economy and smoother shift ability

**Meets: API GL-4, API GL-5, API MT-1, MAN 342 M3, MAN 341 E3, MAN 341 Z2; MIL-PRF-2105E, Scania STO 1:0, Scania STO 1:1G, MAN 341 GA1, SAE J2360, MACK GO-J, Volvo 97312, Arvin Meritor O-94, IVECO, DAF, Bosch TE-ML 08, Arvin Meritor O-76-E, ZF TE-ML 02B, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 12L, ZF TE-ML 12N, ZF TE-ML 16B, ZF TE-ML 17B, ZF TE-ML 19B, ZF TE-ML 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	877
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	105.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.8
Viscosity Index		ASTM D2270	160
Brookfield @-40°C	cP	ASTM D2983	150000
Flash Point COC	°C	ASTM D92	>201



## AUTOGEAR OIL XP 80W-90

Product Code 43110



**AUTOGEAR OIL XP 80W-90** is a high performance total driveline gear lubricant designed to provide excellent lubrication in a wide range of drive trains of light & heavy duty commercial vehicles.

**AUTOGEAR OIL XP 80W-90** is based on high quality mineral base oil in combination with a special additive package to ensure the following properties:

- Good thermo-oxidative stability.
- Good load bearing characteristics.
- Effective rust and corrosion protection.
- High low temperature fluidity provides smoother shifting at low ambient temperatures.
- Exceptional shear stable.
- Excellent frictional properties provide improved fuel economy and smoother shiftability.

**Meets: API GL-4, API GL-5, API MT-1, SAE J2360, MB 235.0H, Scania STO 1:0, MAN 341 GA1, MACK GO-J, Scania STO 1:1G, MAN 341 E2, DAF, Arvin Meritor 0-76-D, MAN 341 Z2, IVECO, Arvin Meritor 0-94, MAN 342 M2, Volvo 97321, ZF TE-ML 02B, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 12L, ZF TE-ML 12M, ZF TE-ML 16B, ZF TE-ML 17H, ZF TE-ML 19B, ZF TE-ML 21A, Robert Bosch TE-ML 08**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	900.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	141.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.6
Low-Temperature Brookfield Viscosity @	-26° cP	ASTM D2983	100000
Viscosity Index		ASTM D2270	103
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30

## AUTOGEAR OIL LS 80W-90

Product Code 43120



**AUTOGEAR OIL LS 80W-90** is a extra high performance extreme pressure type automotive gear lubricant specially developed for use in modern high performance passenger cars, sports utility vehicles, vans and light duty trucks with limited slip differentials.

**AUTOGEAR OIL LS 80W-90** is based on high quality mineral virgin base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Excellent limited slip performance to reduce chatter and improves traction.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.
- Exceptional shear stable.

- Good frictional properties provide improved fuel economy and smoother shift ability.

**Meets: API GL-5, MAN 342 M2, Volvo STD 1273.1, MIL-L-2105D, ZF TE-ML 05C, ZF TE-ML 07A, ZF TE-ML 12E, ZF TE-ML 16B, ZF TE-ML 16C, ZF TE-ML 17B, ZF TE-ML 19B, ZF TE-ML 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	885.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	124.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.3
Low-Temperature Brookfield viscosity@-26°C	cP	ASTM D2983	62000
Viscosity Index		ASTM D2270	110
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-33

## AUTOGEAR OIL LS 80W-90 EXTRA

Product Code 43121



**AUTOGEAR OIL LS 80W-90 EXTRA** is an extra high performance extreme pressure type automotive gear lubricant specially developed for use in modern high performance passenger cars, sports utility vehicles, vans and light duty trucks with limited slip differentials with increased limited slip demands.

**AUTOGEAR OIL LS 80W-90 EXTRA** is based on high quality mineral virgin base oil in combination with a special additive package with extra limited slip additive to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Excellent limited slip performance to reduce chatter and improves traction.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.

- Exceptional shear stable.
- Good frictional properties provide improved fuel economy and smoother shift ability

**Meets: API GL-5, MAN 342 M2, Volvo 1273.1, MIL-L-2105D, ZF TE-ML 05C, 07A, 12E, 16B, 16C, 17B, 19B, 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	889.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	121.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.6
Viscosity Index		ASTM D2270	109
Brookfield Viscosity @-26°C	cP	ASTM D2983	110000
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36

## AUTOGEAR OIL LS 90

Product Code 43130



**AUTOGEAR OIL LS 90** is an extra high performance extreme pressure type automotive gear lubricant specially developed for use in modern high performance passenger cars, sports utility vehicles, vans and light duty trucks with limited slip differentials.

**AUTOGEAR OIL LS 90** is based on high quality mineral virgin base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Excellent limited slip performance to reduce chatter and improves traction.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.

- Exceptional shear stable.
- Good frictional properties provide improved fuel economy and smoother shift ability.

**Meets: API GL-5, MAN 342 M1, ZF TE-ML 05C, ZF TE-ML 07A, ZF TE-ML 08, ZF TE-ML 12C, ZF TE-ML 16E, ZF TE-ML 17B, ZF TE-ML 19B, ZF TE-ML 21C, MB 235.0, Volvo 97310, VW TL 727, Arvin Meritor, Volvo 97316, Voith 3.325-339**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	900.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	165.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.9
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	220
Pour Point	°C	ASTM D7346	-21



## MARINEGEAR OIL 90

Product Code 43135



**MARINEGEAR POWER 90** is a high-performance gear lubricant designed to provide effective lubrication in a wide range of outboard and sterndrive gearcases. Also suitable for other gearboxes on board where a API GL-4 type of oil is prescribed.

**MARINEGEAR POWER 90** is based on high quality refined virgin base oil in combination with a special additive package to ensure the following properties:

- Good extreme pressure and anti-wear properties.
- High thermal- and oxidation stability.
- Effective rust, wear and corrosion protection.
- Better low temperature provides easy start-up at low ambient temperatures.

- Good anti-foam properties ensure film strength for effective lubrication.
- Excellent seal compatibility.

Meets: API GL-4, MIL-L-2105

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	877
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	143
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.1
Viscosity Index		ASTM D2270	106
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-18

## TO-4M TRANSMISSION FLUID 10W-40

Product Code 43165



**TRANSMISSION FLUID TO-4M** is specifically designed for powershift transmissions, final drives and wet brakes on heavy duty off-highway equipment used in earthmoving, mining logging, road transport and agricultural applications.

**TRANSMISSION FLUID TO-4M** is formulated with a high refined solvent mineral base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals possible

Meets: Caterpillar TO-4M, Komatsu KES 07.868.1, Allison C-4, ZF TE-ML 03C, Komatsu Dresser, API GL-4, Vickers 35VQ25, DANA Powershift Transmissions, Caterpillar TO-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	856
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	102
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.6
Viscosity Index		ASTM D2270	147
Total Base Number	mgKOH/g	ASTM D2896	8.1
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36

## TO-4 TRANSMISSION FLUID 30

Product Code 43140



**TO-4 TRANSMISSION FLUID 30** is specifically designed for powershift transmissions, final drives and wet brakes on heavy duty off-highway equipment used in earthmoving, mining logging, road transport and agricultural applications.

**TO-4 TRANSMISSION FLUID 30** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals possible

Meets: Caterpillar TO-4, Caterpillar TO-2, Allison C-4, API GL-4, ZF TE-ML 03C, Komatsu Dresser, Vickers I-286-S, Vickers M2950S, ZF TE-ML 07D, ZF TE-ML 07F, Komatsu KES 07.868.1, DANA Powershift transmissions

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	892.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	99.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.4
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27

## TO-4 TRANSMISSION FLUID 10W

Product Code 43160



**TO-4 TRANSMISSION FLUID 10W** is specifically designed for powershift transmissions, final drives and wet brakes on heavy duty off-highway equipment used in earthmoving, mining logging, road transport and agricultural applications.

**TO-4 TRANSMISSION FLUID 10W** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals possible.

Meets: Caterpillar TO-4, Caterpillar TO-2, Allison C-4, API GL-4, ZF TE-ML 03C, Vickers 35VQ25, Vickers I-286-S, Vickers M2950S, Komatsu Dresser, Komatsu KES 07.868.1, DANA Powershift transmissions

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	860.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	37.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.4
Viscosity Index		ASTM D2270	126
Viscosity CCS @-25°C	cP	ASTM D5293	3230
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36



## TO-4 TRANSMISSION FLUID 50

Product Code 43150



**TO-4 TRANSMISSION FLUID 50** is specifically designed for powershift transmissions, final drives and wet brakes on heavy duty off-highway equipment used in earthmoving, mining logging, road transport and agricultural applications.

**TO-4 TRANSMISSION FLUID 50** is based on high performance mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals possible.

**Meets: Caterpillar TO-4, Caterpillar TO-2, API GL-4, Komatsu KES 07.868.1, Vickers I-286-S, Vickers M2950S**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	900.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	209.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.6
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-21

## AUTOGEAR OIL TX 75W-80

Product Code 43330



**AUTOGEAR OIL TX 75W-80** is a high quality fuel saving synthetic thermally stable long life gear lubricant designed for passenger- and commercial vehicles using manual transmissions fitted with different synchronizers including latest ones based on carbon.

**AUTOGEAR OIL TX 75W-80** is based on high quality synthetic base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo and oxidative stability.
- Superior lubricating properties provide improved fuel economy.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.
- Good gear engagement with a variety of synchronizer materials including latest carbon.

- Good frictional properties provide improved fuel economy and smoother shift ability.

**Exceeds: API GL-4, MAN 341 Z4, DAF, IVECO, Renault B0032/2, ZF TE-ML 01L, 02L, 08, 13, 16K, 24A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-80
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	855.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	56.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.7
Brookfield Viscosity @-40°C	cP	ASTM D2983	100000
Viscosity Index		ASTM D2270	157
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42

## AUTOGEAR OIL SYN 75W-85

Product Code 43340



**AUTOGEAR OIL SYN 75W-85** is an universal high performance fuel saving transmission on synthetic technology for use in manual shifted transmission of the modern passenger car and light vans where an API GL-5, SAE 75W-85 is recommended.

**AUTOGEAR OIL SYN 75W-85** is based on special selected high performance synthetic base oil in combination with a special selected EP-additive package to reach to following properties:

- Excellent EP-properties.
- Excellent thermal- and oxidation stability.
- Good shifting even at low temperatures.
- Low pour point.
- Fuel saving properties.
- Excellent protection against the forming of foam, corrosion and wear.

**Meets: API GL-5, MB 235.7, ZF TE-ML 18, VW G 052 190, VW G 055 190, Alfa-Romeo, BMW, Fiat, Lancia, VW G 052 145**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-85
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	864.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	80.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.6
Viscosity Index		ASTM D2270	158
Brookfield @-40°C	cP	ASTM D2983	50000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-60

## AUTOGEAR OIL TDL 85W-140

Product Code 43360



**AUTOGEAR OIL TDL 85W-140** is a thermally stable high quality total driveline gear lubricants designed to meet the severe requirements of drivetrains of light and heavy duty commercial vehicles.

**AUTOGEAR OIL TDL 85W-140** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Unique additive technology allows the use of a single lubricant in rear axles.
- Exceptional thermo-oxidative stability.
- High load bearing characteristics help in extending the life of the driveline components and the oil.
- Effective rust and corrosion protection, especially to copper and its alloys reduces wear.
- Extends synchroniser life and improves shifting performance.
- Good low temperature fluidity reduces wear and provides easy start-up.

- Good anti-foam properties ensure film strength for effective lubrication.
- Superior seal compatibility minimises leakage and reduces chance of contamination.

**Meets: API GL-4, API GL-5, API MT-1, SAE J2360, MACK G-0-J, Scania STO 1:0, MIL-PRF-2105E, MIL-PRF-2105D, Arvin Meritor O-94, Arvin Meritor O-76-A, DAF, IVECO, Robert Bosch TE-ML 08, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 12E, ZF TE-ML 16D, ZF TE-ML 21A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	912.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	410.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	28.6
Viscosity Index		ASTM D2270	97
Low-Temperature Brookfield viscosity @-12°C	cP	ASTM D2983	<100000
Flash Point COC	°C	ASTM D92	211
Pour Point	°C	ASTM D7346	-12



## AUTOGEAR OIL SYN LS 75W-140

Product Code 43370



**AUTOGEAR OIL SYN LS 75W-140** is a synthetic extra high performance multi-functional gear lubricant designed to provide effective lubrication in modern high performance passenger cars, sports utility vehicles, vans and light duty trucks and "off highway" equipment equipped with both conventional and limited slip differentials. The special friction modifier used in this oil helps in reducing chatter and improving traction besides retaining the frictional properties for longer service life.

**AUTOGEAR OIL SYN LS 75W-140** is formulated with high quality synthetic base oils in combination with a special additive package to reach the following properties:

- Unique additive technology allows the use of a single lubricant in rear axles, synchronised and non-synchronised manual transmissions and therefore helps in rationalisation of products.
- Exceptional thermo-oxidative stability and load bearing characteristics help in extending the life of the driveline components and the oil.
- Effective rust and corrosion protection, especially to copper and its alloys reduces wear, extends synchroniser life and improves shifting performance.

- Outstanding low temperature fluidity reduces wear at start up and provides smoother shifting at low ambient temperatures.
- Exceptional shear stability helps in retaining viscosity and film strength to protect against wear even under severe operating conditions.
- Superior frictional properties provide improved fuel economy and smoother shift ability.
- Excellent limited slip performance reduces chatter and improves traction.

**Meets: API: GL-5 (LS), MIL-PRF-2105-E, SAE J2360, MACK GO-J, API: GL-4, API MT-1, Scania ST0 2:0A, Scania ST0 1:1G, Scania ST0 1:0, Ford M2C192-A, ZF TE-ML 05C, ZF TE-ML 16G, ZF TE-ML 21C**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	873.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	180.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	26.6
Viscosity Index		ASTM D2270	184
Low-Temperature Brookfield viscosity@-40°C	cP	ASTM D2983	150000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48

## AUTOGEAR OIL SYN LS 75W-90

Product Code 43375



**AUTOGEAR OIL SYN LS 75W-90** is a synthetic extra high performance multi-functional gear lubricant designed to provide effective lubrication in modern high performance passenger cars, sports utility vehicles, vans and light duty trucks and "off highway" equipment equipped with both conventional and limited slip differentials. The special friction modifier used in this oil helps in reducing chatter and improving traction besides retaining the frictional properties for longer service life.

**AUTOGEAR OIL SYN LS 75W-90** is formulated with high quality synthetic base oils in combination with a special additive package to reach the following properties:

- Unique additive technology allows the use of a single lubricant in rear axles, synchronised and non-synchronised manual transmissions and therefore helps in rationalisation of products.
- Exceptional thermo-oxidative stability and load bearing characteristics help in extending the life of the driveline components and the oil.
- Effective rust and corrosion protection, especially to copper and its alloys reduces wear, extends synchroniser life and improves shifting performance.

- Outstanding low temperature fluidity reduces wear at start up and provides smoother shifting at low ambient temperatures.
- Exceptional shear stability helps in retaining viscosity and film strength to protect against wear even under severe operating conditions.
- Superior frictional properties provide improved fuel economy and smoother shift ability.
- Excellent limited slip performance reduces chatter and improves traction.

**Meets: API: GL-5 (LS), MIL-PRF-2105-E, SAE J2360, MACK GO-J, Scania ST0 1:1G, Scania ST0 1:0, Ford M2C192-A, ZF TE-ML 05C/16G/21C**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	878.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	105.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.7
Viscosity Index		ASTM D2270	160
Brookfield Viscosity @-40°C	cP	ASTM D2983	<150000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42

## AUTOGEAR OIL MTF 75W-80

Product Code 43380



**AUTOGEAR OIL MTF 75W-80** is a high quality manual transmission fluid designed for passenger- and light commercial vehicles using both manual transmissions, transaxles and (dry-clutch) dual clutch transmissions of various manufacturers. Not suitable for differentials and other API: GL-5 applications.

**AUTOGEAR OIL MTF 75W-80** is based on high quality synthetic technology base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Superior lubricating properties provide improved fuel economy.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.
- Good gear engagement with a variety of synchronizer materials including brass, carbon, sintered bronze and molybdenum.

**Meets: API GL-4, BMW MTF LT-2, BMW MTF LT-3, BMW MTF LT-4, Ford WSD-M2C200-C, Ford WSS-M2C200-D2, GM 1940004, GM 19259104, GM 1940764, GM 1940768, GM 1940182, MB 235.10, MTF94, Honda MTF, Honda MTF II, Honda MTF III, Nissan MT-XZ, Nissan MT-XZ TL, Volvo 97308, Volvo 97309, VW G 009 317, VW G 052 171, VW G 052 178, VW G 060 726, VW G 070 726, VW G 060 726, VW G 052 527, VW G 060 726, VW G 070 726, VW G50, PSA B71 2330, Renault (NFJ/NFP/TRJ/TRT/TRZ)**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-80
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	865
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	51.31
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.6
Low-Temperature Brookfield Viscosity @-40°C	cP	ASTM D2983	<75000
Viscosity Index		ASTM D2270	165
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39

## AUTOGEAR OIL MTF 70W

Product Code 43381



**AUTOGEAR OIL MTF 70W** is a high quality fully synthetic manual transmission fluid designed for passenger- and light commercial vehicles using both manual and dry-DCT transmissions and transaxles. Not suitable for differentials and other API: GL-5 applications.

**AUTOGEAR OIL MTF 70W** is based on high quality fully synthetic base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Superior lubricating properties provide improved fuel economy.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Superior low temperature fluidity provides smoother shifting at low ambient temperatures.
- Good gear engagement with a variety of synchronizer materials including brass, carbon, sintered bronze and molybdenum

**Meets: API: GL-4, BMW MTF LT-3, Ford WSD-M2C200-D2, GM W16612, GM 1940004, GM 19259104, PSA B71 2316, PSA 9730 A8, Renault DC4 DW5, NFX, VW G 052 178, VW G 052 512, VW G 052 527, VW G 052 549, VW G 052 726, VW G 060 726, VW G 070 726, Fiat MZ7.**

**AUTOGEAR OIL MTF 70W is suitable for use where the following OEM products are demanded: BOT 303 BOT 350M3 HBVFE Hyundai / KIA MTF & DCTF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	70W
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	26.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.4
Brookfield Viscosity @-40°C	cP	ASTM D2983	38000
Viscosity Index		ASTM D2270	150
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-66



## AUTOGEAR OIL MTF 75W-90

Product Code 43385



**AUTOGEAR OIL MTF 75W-90** is a high quality manual transmission fluid designed for passenger- and light commercial vehicles using both manual transmissions and transaxles. Not suitable for differentials and other API: GL-5 applications

**AUTOGEAR OIL MTF 75W-90** is based on high quality synthetic technology base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Superior lubricating properties provide improved fuel economy.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.
- Good gear engagement with a variety of synchronizer materials including brass, carbon, sintered bronze and molybdenum.

**Meets: API GL-4, Ford WSD-M2C200-C, Ford WSS-M2C200-D2, GM 1940764, GM 1940004, GM 1940182, VW G50 (VW 501 50), BMW MTF LT-4**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	868.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	87.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.9
Low-Temperature Brookfield Viscosity @-40°C	cP	ASTM D2983	<150000
Viscosity Index		ASTM D2270	179
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42

## RACING GEAR OIL SYN 75W-140

Product Code 43390



**RACING GEAR OIL SYN 75W-140** is a fully synthetic thermally stable limited slip gear lubricant designed to meet the demanding requirements of light duty and heavy duty commercial vehicles and off-highway equipment operating in most severe operating conditions.

**RACING GEAR OIL SYN 75W-140** is formulated with high quality 100% synthetic Poly Alpha Olefin (PAO) base oil in combination with a special additive package to reach the following properties:

- Exceptional thermo-oxidative stability and load bearing characteristics help in extending the life of the driveline components and the oil.
- Effective rust and corrosion protection, especially to copper and its alloys reduces wear, extends synchroniser life and improves shifting performance
- Outstanding low temperature fluidity reduces wear at start up and provides smoother shifting at low ambient temperatures

- Exceptional shear stability helps in retaining viscosity and film strength to protect against wear even under severe operating conditions

**Meets: API GL-5 (LS), MIL-PRF-2105E, MIL-L-2105D, SAE J2360, MACK GO-J, Scania STO 2:0A**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-140
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	870
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	202
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	28.8
Viscosity Index		ASTM D2270	182
Brookfield @-40°C	cP	ASTM D2983	150000
Flash Point COC	°C	ASTM D92	>210
Pour Point	°C	ASTM D7346	-51

## AUTOGEAR OIL SYN HD 75W-90

Product Code 45300



**AUTOGEAR OIL SYN HD 75W-90** is a high quality fuel conserving fully synthetic total driveline gear lubricants designed to meet the demanding requirements of light duty and heavy duty commercial vehicles and off-highway equipment operating in most severe operating conditions. Unique additive technology allows the use of a single lubricant in rear axles, synchronized and non-synchronized manual transmission.

**AUTOGEAR OIL SYN HD 75W-90** is based on high quality PolyAlphaOlefine (PAO) base oil in combination with a special additive package to ensure the following properties:

- Exceptional thermo-oxidative stability.
- Exceptional load bearing characteristics.
- Effective rust and corrosion protection.
- Outstanding low temperature fluidity provides smoother shifting at low ambient temperatures.

- Exceptional shear stable.
- Superior frictional properties provide improved fuel economy and smoother shiftability.

**Meets: API GL-4, API GL-5, API MT-1, Scania STO 2:0A FS, Scania STO 1:1G, Scania STO 1:0, SAE J2360, Mack GO-J, Volvo 97312, MAN 341 Type GA1, MAN 341 Type E3, MAN 341 Type Z2, MAN 342 Type S1, Arvin Meritor O-76-E, DAF, IVECO, MIL-PRF-2105E, Arvin Meritor O-94, ZF TE-ML 02B, ZF TE-ML 05A, ZF TE-ML 07A, ZF TE-ML 08, ZF TE-ML 12L, ZF TE-ML 12N, ZF TE-ML 16F, ZF TE-ML 17B, ZF TE-ML 19C, ZF TE-ML 21A, DTFR 12B140 (MB 235.8), DTFR 13B110 (MB 235.11), MB 235.9**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-90
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	872.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	107.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.8
Viscosity Index		ASTM D2270	157
Brookfield @-40°C	cP	ASTM D2983	65000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-57

## SPECIAL RACING GEAR LS 80W-250

Product Code 45980



**SPECIAL RACING GEAR LS 80W-250** is a fully synthetic extremely thermally stable limited slip differential lubricant designed for racing and supercar applications. Extreme protection against heavy shock loads and very high torque applications. This product has successfully been tested and race-proven on OS Giken differentials.

**SPECIAL RACING GEAR LS 80W-250** is **not** recommended for transaxle applications.

- SPECIAL RACING GEAR LS 80W-250** is formulated with high quality 100% synthetic Poly Alpha Olefin (PAO) base oil in combination with a special additive package to reach the following properties:
- Exceptional thermo-oxidative stability and load bearing characteristics help in extending the life of the driveline components and the oil.
  - Exceptional high anti-wear additive dosage providing maximum differential protection (2600+ ppm Phosphorus).

- Outstanding low temperature fluidity reduces wear at start up and provides smoother shifting at low ambient temperatures.
- Exceptional shear stability helps in retaining viscosity and film strength to protect against wear even under severe racing conditions.

**Meets: API GL-5 (LS), MIL-L-2105D**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-250
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	863.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	438.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	54.4
Viscosity Index		ASTM D2270	191
Low-Temperature Brookfield Viscosity @-26°C	cP	ASTM D2983	80000
Flash Point COC	°C	ASTM D92	>210
Pour Point	°C	ASTM D7346	-45



## RACING DCT FLUID

Product Code 45500



**RACING DCT FLUID** is a high performance fully synthetic long life ATF specially designed for use in the last generation wet DCT (Double Coupling Transmission) transmission of the VAG group and various other manufacturers like Renault, BMW, Ford and PSA and are characterized for fast and sportive shifting.

**RACING DCT FLUID** is based fully on Polyalphaolefin (PAO) synthetic base oils in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Excellent lubrication, even under extreme conditions.
- Very high protection against wear, corrosion and foam.
- High "shear stable".
- Very low pour point, can be used by very cold temperatures.
- Very high Viscosity Index.

**Meets:** BMW DCTF-1, BMW 6-speed DCT, BMW EU 83 22 2 148 578, BMW EU 83 22 2 148 579, BMW EU 83 22 0 440 214, BMW EU 83 22 2 147 477, BMW MTF LT-5, Chrysler 68044345 EA / GA, Chrysler Powershift 6-speed, DCT-1, Ferrari TE DCT-3, Ford WSS-M2C936-A, Ford M2C200-D2 / XT-11-QDC, MB 236.21, Mitsubishi TC-SST, Mitsubishi SSTF-1 MZ320065, Porsche 000 043 207 29 / Porsche 000 043 207 30 / 999.917.067.00 / 999.917.080.00/01 / 999.917.090.00, PSA 9734.S2, Renault EDC, Volvo 1161838/1161839, VW G 052 182, VW G 052 529, VW TL 521 82, VW TL 525 29, ZF TE-ML 11

Property	Unit	Test Method	Typical Value
Color		Visual	Amber
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	836.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	34.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.2
Viscosity Index		ASTM D2270	176
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-57
Brookfield -40 °C	°C	ASTM D2893	5890

## ATF TYPE F

Product Code 43170



**ATF TYPE F** is a high friction automatic transmission fluid intended for use in automatic transmissions of all Ford vehicles that were built prior to 1977 and certain models built during 1977-1980 requiring fluids meeting Ford ESW-M2C33-F specification.

**ATF TYPE F** is formulated on high refined mineral base stock in combination with an unique additive package to reach the following properties.

- Extended thermal- and oxidation stability.
- Superior anti-wear technology protects transmission against wear.
- Improved low temperature fluidity provides fast circulation in cold climatic conditions.
- Compatible with all common seal materials.

**Meets:** Ford M2C33-F, Ford M2C33-G, Ford M2C9007-AA, Borg-Warner

Property	Unit	Test Method	Typical Value
Color		Visual	Red
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	867.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	38.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.6
Viscosity Index		ASTM D2270	172
Flash Point COC	°C	ASTM D92	195
Pour Point	°C	ASTM D7346	-48



## ATF MBF

Product Code 43180



**ATF MBF** is a high quality fuel saving fully synthetic automatic transmission oil specially developed for the last generation MB (NAG-2) 7-speeds automatic transmissions.

**ATF MBF** is backwards compatible to automatic transmissions where a MB 236.12 specification is recommended.

**ATF MBF** is based on special selected high performance synthetic base oil in combination with a special selected EP-additive package to reach to following properties:

- Excellent thermal- and oxidation stability.
- Excellent low temperature properties.
- Good shifting even at low temperatures.
- High Viscosity Index.
- Excellent shifting even after long use.
- Extended drain interval possible.

- Fuel saving properties.
- Excellent protection against the forming of foam, corrosion and wear.

Meets: MB 236.14, Ssang Yong

Property	Unit	Test Method	Typical Value
Color		Visual	Red
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	849
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	27.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.7
Viscosity Index		ASTM D2270	160
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48

## ATF DCT FLUID

Product Code 43210



**ATF DCT FLUID** is a high performance full synthetic long life ATF specially designed for use in the last generation wet DCT (Double Coupling Transmission) transmission of the VAG group and various other manufacturers like Renault, BMW, Ford and PSA and are characterized for fast and sportive shifting.

**ATF DCT FLUID** is based on fully synthetic base in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Excellent lubrication, even under extreme conditions.
- Very high protection against wear, corrosion and foam.
- High "shear stable".
- Very low pour point, can be used by very cold temperatures.
- High Viscosity Index.

Meets: BMW DCTF-1, BMW 6-speed DCT, BMW EU 83 22 2 148 578, BMW EU 83 22 2 148 579, BMW EU 83 22 0 440 214, BMW EU 83 22 2 147 477, BMW MTF LT-5, Chrysler 68044345 EA / GA, Chrysler Powershift 6-speed, DCT-1, Ferrari TE DCT-3, Ford WSS-M2C936-A, Ford M2C200-D2 / XT-11-QDC, MB 236.21, Mitsubishi TC-SST, Mitsubishi SSTF-1 MZ320065, Porsche 000 043 207 29, Porsche 000 043 207 30, Porsche 999.917.067.00, Porsche 999.917.080.00/01 Porsche 999.917.090.00 PSA 9734.S2, Renault EDC, Volvo 1161838/1161839, VW G 052 182, VW G 052 529 VW TL 521 82, VW TL 525 29, ZF TE-ML 11

Property	Unit	Test Method	Typical Value
Color		Visual	Amber
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	849.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	36.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.3
Viscosity Index		ASTM D2270	172
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48
Brookfield -40°C	°C	ASTM D2893	17390

## ATF DX III

Product Code 43220



**ATF DX III** is a high quality universal fluid to be used in automatic transmission, torque convertors and power steering of passenger car, light vans and commercial vehicles.

**ATF DX III** is formulated on high refined solvent mineral and synthetic base stock in combination with an unique additive package to reach the following properties.

- Excellent thermal- and oxidation stability.
- Special friction modifiers.
- Very high viscosity Index.
- Low pourpoint.
- Excellent shifting at very low and high temperatures.
- Excellent protection against the forming corrosion, foam and wear.

Meets: DEXRON III F/G/H, Aisin Warner JWS 3309, AW-1, ZF TE-ML 05L/09/21L, Audi, BMW, VW, Opel, Suzuki, Ford, Toyota, Volvo, Nissan, GM, RENAULT, MAZDA.

For more information see the technical data sheet

Property	Unit	Test Method	Typical Value
Color		Visual	Red
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	844.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.3
Viscosity Index		ASTM D2270	200
Viscosity Brookfield @-40°, max.	cP	ASTM D2983	< 20000
Flash Point COC	°C	ASTM D92	201
Pour Point °C	°C	ASTM D7346	-51

## ATF MV

Product Code 43230



**ATF MV** is a high quality synthetic fluid specially designed with advanced multi-vehicle additive technology to serve a broad range of.

**ATF MV** exceeds the complex requirements of Automatic Transmission/ Vehicle Manufacturers of Europe, North America and Asia including the JASO 1-A performance standard created by Japanese Automobile Manufacturers Association.

Remark: Not suitable for use in Continuously Variable Transmissions (CVT), Dual Clutch Transmission (DCT), Daimler MB 7 speed (NAG 2), ZF 6 Speed.

**ATF MV** is based on fully synthetic base in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Excellent lubrication, even under extreme conditions.
- Very high protection against wear, corrosion and foam.
- High "shear stable".
- Very low Pour point, can be used by very cold temperatures.
- High Viscosity Index.

Allison C4, TES 295, LT 71141, LA 2634, ETL -7045E, 8072B, Chrysler AS68RC, ATF Chrysler +3, +4, Ford Mercon, Ford Mercon V, Dexron IID, IIG/H, Honda Z1, Mitsubishi SP-II / III, Hyundai/ KIA SPI /III, Idemitsu K17 / ATF HP, JWS 3309/3314/3317, JASO M315-2004, Texaco N402, MAN 339 V1/Z1/Z2, Mazda ATF M-III, M5, MB 236.3, 5, 6, 7, 8, MB 236.9, 10, 11, 91, Nissan Matic D,J,K,W, Subaru ATF, HP, Toyota T-III, T-IV, Voith H55.6335.xx, Volvo Std 1273.4, VW G 052 025, VW G 055 025, VW G 052 162, VW G 052 990, Volvo P/N 1161521, Volvo 1161540, Volvo 1161640, Volvo CE 1273.41, PSA P/N Z 000169756, Ssang Yong DSH 5M-66, ZF TE ML 03D, 04D, 11A/B, 14A, 14B, 17C

Property	Unit	Test Method	Typical Value
Color		Visual	Colorless to light Yellow
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	846.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	35.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.6
Viscosity Index		ASTM D2270	188
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51



## ATF CVT FLUID

Product Code 43250



**ATF CVT FLUID** is a fully synthetic ultra-high performance CVT fluid formulated with selected base stocks and specially developed for use in the latest generation of Continuously Variable Transmission (CVT) – gearboxes which transfer traction via steel-made traction chain or push-belts.

**ATF CVT FLUID** is formulated on high refined synthetic base stock in combination with an unique additive package to reach the following properties.

- Good thermo- and oxidation stability.
- Extended drain interval possible.
- Excellent anti-wear, anti-rust and anti-corrosion technology.
- High Viscosity Index ensures adequate lubrication in both high operating & low starting temperatures.
- Better foam control leads to smooth & lasting shift feel and reduces fluid loss.
- Enhanced Low temperature fluidity assist in good cold start performance.

- Compatibility with all common seal materials

**Meets:** MB 236.20, Ford M2C928-A, BMW 83 22 0 136 376, BMW 83 22 0 429 154, VW G 052 180, Toyota CVTF-TC, Toyota CVT-FE, Nissan NS-1 / NS-2 / NS-3, Honda HMMF, Honda HCF-2, Mitsubishi SP-III, Mitsubishi CVTF-J1, Mitsubishi CVTF-J4 / CVTF-J4+, Suzuki CVTF TC / 3320, Suzuki NS-2, Subaru ECVT, Subaru iCVT, Daihatsu Ammix CVT, Suzuki CVTF Green 1 / 1V, Hyundai SP-III, EZL 799 / 799A, Chrysler/Jeep NS-2, JWS 3320, VW G 052 516

Property	Unit	Test Method	Typical Value
Color		Visual	Amber
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	848.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	34.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.0
Viscosity Index		ASTM D2270	174
Flash Point COC	°C	ASTM D92	>210
Pour Point	°C	ASTM D7346	-51

## ATF EV

Product Code 43255



**ATF EV** is a premium quality fully-synthetic fluid specially designed for single and multispeed transmissions and gear cases from battery electric vehicles (BEV) and plug-in Hybrid vehicles (PHEV).

**ATF EV** is suitable for both dry e-motor gear cases and wet e-motor applications with common lubrication for e-motor and transmission.

**ATF EV** is formulated with the highest quality full-synthetic base stocks in combination with a special additive technology to achieve the following performance:

- Excellent gear protection
- Excellent anti-foaming properties
- Excellent electrical properties
- Excellent copper protection
- Very good anti-shudder properties and low temperature properties
- Very high Viscosity Index and shear stability ensures adequate lubrication over entire service life in both high operating & low starting temperatures.

**ATF EV is suitable where the following specifications and part numbers are demanded:** VW G 060 190, GM 955999825 BMW 8322295 532 BMW 83222413512 BOT 448 BOT 350M3 BOT 383 Ford M2C949-A, MB 236.24, SL2808, Volvo 31280771, PSA 1618078480, Tesla

**ATF EV is also suitable on the following specifications when used on BEV and PHEV applications:** Dexron VI, Honda ATF DW-1, Mazda FZ, ATF SP III, ATF WS, Renault NFP, Renault TRJ, VW G 052 527, MB 235.73, Nissan Matic S

Property	Unit	Test Method	Typical Value
Color		Visual	Light-amber
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	827.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	21.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	4.9
Viscosity Index		ASTM D2270	166
Flash Point COC	°C	ASTM D92	184
Pour Point	°C	ASTM D7346	-60

## ATF ECOMAT

Product Code 43410



**ATF ECOMAT** is a high performance fully synthetic fuel economy automatic transmission fluid specially designed for automatic transmissions for city buses.

**ATF ECOMAT** is formulated on high quality synthetic base oils in combination with an unique additive package to reach the following properties:

- Lower service cost through increased oil change interval.
- High level of anti-wear protection.
- Extended thermal- and oxidation stability.
- Limited viscosity increase
- Prevents acid formation and soft metal corrosion.
- Friction durability leading to good shift performance and drivability even at end of drain interval.
- Avoid sludge formation that could lead to sluggish transmission operation.

**Meets:** Voith H55.6335.xx, Voith 150.014524.xx, MAN 339 V2, MAN 339 Z3, MAN 339 Z12, MB 236.9, Volvo 97341, ZF TE-ML 14C, ZF TE-ML 20C

Property	Unit	Test Method	Typical Value
Color		Visual	Amber
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	842
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	39.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.3
Viscosity Index		ASTM D2270	152
Viscosity Brookfield @-40°	cP	ASTM D2983	14.000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51

## ATF MBS

Product Code 45050



**ATF MBS** is a high quality fuel saving fully synthetic automatic transmission oil specially developed for the last generation MB (NAG II+) 7-G Tronic Plus automatic transmissions.

**ATF MBS** is based on special selected high performance synthetic base oil in combination with a special selected EP-additive package to reach to following properties:

- Excellent thermal- and oxidation stability.
- Excellent low temperature properties.
- Good shifting even at low temperatures.
- High Viscosity Index.
- Excellent shifting even after long use.
- Extended drain interval possible.
- Fuel saving properties.
- Excellent protection against the forming of foam, corrosion and wear.

**Meets:** MB 236.15

Property	Unit	Test Method	Typical Value
Color		Visual	Blue
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	844
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	27.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.7
Viscosity Index		ASTM D2270	162
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48



## ATF LV

Product Code 45011



**ATF LV** is a synthetic high quality versatile automatic transmission fluid intended for 6-speed, 8-speed and 9-speed automatic car transmissions. Subjected to extreme testing. **ATF LV** guarantees maximum performance of the automatic transmission. At the same time, the wear of heavily loaded components is minimized due to the specifically matched oils. **ATF LV** is based on a synthetic base in combination with an unique additive package

to ensure the following properties:

- Excellent thermo- and oxidation stability
- Excellent lubrication, even under extreme conditions
- Very high protection against wear, corrosion and foam
- High "shear stable"
- Very low Pour point, can be used by very cold temperatures
- High Viscosity Index

**Meets: Aisin-Warner JWS 3309, JWS 3324, AW-1/AW-2, Audi 5 HP LT71141, G 052 025 A2, BMW LT71141, ATF 2/3+/6/7, VW G 050 162, G 055 005, Opel 88863400/88863401, VI, KIA ATF SP-II/-III/-IV, ATF SP-IVM, Ford MERCON, WSS M2C 922A1, Toyota ATF T-III/-IV, ATF D-II/-III, Volvo 97325, PN 31256774, Nissan Matic Fluid-C/D/J/K/P/S/W, GM DEXRON VI, TASA, RENAULT Matic D2, Samsung SATF-D, MAZDA ATF FZ ATF A7.**

For a more detailed list see the technical data sheet.

Property	Unit	Test Method	Typical Value
Color		Visual	Amber/Yellow
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	30.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.0
Viscosity Index		ASTM D2270	154
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-47

## ATF LV RED

Product Code 45012



**ATF LV RED** is a synthetic high quality versatile automatic transmission fluid intended for 6-speed, 8-speed and 9-speed automatic car transmissions. Subjected to extreme testing. **ATF LV RED** guarantees maximum performance of the automatic transmission. At the same time, the wear of heavily loaded components is minimized due to the specifically matched oils. **ATF LV RED** is based on a synthetic base in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability
- Excellent lubrication, even under extreme conditions
- Very high protection against wear, corrosion and foam
- High "shear stable"
- Very low Pour point, can be used by very cold temperatures
- High Viscosity Index

**Meets: Aisin-Warner JWS 3309, JWS 3324, AW-1/AW-2, Audi 5 HP LT71141, G 052 025 A2, BMW LT71141, ATF 2/3+/6/7, VW G 050 162, G 055 005, Opel 88863400/88863401, VI, KIA ATF SP-II/-III/-IV, ATF SP-IVM, Ford MERCON, WSS M2C 922A1, Toyota ATF T-III/-IV, ATF D-II/-III, Volvo 97325, PN 31256774, Nissan Matic Fluid-C/D/J/K/P/S/W, GM DEXRON VI, TASA, RENAULT Matic D2, Samsung SATF-D, MAZDA ATF FZ ATF A7.**

For a more detailed list see the technical data sheet.

Property	Unit	Test Method	Typical Value
Color		Visual	Red
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	846.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	30.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.0
Viscosity Index		ASTM D2270	154
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-47

## ATF ULV

Product Code 45015



**ATF ULV** is a synthetic high quality ultra low viscosity automatic transmission fluid intended for 6-speed, 8-speed and 9-speed automatic car transmissions. Subjected to extreme testing. **ATF ULV** guarantees maximum performance of the automatic transmission. At the same time, the wear of heavily loaded components is minimized due to the specifically matched oils. **ATF ULV** is based on a synthetic base in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Excellent lubrication, even under extreme conditions.
- Very high protection against wear, corrosion and foam.
- High "shear stable".
- Very low Pour point, can be used by very cold temperatures.
- High Viscosity Index.

**Aisin-Warner AW-2, PSA 16 350 560 80, VW G 053 001, Volvo 31492172/312492173, BMW ATF 7, VW G 053 001 A2, MERCON ULV, DEXRON ULV**  
For a more detailed list see the technical data sheet.

Property	Unit	Test Method	Typical Value
Color		Visual	Amber/Yellow
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	840.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	19.22
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	4.52
Viscosity Index		ASTM D2270	157
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D7346	-42

## PSF SYNTH

Product Code 43190



**PSF SYNTH** is a fully synthetic, high-performance central hydraulic system oil. **PSF SYNTH** is based on advanced technology, which shows improved performance regarding viscosity temperature characteristics and simultaneously optimized shear stability. This fully synthetic power steering fluid is NOT suitable for Honda and Acura vehicles. **PSF SYNTH** is developed for highly stressed centralized hydraulic systems, power steering systems and shock absorbers which can reach permanent oil temperatures up to approximately 140°C.

**PSF SYNTH** is based on high quality synthetic base oil in combination with an unique additive package to ensure the following properties:

- Optimized temperature stability.
- High oxidation stability.
- Proven OEM technology.
- Excellent cold temperatures properties.
- High shear stability.
- Improvement of efficiency possible.

**Chrysler MS-1872, Chrysler MS-5931, Chrysler MS-9602, Chrysler MS-116655, Ford M2C195-A, Ford M2C204-A, GM P/N 88901975, GM P/N 89021184, GM 9985010 P/N 1052884, ATF+4, GM IID/III/VI, GM 9985835 P/N 12345866, Hyundai/ Kia PSF-3, Hyundai/ Kia PSF-4, MB 236.3, MB 345.0, Mitsubishi PS Fluid, Mitsubishi diamond SPIII, Nissan PSF-II, CHF 7.1/11S/202, Saab P/N (45) 30 09 800, Saab P/N 30 32 380, Subaru P/N K0209A0080, Toyota PSF-EH P/N 008886-01, VW G002000, VW G002012, VOLVO 1161529**

Property	Unit	Test Method	Typical Value
Color			Green
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	827.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	19.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.7
Viscosity Index		ASTM D2270	323
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-60



## SUPER TRACTOR OIL 10W-40

Product Code 43260



**SUPER TRACTOR OIL 10W-40** is a high quality universal synthetic so called "Super Tractor Oil Universal" (STOU) developed for use in tractors, combines, harvesters and off the road equipment with or without turbocharger diesel engines. Super Tractor Oil Universal is also designed to lubricate the transmission, power take-off, final drive, hydraulic system and oil immersed "wet brakes". This product cannot be used in diesel engines equipped with a Diesel Particulate Filter (DPF).

**SUPER TRACTOR OIL 10W-40** is formulated on synthetic base stocks in combination with an unique additive package to reach the following properties.

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- Excellent cold start properties.
- High anti-foam, anti-wear and anti-corrosion properties.
- Suitable for Wet Brakes.

**Engine Spec:** API CG-4/CF-4/CE/SF, MB 227.1, ACEA E3

**UTTO/STOU Spec:** JD J20C, J20D, J27 Ford M2C86B, 134D Ford M2C159B / C Case MS 1204, 6, 7, 9, MF M 1135/1139/1143/1144/1145, CAT TO-2, API GL-4, Allison C4, ZF TE-ML 06A, 06B, 06C, 06D, 06E, 06H 07B, NH 82009201, 2, 3

**Hydr. Spec:** Eaton M-2950S Eaton I-280-S Danfoss

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	859.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	92.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	160
Viscosity CCS @-25°C,	cP	ASTM D5293	5200
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	10.5

## SUPER TRACTOR OIL 10W-30

Product Code 43270



**SUPER TRACTOR OIL 10W-30** is a high quality universal mineral based so called "Super Tractor Oil Universal" (STOU) developed for use in tractors, combines, harvesters and off the road equipment with or without turbocharger diesel engines. Super Tractor Oil Universal is also designed to lubricate the transmission, power take-off, final drive, hydraulic system and oil immersed "wet brakes". This product cannot be used in diesel engines equipped with a Diesel Particulate Filter (DPF).

**SUPER TRACTOR OIL 10W-30** is formulated on high refined solvent mineral base stock in combination with an unique additive package to reach the following properties;

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- Excellent cold start properties.
- High anti-foam, anti-wear and anti-corrosion properties.
- Suitable for Wet Brakes.

**Meets:** API CG-4; API CF-4; API CE; API SF; MB 227.1; ACEA E3; JD J27; JD J20C; Ford M2C159B; Ford M2C159C; MF M 1145; FNH 82009201; FNH 82009202; FNH 82009203; Ford M2C86C; Ford M2C134A; Ford M2C134C; Ford M2C134D; Case 1206; Case 1209; MF M 1135; MF M 1139; MF M 1143; MF M 1144; Caterpillar TO-2; API GL-4; Allison C-4; CNH MAT 3525; CNH MAT 3526; NH 030C; NH 024C; NH 420A; NH 410B; ZF TE-ML 06A; ZF TE-ML 06B; ZF TE-ML 06C; ZF TE-ML 06R; ZF TE-ML 07B; Eaton M-2950S; Eaton I-280-S; Danfoss

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	87 5.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	65.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.3
Viscosity Index		ASTM D2270	141
Viscosity CCS @-25°C	cP	ASTM D5293	6000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	10.7

## SUPER TRACTOR OIL 15W-40

Product Code 43290



**SUPER TRACTOR OIL 15W-40** is a high quality so called "Super Tractor Oil Universal" (STOU) developed for use in tractors, combines, harvesters and off the road equipment with or without turbocharger diesel engines. Super Tractor Oil Universal is also designed to lubricate the transmission, power take-off, final drive, hydraulic system and oil immersed "wet brakes". This product cannot be used in diesel engines equipped with a Diesel Particulate Filter (DPF).

**SUPER TRACTOR OIL 15W-40** is formulated on mineral base stocks in combination with an unique additive package to reach the following properties;

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- Excellent cold start properties.
- High anti-foam, anti-wear and anti-corrosion properties.
- Suitable for Wet Brakes.

**Engine Spec:** API CG-4/CF-4/CE/SF, MB 228.1, ACEA E3

**UTTO Spec:** Ford M2C134-A, Ford M2C159B/C, FNH 82009203, Allison C-4, Cat TO-2, API GL-4, JD J27, ZF TE-ML 6B/C, 7B/D

**Hydr Spec:** Eaton M-2950S, Eaton I-280-S, Danfoss

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	883.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	96.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.5
Viscosity Index		ASTM D2270	140
Viscosity CCS @-20°C, max	cP	ASTM D5293	5800
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	10.5



## UNIVERSAL TRACTOR OIL SYN 80W

Product Code 43300



**UNIVERSAL TRACTOR OIL SYN 80W** is a high performance fluid for use in (CVT) transmissions, hydraulic systems, oil immersed brakes of tractors and off-road equipment. These fluids are specially designed for use where a common lubricant reservoir serves transmissions, final drives and hydraulic systems and to optimize the performance of agricultural and commercial tractors. This product can also be used where a 10W-30 UTTO product is recommend.

**UNIVERSAL TRACTOR OIL SYN 80W** is based on high quality synthetic base oil in combination with an unique additive package to ensure the following properties:

- High oil aging resistance due to its synthetic base oils, allowing high drain intervals.
- Enhanced frictional properties optimize clutch performance and ensure noise free operation of wet brakes.
- High viscosity index coupled with high shear stability provides consistent performance.
- Excellent low temperature fluidity provides good response and effective lubrication at low ambient temperatures.
- Robust anti-wear and extreme pressure properties control

wear, extend equipment life and reduce maintenance costs.

- Multipurpose capability reduces inventory and prevents accidental contamination and misapplication.

**Meets: API GL-4, John Deere J20C, J20D, ZF TE ML-06B/D/E/F/H/M, Volvo WB101 (97303), MF M1145, AGCO CVT ML200, Case MS 1204/6/7/9, Fendt Vario, Allison C-4, Valtra G2-08 (XT-60), Valtra G2-10 (XT-60+), Caterpillar TO-2, Claas CVT, MAT 3540 (CVT), CNH MAT 3525/3526, NH410B, NH420A, Ford M2C134D, Ford M2C86A/B, New Holland 82948718, Oliver: Type 55/Type 5J, Eaton I-280-S, I.H.C: B-5 & B-6 Hydran, White: Q-1705/1722/1766B, White: Q-1802/1826, Eaton M2950S, Kubota: UDT fluid, Sauer Sundstrand/ Danfoss, Denison HF(-0-2), JCMAS HK P-041, DIN 51524-3**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	857.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	51.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.7
Brookfield Viscosity @-26°C	cP	ASTM D2983	4700
Viscosity Index		ASTM D2270	177
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42

## UNIVERSAL TRACTOR OIL 102

Product Code 43305



**UNIVERSAL TRACTOR OIL 102** is a high performance fluid for use in (CVT) transmissions, hydraulic systems, oil immersed brakes of tractors and off-road equipment. These fluids are specially designed for use where a common lubricant reservoir serves transmissions, final drives and hydraulic systems and to optimize the performance of agricultural and commercial tractors.

**UNIVERSAL TRACTOR OIL 102** is based on high quality synthetic base oil in combination with a special additive package to ensure the following properties:

- Extremely shear stable, capable of very long drain intervals
- High oil aging resistance due to its synthetic base oils, allowing high drain intervals
- Enhanced frictional properties optimize clutch performance and ensure noise free operation of wet brakes
- High viscosity index coupled with high shear stability provides consistent performance

- Excellent low temperature fluidity provides good response and effective lubrication at low ambient temperatures

- Robust anti-wear and extreme pressure properties control wear, extend equipment life and reduce maintenance costs

- Multipurpose capability reduces inventory and prevents accidental contamination and misapplication

**Meets: Volvo WB102, Volvo 97304, JDM 20C, JDM 20D, API GL-4s**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	75W-75
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	856.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	34.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.2
Viscosity Index		ASTM D2270	182
Brookfield Viscosity @ -40°C	cP	ASTM D2983	20600
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	11.2

## UNIVERSAL TRACTOR OIL 85W

Product Code 43310



**UNIVERSAL TRACTOR OIL 85W** is a high performance fluid for use in transmissions, hydraulic systems, oil immersed brakes of tractors and off-road equipment. These fluids are specially designed for use where a common lubricant reservoir serves transmissions, final drives and hydraulic systems and to optimize the performance of agricultural and commercial tractors.

**UNIVERSAL TRACTOR OIL 85W** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Enhanced frictional properties optimize clutch performance and ensure noise free operation of wet brakes.
- High viscosity index coupled with high shear stability provides consistent performance.
- Excellent low temperature fluidity provides good response and effective lubrication at low ambient temperatures.
- Robust anti-wear and extreme pressure properties control wear, extend equipment life and reduce maintenance costs.

- Multipurpose capability reduces inventory and prevents accidental contamination and misapplication.

**Meets: API GL-4, JD J20C, Ford M2C86B, Ford M2C86C, Ford M2C 134D, Case MS 1204, Case MS 1206, Case MS 1207, Case MS 1209, MF M1135, MF M1143, MF M1145, Cat TO-2, Volvo WB101, Allison C4, JCMAS HK P-041, Eaton M-2950S, Eaton I-280-S, Sauer Danfoss**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	888.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	67.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.2
Viscosity Index		ASTM D2270	158
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Total Base Number	mgKOH/g	ASTM D2896	9.7

## UNIVERSAL TRACTOR OIL 80W

Product Code 43320



**UNIVERSAL TRACTOR OIL 80W** is a high performance fluids for use in transmissions, hydraulic systems, oil immersed brakes of tractors and off-road equipment. These fluids are specially designed for use where a common lubricant reservoir serves transmissions, final drives and hydraulic systems and to optimize the performance of agricultural and commercial tractors. This product can also be used where a 10W-30 UTTO product is recommend.

**UNIVERSAL TRACTOR OIL 80W** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Enhanced frictional properties optimize clutch performance and ensure noise free operation of wet brakes.
- High Viscosity Index coupled with high shear stability provides consistent performance.
- Excellent low temperature fluidity provides good response and effective lubrication at low ambient temperatures.
- Robust anti-wear and extreme pressure properties control wear, extend equipment life and reduce maintenance costs.

- Multipurpose capability reduces inventory and prevents accidental contamination and misapplication.

**UTTO/Trans Spec: John Deere J20C/J20D, Ford M2C86A/B, Ford M2C134D, API GL-4, Allison C-4, Caterpillar TO-2, Case MS 1204/6/7/9, MF M1135/1143/1145, NH410B, NH420A, CNH MAT 3525/3526, Oliver: Type 55/Type 5J, New Holland 82948718, I.H.C: B-5 & B-6 Hydran, Volvo WB101 (97303), Valtra G2-08 / G2-B10, White: Q-1705/1722/1766B, White: Q-1802/1826, ZF TE-ML 03E/05F/06K/17E/21F Hydr. Spec: Eaton M2950S, Eaton I-280-S, JCMAS HK P-041, Denison(pump only) HF(-0-2), Kubota: UDT fluid, DIN 51524-3, Sauer Sundstrand/ Danfoss**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	58.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.7
Viscosity Index		ASTM D2270	152
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	9.0



TWIN TURBO



BENTLEY







## MILKING MACHINE OIL 68

Product Code 43400



**MILKING MACHINE OIL 68** is a high-quality oil developed for use in milking machines and formulated from specially selected highly refined mineral oils. This product is a non-foaming oil for use in all piston and rotary milking machine vacuum pumps.

**MILKING MACHINE OIL 68** is formulated with high quality refined mineral base stocks in combination with a special additive technology to achieve the following performance:

- Good water separation ensuring the oil does not emulsify with moisture or condensation.
- Excellent filterability ensuring solid contaminants are easily removed from the oil, therefore promoting long pump life and reliability.
- Low volatility that prevents oil constituents evaporating during periods of high temperature operation.

- Low pour point provides protection for the equipment when starting up and operating at temperatures below 0°C.
- High Viscosity Index maintains the oil film at high temperatures.

**MILKING MACHINE OIL 68 should NOT be permitted to come into contact with the milk, i.e. no incidental food contact.**

Meets: AFNOR NF-48-603, ISO 11158 HM, ISO 6743-4 HM, DIN 51524/2 HLP

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	69.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.9
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D7346	-30
Demulsibility @54°C	Minutes	ASTM D1401	15

## CHAINSAW OIL 46

Product Code 43560



**CHAINSAW OIL 46** is a high quality oil specially developed to lubricate the chain of chain saws.

**CHAINSAW OIL 46** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Very good adhesive strength.
- Excellent lubricating properties, helps to prevent premature chain failure
- Extend working life.
- The specially selected additives also inhibit rust.
- Very low Pourpoint

**CHAINSAW OIL 46 is NOT suitable to lubricate the engine.**

Property	Unit	Test Method	Typical Value
ISO VG Class			46
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	875
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	48.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.3
Viscosity Index		ASTM D2270	110
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27

## CHAINSAW OIL 68

Product Code 45000



**CHAINSAW OIL 68** is a high quality oil specially developed to lubricate the chain of chain saws.

**CHAINSAW OIL 68** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Very good adhesive strength.
- Excellent lubricating properties, helps to prevent premature chain failure.
- Extend working life.
- The specially selected additives also inhibit rust.

**CHAINSAW OIL 68 is NOT suitable to lubricate the engine.**

Property	Unit	Test Method	Typical Value
ISO VG Class			68
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	878.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	71.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.3
Viscosity Index		ASTM D2270	107
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24

## CHAINSAW OIL 100

Product Code 43870



**CHAINSAW OIL 100** is a high quality oil specially developed to lubricate the chain of chain saws.

**CHAINSAW OIL 100** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Very good adhesive strength.
- Excellent lubricating properties, helps to prevent premature chain failure.
- Extend working life.
- The specially selected additives also inhibit rust.

**CHAINSAW OIL 100 is NOT suitable to lubricate the engine.**

Property	Unit	Test Method	Typical Value
ISO VG Class			100
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	884.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	99.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.5
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24



## CHAINSAW OIL 150

Product Code 43880



**CHAINSAW OIL 150** is a high quality oil specially developed to lubricate the chain of chain saws.

**CHAINSAW OIL 150** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Very good adhesive strength.
- Excellent lubricating properties, helps to prevent premature chain failure.
- Extend working life.
- The specially selected additives also inhibit rust.

**CHAINSAW OIL 150 is NOT suitable to lubricate the engine.**

Property	Unit	Test Method	Typical Value
ISO VG Class			150
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	888.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	154.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.4
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15

## CHAINSAW OIL 220

Product Code 43730



**CHAINSAW OIL 220** is a high quality oil specially developed to lubricate the chain of chain saws.

**CHAINSAW OIL 220** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Very good adhesive strength.
- Excellent lubricating properties, helps to prevent premature chain failure.
- Extend working life.
- The specially selected additives also inhibit rust.

**CHAINSAW OIL 220 is NOT suitable to lubricate the engine.**

Property	Unit	Test Method	Typical Value
ISO VG Class			220
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	894.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	226.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	19.8
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12

## CHAINSAW OIL 320

Product Code 44740



**CHAINSAW OIL 320** is a high quality oil specially developed to lubricate the chain of chain saws.

**CHAINSAW OIL 320** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Very good adhesive strength.
- Excellent lubricating properties, helps to prevent premature chain failure.
- Extend working life.
- The specially selected additives also inhibit rust.

**CHAINSAW OIL 320 is NOT suitable to lubricate the engine.**

Property	Unit	Test Method	Typical Value
ISO VG Class			320
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	897.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	327.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	25.9
Viscosity Index		ASTM D2270	102
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15

## LAWNMOWER OIL 30

Product Code 42915



**LAWNMOWER OIL 30** Advanced lubrication for engines of push and ride on lawnmowers.

**LAWNMOWER OIL 30** is a single-grade motor oil with high-quality base oils and High additive content. Ensures first-class lubrication, optimum engine cleanliness, outstanding wear protection and a long service life of the lawnmower engine. Also provides reliable protection against corrosion under adverse conditions and when overwintering.

**LAWNMOWER OIL 30** is based on high performance base oil in combination with a specially selected additive technology to ensure the following properties:

- low evaporation loss
- miscible with all commercially available motor oils
- high wear resistance
- tested for the use with catalytic converters

- excellent cleaning effect
- very good dispersion properties
- high resistance to aging
- outstanding lubricating action

Meets: API SG/CF

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	866.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	88.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.4
Viscosity Index		ASTM D2270	118
Flash Point COC	°C	ASTM D92	>220
Pour Point	°C	ASTM D7346	-18
Total Base Number	mgKOH/g	ASTM D2896	6.2



## INDUSTRIAL GEAR OIL SYNTH 68

Product Code 43465



**INDUSTRIAL GEAR OIL SYNTH 68** is an ultra-high performance fully synthetic industrial gear oil suitable for wind-turbines, heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 68** is formulated with special selected Poly Alpha Olefine (PAO) and Ester base stocks in combination with an unique EP-additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.
- Excellent protection against rust, wear and foaming.

- Excellent corrosion and micro pitting protection (both 90°C and 60°C tests of Winergy and Vestas).

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	849.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	67.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.9
Viscosity Index		ASTM D2270	155
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-57
FZG Fail Load Stage		DIN 51354-2	>12
Demulsibility @54°C	Min	ASTM D1401	27

## INDUSTRIAL GEAR OIL SYNTH 100

Product Code 43460



**INDUSTRIAL GEAR OIL SYNTH 100** is an ultra-high performance fully synthetic industrial gear oil suitable for wind-turbines, heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 100** is formulated with special selected Poly Alpha Olefine (PAO) and Ester base stocks in combination with an unique EP-additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.

- Excellent corrosion and micro pitting protection (both 90°C and 60°C tests of Winergy and Vestas).

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	100
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	855.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	101.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.8
Viscosity Index		ASTM D2270	153
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51
FZG Fail Load Stage, min		DIN 51354-2	12
Demulsibility @82°C	Min	ASTM D1401	10

## INDUSTRIAL GEAR OIL SYNTH 150

Product Code 43440



**INDUSTRIAL GEAR OIL SYNTH 150** is an ultra-high performance fully synthetic industrial gear oil suitable for wind-turbines, heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 150** is formulated with special selected Poly Alpha Olefine (PAO) and Ester base stocks in combination with an unique EP-additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.

- Excellent corrosion and micro pitting protection (both 90°C and 60°C tests of Winergy and Vestas).

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	150
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	853.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	149.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	22.3
Viscosity Index		ASTM D2270	177
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51
FZG Fail Load Stage, min		DIN 51354-2	12
Demulsibility @82°C	Min	ASTM D1401	10

## INDUSTRIAL GEAR OIL SYNTH 220

Product Code 44970



**INDUSTRIAL GEAR OIL SYNTH 220** is an ultra-high performance fully synthetic industrial gear oil suitable for wind-turbines, heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 220** is formulated with special selected Poly Alpha Olefine (PAO) and Ester base stocks in combination with an unique EP-additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.

- Excellent corrosion and micropitting protection (both 90°C and 60°C tests of Winergy and Vestas).

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	220
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	853.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	218.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	29.7
Viscosity Index		ASTM D2270	171
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-51
FZG Fail Load Stage, min		DIN 51354-2	12
Demulsibility @82°C	max	ASTM D1401	15

## INDUSTRIAL GEAR OIL SYNTH 320

Product Code 44750



**INDUSTRIAL GEAR OIL SYNTH 320** is an ultra-high performance fully synthetic industrial gear oil suitable for wind-turbines, heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 320** is formulated with special selected Poly Alpha Olefine (PAO) and Ester base stocks in combination with an unique EP-additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.

- Excellent corrosion and micropitting protection (both 90°C and 60°C tests of Winergy and Vestas).

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	320
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	857.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	321.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	41.4
Viscosity Index		ASTM D2270	183
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45
FZG Fail Load Stage, min		DIN 51354-2	12
Demulsibility @82°C	max	ASTM D1401	15

## INDUSTRIAL GEAR OIL SYNTH 460

Product Code 44290



**INDUSTRIAL GEAR OIL SYNTH 460** is an ultra-high performance fully synthetic industrial gear oil suitable for wind-turbines, heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 460** is formulated with special selected Poly Alpha Olefin (PAO) and Ester base stocks in combination with an unique performance additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.

- Excellent corrosion and micro pitting protection (both 90°C and 60°C tests of Winergy and Vestal).

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	460
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	857.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	454.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	56.1
Viscosity Index		ASTM D2270	191
Flash Point COC	°C	ASTM D92	>218
Pour Point	°C	ASTM D7346	-45
FZG Fail Load Stage, min		DIN 51354-2	>12



## INDUSTRIAL GEAR OIL SYNTH 1000

Product Code 44975



**INDUSTRIAL GEAR OIL SYNTH 1000** is a ultra-high performance fully synthetic industrial gear oil suitable for heavy loaded closed gear boxes and circulation systems operating under extreme conditions and high temperatures.

**INDUSTRIAL GEAR OIL SYNTH 1000** is formulated with special selected Poly Alpha Olefine (PAO) and Ester base stocks in combination with an unique EP-additive technology to achieve the following performance.

- Outstanding load carrying capability.
- Excellent low temperature properties.
- Effective lubrication over a wide temperature range.
- Superior thermo- and oxidation stability.
- Long service intervals.

- Excellent protection against rust, wear and foaming.
- Very high demulsibility.
- Excellent corrosion and micropitting protection

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16 Antiscuff, Cincinnati Milacron P-74, David Brown S1.53.106, SIEMENS MD (Flender), AIST 224 (US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	1000
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	851
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	950
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	78.7
Viscosity Index		ASTM D2270	160
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
FZG Fail Load Stage, min		DIN 51354-2	12

## INDUSTRIAL GEAR OIL CLP 68

Product Code 43450



**INDUSTRIAL GEAR OIL CLP 68** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 68** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	880.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	66.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.7
Viscosity Index		ASTM D2270	102
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mg KOH/g	ASTM D664	<0.6

## INDUSTRIAL GEAR OIL CLP 100

Product Code 43700



**INDUSTRIAL GEAR OIL CLP 100** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 100** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	100
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	885.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	94.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.8
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mg KOH/g	ASTM D664	<0.6

## INDUSTRIAL GEAR OIL CLP 150

Product Code 43720



**INDUSTRIAL GEAR OIL CLP 150** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 150** is based on high quality mineral base oil in combination with an unique zinc-free additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	150
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	148.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.7
Viscosity Index		ASTM D2270	97
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-21
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mg KOH/g	ASTM D664	<0.5

## INDUSTRIAL GEAR OIL CLP 220

Product Code 43740



**INDUSTRIAL GEAR OIL CLP 220** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 220** is based on high quality mineral base oil in combination with an unique zinc-free additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.

- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	220
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	897.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	220.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	19.0
Viscosity Index		ASTM D2270	97
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mg KOH/g	ASTM D664	<0.5

## INDUSTRIAL GEAR OIL CLP 320

Product Code 43760



**INDUSTRIAL GEAR OIL CLP 320** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 320** is based on high quality mineral base oil in combination with an unique zinc-free additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	320
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	901.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	318.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	24.5
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mg KOH/g	ASTM D664	0.5

## INDUSTRIAL GEAR OIL CLP 460

Product Code 43780



**INDUSTRIAL GEAR OIL CLP 460** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 460** is based on high quality mineral base oil in combination with an unique zinc-free additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	460
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	904.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	450.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	30.3
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mg KOH/g	ASTM D664	0.5

## INDUSTRIAL GEAR OIL CLP 680

Product Code 43800



**INDUSTRIAL GEAR OIL CLP 680** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 680** is based on high quality mineral base oil in combination with an unique zinc-free additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	680
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	903
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	670
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	40.4
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-9
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mg KOH/g	ASTM D664	0.5



## INDUSTRIAL GEAR OIL CLP 1000

Product Code 44930



**INDUSTRIAL GEAR OIL CLP 1000** is a high performance extreme pressure gear oils developed for lubrication of heavy duty industrial gears working under severe operating conditions.

**INDUSTRIAL GEAR OIL CLP 1000** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent load carrying capability protects gears against scuffing and wear and offers long equipment life and reduced maintenance costs.
- High thermo-oxidative stability helps resist deposit formation, provides enhanced system cleanliness and enables longer service intervals.
- Provides effective rust and corrosion protection to all gearbox components.
- Excellent demulsibility property enables trouble-free operation in conditions encountering water/ moisture.

**Meets: DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005-F16, David Brown S1.53.101, AGMA 9005 E-02, JIS K 2219:2006 class 2, AIST 224 (former US Steel 224)**

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	1000
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	898.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	1076
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	55.6
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mg KOH/g	ASTM D664	0.5

## SLIDEWAY OIL 32

Product Code 43670



**SLIDEWAY OIL 32** is a universal high performance machine tool lubricant specially designed for the lubrication of slide ways. Slideway Oil 32 also exceeds to the requirements of gear boxes, spindles and hydraulic systems of different machine tools.

**SLIDEWAY OIL 32** is based on high quality mineral virgin base oil in combination with a special additive to ensure the following properties.

- Excellent stick-slip properties.
- Very good anti-wear, anti-rust and anti-foam properties.
- High oxidation stability.
- Good resistance to high pressure and load.
- Excellent demulsification properties.
- Good filterability.
- Strong adhesion to (vertical) slides.

**Meets: DIN 51517 part III, DIN 51524 part II, ISO 11158 HG, ISO 19378 GA, ISO 19378 GB, AGMA 9005 F16, General Motors LS2, AIST 224, Fives Cincinnati P-53, AGMA 9005 E02 (EP)**

Property	Unit	Test Method	Typical Value
ISO VG Grade			32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	872.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.5
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mgKOH/g	ASTM D974	0.5

## SLIDEWAY OIL 68

Product Code 43680



**SLIDEWAY OIL 68** is a universal high performance machine tool lubricant specially designed for the lubrication of slide ways. This product also exceeds to the requirements of gear boxes, spindles and hydraulic systems of different machine tools.

**SLIDEWAY OIL 68** is based on high quality mineral virgin base oil in combination with a special additive to ensure the following properties.

- Excellent stick-slip properties.
- Very good anti-wear, anti-rust and anti-foam properties.
- High oxidation stability.
- Good resistance to high pressure and load.
- Excellent demulsification properties.
- Good filterability.
- Strong adhesion to (vertical) slides.

**Meets: DIN 51517 part III, DIN 51524 part II, ISO 11158 HG, ISO 19378 GA, ISO 19378 GB, AGMA 9005 F16, General Motors LS2, AIST 224, Fives Cincinnati P-53, AGMA 9005 E02 (EP)**

Property	Unit	Test Method	Typical Value
ISO VG Grade			68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	884.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.8
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mgKOH/g	ASTM D974	0.6

## SLIDEWAY OIL 150

Product Code 44950



**SLIDEWAY OIL 150** is a universal high performance machine tool lubricant specially designed for the lubrication of slide ways. This product also exceeds to the requirements of gear boxes, spindles and hydraulic systems of different machine tools.

**SLIDEWAY OIL 150** is based on high quality mineral virgin base oil in combination with a special additive to ensure the following properties.

- Excellent stick-slip properties.
- Very good anti-wear, anti-rust and anti-foam properties.
- High oxidation stability.
- Good resistance to high pressure and load.
- Excellent demulsification properties.
- Good filterability.
- Strong adhesion to (vertical) slide.

**Meets: DIN 51517 part III, DIN 51524 part II, ISO 11158 HG, ISO 19378 GA, ISO 19378 GB, AGMA 9005 F16, General Motors LS2, AIST 224, Fives Cincinnati P-53, AGMA 9005 E02 (EP)**

Property	Unit	Test Method	Typical Value
ISO VG Grade			150
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	891.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	147.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.4
Viscosity Index		ASTM D2270	95
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mgKOH/g	ASTM D974	0.6



## SLIDEWAY OIL 220

Product Code 43690



**SLIDEWAY OIL 220** is a universal high performance machine tool lubricant specially designed for the lubrication of slide ways. This product also exceeds to the requirements of gear boxes, spindles and hydraulic systems of different machine tools.

**SLIDEWAY OIL 220** is based on high quality mineral virgin base oil in combination with a special additive to ensure the following properties.

- Excellent stick-slip properties.
- Very good anti-wear, anti-rust and anti-foam properties.
- High oxidation stability.
- Good resistance to high pressure and load.
- Excellent demulsification properties.
- Good filterability.
- Strong adhesion to (vertical) slides.

**Meets: DIN 51517 part III, DIN 51524 part II, ISO 11158 HG, ISO 19378 GA, ISO 19378 GB, AGMA 9005 F16, General Motors LS2, AIST 224, Fives Cincinnati P-53, AGMA 9005 E02 (EP)**

Property	Unit	Test Method	Typical Value
ISO VG Grade			220
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	897.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	220.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	19.1
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-21
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mgKOH/g	ASTM D974	0.5

## SLIDEWAY OIL 460

Product Code 44840



**SLIDEWAY OIL 460** is an universal high performance machine tool lubricant specially designed for the lubrication of slide ways. This product also exceeds to the requirements of gear boxes, spindles and hydraulic systems of different machine tools.

**SLIDEWAY OIL 460** is based on high quality mineral virgin base oil in combination with a special additive to ensure the following properties.

- Excellent stick-slip properties.
- Very good anti-wear, anti-rust and anti-foam properties.
- High oxidation stability.
- Good resistance to high pressure and load.
- Excellent demulsification properties.
- Good filterability.
- Strong adhesion to (vertical) slides.

**Meets: ISO 19378 GA, ISO 19378 GB, General Motors LS2, ISO 11158 HG, DIN 51524 Part II, DIN 51517 Part III, AIST 224, AGMA 9005 E02 (EP)**

Property	Unit	Test Method	Typical Value
ISO VG Grade			460
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	899
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	488
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	29.5
Viscosity Index		ASTM D2270	94
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
FZG Fail Load Stage, min		DIN 51354-2	12
Total Acid Number	mg KOH/g	ASTM D974	0.4

## INDUSTRIAL SYSTEM OIL CL 32

Product Code 44900



**INDUSTRIAL SYSTEM OIL CL 32** is a good quality multipurpose lubricating oil for use in circulating systems and certain other industrial applications which do not require oils with EP properties.

**INDUSTRIAL SYSTEM OIL CL 32** is blended with carefully selected additives in mineral oil.

**INDUSTRIAL SYSTEM OIL CL 32** gives extended life in the oil system, reduces rust and corrosion, increases bearing life due to good water separation and has good air release properties. Pump cavitation is minimised due to low foaming tendency.

**INDUSTRIAL SYSTEM OIL CL 32** is suited for circulating systems with oil lubricated plain and rolling element bearings and in low or moderately enclosed gears.

**Meets: DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 H**

Property	Unit	Test Method	Typical Value
ISO VG Grade			32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	870
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	28.8-35.2
Viscosity Index		ASTM D2270	>95
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D97	< -21
Total Acid Number	mgKOH/g	ASTM D974	0.1
<b>Foaming Characteristics:</b>			
Sequence I, max. 150/0 ml		ASTM D892	0/0 ml
Sequence II, max. 75/0 ml		ASTM D892	0/0 ml
Sequence III, max. 150/0 ml		ASTM D892	0/0 ml
Demulsibility @54°C		DIN 51599	Pass

## INDUSTRIAL SYSTEM OIL CL 68

Product Code 44920



**INDUSTRIAL SYSTEM OIL CL 68** is a good quality multipurpose lubricating oil for use in circulating systems and certain other industrial applications which do not require oils with EP properties.

**INDUSTRIAL SYSTEM OIL CL 68** is formulated with special selected virgin mineral base stocks in combination with an unique additive technology to achieve the following performance.

- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.
- Good air release properties.

**Meets: DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL**

Property	Unit	Test Method	Typical Value
ISO VG Grade			68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	883
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	66
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.5
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
Demulsibility @54°C	max	ASTM D1401	15

## INDUSTRIAL SYSTEM OIL CL 100

Product Code 44870



**INDUSTRIAL SYSTEM OIL CL 100** is a good quality multipurpose lubricating oil for use in circulating systems and certain other industrial applications which do not require oils with EP properties.

**INDUSTRIAL SYSTEM OIL CL 100** is formulated with special selected virgin mineral base stocks in combination with an unique additive technology to achieve the following performance.

- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.
- Good air release properties.

Meets: DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	100
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	877
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	91.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.7
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15
Demulsibility @82°C	max	ASTM D1401	10

## INDUSTRIAL SYSTEM OIL CL 150

Product Code 44880



**INDUSTRIAL SYSTEM OIL CL 150** is a good quality multipurpose lubricating oil for use in circulating systems and certain other industrial applications which do not require oils with EP properties.

**INDUSTRIAL SYSTEM OIL CL 150** is formulated with special selected virgin mineral base stocks in combination with an unique additive technology to achieve the following performance.

- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.
- Good air release properties.

Meets: DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	150
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	891.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	149.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.5
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
Demulsibility @82°C	max	ASTM D1401	10

## INDUSTRIAL SYSTEM OIL CL 220

Product Code 44890



**INDUSTRIAL SYSTEM OIL CL 220** is a good quality multipurpose lubricating oil for use in circulating systems and certain other industrial applications which do not require oils with EP properties.

**INDUSTRIAL SYSTEM OIL CL 220** is formulated with special selected virgin mineral base stocks in combination with an unique additive technology to achieve the following performance.

- Long service intervals.
- Excellent protection against rust, wear and foaming.
- Very high demulsibility.
- Good air release properties.

Meets: DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	220
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	894
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	207
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	18.2
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12

## INDUSTRIAL SYSTEM OIL CL 460

Product Code 45200



**INDUSTRIAL SYSTEM OIL CL 460** is a good quality multipurpose lubricating oil for use in circulating systems and certain other industrial applications which do not require oils with EP properties. This product is blended with carefully selected additives in mineral oil.

**INDUSTRIAL SYSTEM OIL CL 460** gives extended life in the oil system, reduces rust and corrosion, increases bearing life due to good water separation and has good air release properties. Pump cavitation is minimised due to low foaming tendency.

**INDUSTRIAL SYSTEM OIL CL 460** is suited for circulating systems with oil lubricated plain and rolling element bearings and in low or moderately enclosed gears.

Meets: DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	460
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	900
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	460
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	30.5
Viscosity Index		ASTM D2270	95
Flash Point COC	°C	ASTM D92	>260
Pour Point	°C	ASTM D7346	-12
FZG Fail Load Stage, min		DIN 51354-2	>12
Total Acid Number	mgKOH/g	ASTM D664	0.1



## COOLANT MF

Product Code 45183



**COOLANT MF** is a ready to use Si-OAT (Silicate-Organic Additive Technology) with phosphate coolant. It is especially designed for use in modern Internal Combustion Engines (ICE), Hybrids and indirect cooling systems of Battery Electric Vehicles (BEV).

**COOLANT MF** combines Ethylene Glycol as base fluid with cutting-edge silicate inhibitor technology with phosphate supported by a robust organic backbone to obtain the following properties:

- Thermal oxidative stability
- Controlled Atmosphere Brazing (CAB) flux compatibility
- State-of-the-art silicate stabilisation
- Outstanding aluminium passivation
- Excellent hard water stability
- Reduced waste thanks to long drain intervals and less replacement of materials
- Free from nitrites, borates, amines and 2-ethylhexanoic acid

**Meets:** BS 6580:2010, NF-R 15-601, ASTM D3306-20, UNE 26-361-88/1, JIS K2234:2018, FVV R 530:2005, GB 29743.1 2014/2022, Saab, BMW LC 87 / 97 / 18, Fiat 9.55523, MS 7170, GME L1301, VW TL-774-D, VW TL-774-F, VW TL-774-G, VW TL-774-J, VW TL-774-L (G12 EVO), MAN 324 NF, MAN 324 Si-OAT, MWM 0199-99-2091/12, Iveco 18-1830, Cummins 85T8-2, DFTR 29C120, MB 325.5, MB 325.6, Deutz DQC CA-14, Volvo 128 6083 /002, Volvo TR-31854114-002, Toyota 1WW/2WW, JI Case JIC-501, Jenbacher / INNIO, Ford ESD-M97B49-A, MTU / Rolls-Royce MTL 5048

Property	Unit	Test Method	Typical Value
Color			Colorless
Density @20°C	kg/l	ASTM D1122	1.071
Refractive Index, 20°C		ASTM D1218	1.386
Equilibrium Boiling Point	°C	ASTM D1120	108
pH		ASTM D1287	8.3
Initial crystallisation	°C	ASTM D1177	-36

## COOLANT HD

Product Code 45185



**COOLANT HD** is a ready to use premium coolant based on Organic Additive Technology (x-OAT) that provides year-round frost and excellent corrosion, freeze and boil protection. The coolant can withstand high temperatures thanks to the increased oxidation stability and compensates the negative effects of potential flux contamination.

**COOLANT HD** is designed to cope with the most extreme engine conditions in both passenger cars and heavy-duty applications.

**COOLANT HD** combines Ethylene Glycol as base fluid and an OAT backbone with virtually non-depleting organic corrosion inhibitors to obtain the following properties:

- Contains a neutralisation package to avoid adverse effect of flux material, used during the production process of Aluminium heat exchangers
- Prevents the formation of gels or deposits in the cooling system
- Excellent hard water stability avoiding the formation of insoluble deposits
- Superior oxidation and pH stability at high temperatures, resulting in limited amount of glycol degradation acids

- Outstanding heat transfer
- Increased service interval
- 2-EHA, nitrite and borate free technology

**Meets:** ASTM D3306-20, UNE 26-361-88/1, JIS K2234:2018, GB 29743.1 2014/2022, ASTM D6210, GMW 18270, VW TL-774-D, VW TL-774-F, MAN 324 SNF, MB 325.3, Deutz DQC CB-14, Ford WSS-M97B44-D, STJLR.03.5212, Claas, AGCO, DAF, Volvo VCS-2, CAT, John-Deere, Detroit DFS93K217, Komatsu 07.892, CASE MAT 3624

Property	Unit	Test Method	Typical Value
Color			Pink
Density @20°C	kg/l	ASTM D5931	1.060
Equilibrium Boiling Point	°C	ASTM D1120	>108
Initial crystallisation	°C	ASTM D1177	<-36
pH		ASTM D1287	8.2 - 8.7

## COOLANT BS

Product Code 45181



**COOLANT BS** is a ready to use OAT (Organic Additive Technology) coolant providing frost and corrosion protection. Offering protection to all cooling system components including standard used metals and elastomers.

**COOLANT BS** combines MEG (Mono Ethylene Glycol) as base fluid with a well-balanced fully organic inhibitor package to obtain the following properties:

- Corrosion protection, also for non-ferro metals.
- Protection against frost damage.
- Boiling protection.
- Excellent heat transfer properties
- No deposit formation
- Good miscibility
- Seal compatibility.
- Hard water stability
- 2-EHA, nitrite, amines and borate free technology

**Meets:** BS 6580:1992, BS 6580:2010, NF-R 15-601, ASTM D3306-20, CUNA NC 956-16, SAE J1034, UNE 26-361-88/1

Property	Unit	Test Method	Typical Value
Color			Blue
Density @20°C	kg/l	ASTM D5931	1.055
pH		ASTM D1287	8.6
Freezing point	°C	ASTM D1177	-34.5



## ANTIFREEZE MF

Product Code 45182



**ANTIFREEZE MF** is a Si-OAT (Silicate-Organic Additive Technology) antifreeze with phosphate. It is especially designed for use in modern Internal Combustion Engines (ICE), Hybrids and indirect cooling systems of Battery Electric Vehicles (BEV).

**ANTIFREEZE BS** may not be used undiluted in a combustion engine.

**ANTIFREEZE MF** combines Ethylene Glycol as base fluid with cutting-edge silicate inhibitor technology with phosphate supported by a robust organic backbone to obtain the following properties:

- Thermal oxidative stability
- Controlled Atmosphere Brazing (CAB) flux compatibility
- State-of-the-art silicate stabilisation
- Outstanding aluminium passivation
- Excellent hard water stability
- Reduced waste thanks to long drain intervals and less replacement of materials
- Free from nitrites, borates, amines and 2-ethylhexanoic acid

Meets: BS 6580;2010, NF-R 15-601, ASTM D3306-20, UNE 26-361-88/1, JIS K2234;2018, FVV R 530;2005, GB 29743.1 2014/2022, Saab, BMW LC 87 / 97 / 18, Fiat 9.55523, MS 7170, GME L1301, VW TL-774-D, VW TL-774-F, VW TL-774-G, VW TL-774-J, VW TL-774-L (G12 EVO), MAN 324 NF, MAN 324 Si-OAT, MWM 0199-99-2091/12, Iveco 18-1830, Cummins 85T8-2, DFTR 29C120, MB 325.5, MB 325.6, Deutz DQC CA-14, Volvo 128 6083 /002, Volvo TR-31854114-002, Toyota 1WW/2WW, JI Case JIC-501, Jenbacher / INNIO, Ford ESD-M97B49-A, MTU / Rolls-Royce MTL 5048

Property	Unit	Test Method	Typical Value
Color			Colorless
Density @20°C	kg/l	ASTM D1122	1.120
Refractive Index, 20°C		ASTM D1218	1.432
Ash content	% w/w	ASTM D1119	2
Equilibrium Boiling Point	°C	ASTM D1120	>163
Reserve Alkalinity to inflection point		ASTM D1121	>26.3
pH (35vol%)		ASTM D1287	8.1
pH (50vol%)		ASTM D1287	8.3
Initial crystallisation (35vol%)	°C	ASTM D1177	-20
Initial crystallisation (50vol%)	°C	ASTM D1177	-36

ANTI FREEZE

## ANTIFREEZE HD

Product Code 45184



**ANTIFREEZE HD** is a premium antifreeze based on Organic Additive Technology (x-OAT) that provides year-round frost and excellent corrosion, freeze and boil protection. The coolant can withstand high temperatures thanks to the increased oxidation stability and compensates the negative effects of potential flux contamination. Antifreeze HD is designed to cope with the most extreme engine conditions in both passenger cars and heavy-duty applications.

**ANTIFREEZE HD** may not be used undiluted in a combustion engine.

**ANTIFREEZE HD** combines Ethylene Glycol as base fluid and an OAT backbone with virtually non-depleting organic corrosion inhibitors to obtain the following properties:

- Contains a neutralisation package to avoid adverse effect of flux material, used during the production process of Aluminium heat exchangers
- Prevents the formation of gels or deposits in the cooling system
- Excellent hard water stability avoiding the formation

of insoluble deposits • Superior oxidation and pH stability at high temperatures, resulting in limited amount of glycol degradation acids • Outstanding heat transfer • Increased service interval • 2-EHA, nitrite and borate free technology

Meets: ASTM D3306-20, UNE 26-361-88/1, JIS K2234;2018, GB 29743.1 2014/2022, ASTM D6210, GMW 18270, VW TL-774-D, VW TL-774-F, MAN 324 SNF, MB 325.3, Deutz DQC CB-14, Ford WSS-M97B44-D, STJLR.03.5212, Claas, AGCO, DAF, Volvo VCS-2, CAT, John-Deere, Detroit DFS93K217, Komatsu 07.892, CASE MAT 3624

Property	Unit	Test Method	Typical Value
Color			Pink
Density @20°C	kg/l	ASTM D5931	1.124
Ash content	% w/w	ASTM D1119	1.5
Equilibrium Boiling Point	°C	ASTM D1120	180 max
Reserve Alkalinity		ASTM D1121	5.3
Initial crystallisation (40vol%)	°C	ASTM D1177	<-24
Initial crystallisation (50vol%)	°C	ASTM D1177	<-36
Initial crystallisation (60vol%)	°C	ASTM D1177	<-53

## ANTIFREEZE BS

Product Code 45181



**ANTIFREEZE BS** is a OAT (Organic Additive Technology) antifreeze providing frost and corrosion protection. Offering protection to all cooling system components including standard used metals and elastomers.

**ANTIFREEZE BS** may not be used undiluted in a combustion engine.

**ANTIFREEZE BS** combines MEG (Mono Ethylene Glycol) as base fluid with a well-balanced fully organic inhibitor package to obtain the following properties:

- Corrosion protection, also for non-ferro metals.
- Protection against frost damage.
- Boiling protection.
- Excellent heat transfer properties
- No deposit formation
- Good miscibility
- Seal compatibility.

- Hard water stability
- 2-EHA, nitrite, amines and borate free technology

Meets: BS 6580-1992, BS 6580-2010, NF-R 15-601, ASTM D3306-20, CUNA NC 956-16, SAE J1034, UNE 26-361-88/1

Property	Unit	Test Method	Typical Value
Color			Blue
Density @20°C	kg/l	ASTM D5931	1.109
Refractive Index, 20°C		ASTM D1218	1.427
Ash content	% w/w	ASTM D1119	0.4
Equilibrium Boiling Point	°C	ASTM D1120	161
pH (33vol%)		ASTM D1287	8.5
pH (50vol%)		ASTM D1287	8.6
Freezing point (33vol%)	°C	ASTM D1177	-17
Freezing point (50vol%)	°C	ASTM D1177	-34.5
Reserve Alkalinity (pH 5.5)		ASTM D1121	3.1

## EP GREASE NLGI 00

Product Code 43980



**EP GREASE NLGI 00** is a high quality multipurpose lithium thickened EP-00 grease suited for automotive, agriculture and industrial applications. EP GREASE NLGI 00 is suitable in centralized lubrication systems that require semi-fluid grease

**EP GREASE NLGI 00** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent resistance to humidity, preventing that moisture reaches the metal surfaces that need to be lubricated.
- High anti-corrosion, antioxidant and anti-rust capacity.
- High adhesion and smoothness.
- Excellent pumpability.

Temp Range: Continuous operation: -30°C to + 100°C. Short periods maximum +120°C

Meets: **KP00G-30, L-XCEB-00**

Property	Unit	Test Method	Typical Value
NLGI Grade		ASTM D217	00
Thickener type			Lithium
Color		Visual	Amber
Dropping Point	°C	IP 396	>180
Base Oil Viscosity @40°C	mm <sup>2</sup> /s	ISO 12058	220
4-Ball Weld Load	N	DIN 51350-4	2450
Water resistance, 3h, 90 °C		DIN 51807	1

## EPS GREASE NLGI 0

Product Code 45260



**EPS GREASE NLGI 0** is a multifunctional EP grease enhanced by the plastic deformation of its micro additives and formulated for lubrication under hard mechanical conditions and high rates of lubrication frequency.

**EPS GREASE NLGI 0** can be used for the following applications:

- types of bearings which work with strong loads, vibrations or in a humid environment.
- On smooth bearings, including yellow alloys, which work with heavy loads or partial rotation with wear and tear due to abrasion.
- To protect the development of rough or accelerated wear and tear of bearings and grooves in Cardan type transmissions and grooved joints with high torques.
- Lubrication in rolling mills.
- NLGI class 0 is best suited for the centralized lubrication of trucks, cars, etc.

**EPS GREASE NLGI 0** has the following benefits:

- Great wear and tear reduction, anticorrosive, antioxidant and anti-rust properties
- High adherence and lubricity.
- Operating temperature of -30°C to +120°C, with peaks of 135°C.

Maximum usage temperatures recommended for treads depending on the speed factor.

- Excellent pump-ability for use with gun and centralised greasing.

Meets: **DIN 51502: KP0G-30, DIN GP0G-30, ISO 6743/9 L-XBCEB-2**

Property	Unit	Test Method	Typical Value
NLGI Grade		ASTM D217	0
Thickener			Lithium
Base Oil Nature			Mineral
Base Oil Viscosity	cSt	ASTM D445	100
Colour		Visual	Amber
Dropping Point	°C	ASTM D2265	>160
Worked penetration, 25°C / 60 strokes		ASTM D217	355-385
Penetration loss: After 105 strokes, 25°C		ASTM D217	<30
Water Resistance, 3h, 90°C		DIN 51807	1
TIMKEN, LOAD 0.K	Lbs	ASTM D2509	>45
4-BALL E.P. test: - Welding load	Kg	ASTM D2783	250
4-BALL WEAR test: - (40 Kg/1200rpm/75°C/1h)	Mm	ASTM D2266	<0.40

## EPX GREASE NLGI 2 BLUE

Product Code 44021



**EPX GREASE NLGI 2 BLUE** premium quality tacky grease is a high performance, multi-purpose grease manufactured using a high viscosity 220cst mineral oil and lithium complex thickener.

**EPX GREASE NLGI 2 BLUE** uses the latest extreme pressure (EP), anti-wear, anti-oxidation and corrosion inhibiting additives which are designed to reduce wear, improve grease performance and extend component life in dry dusty, wet and shock loaded conditions.

**EPX GREASE NLGI 2 BLUE** grease has been designed for the lubrication of standard and heavy-duty anti-friction roller and plain bearings operating in normal and more demanding applications experienced in many industries.

**EPX GREASE NLGI 2 BLUE** has the following features and benefits:

- Excellent load and shock bearing properties and anti-wear performance
- Excellent resistance to water washout
- Oxidation stability provides lasting lubrication at higher operating temperatures
- Mechanical stability extends relubrication and helps prolong component life
- Tacky additives improve adhesive characteristics
- Good sealing properties reduce the damage caused by the ingress of dirt and moisture

Property	Unit	Test Method	Typical Value
Colour	-	-	Blue
NLGI Grade	-	-	2
Thickener	-	-	Lithium Complex
Base Oil Viscosity @ 40°C	cSt	ASTM D445	220
Worked Penetration	dmm	ASTM D217	265-295
Dropping Point	°C	ASTM D2265	>260
Four Ball Weld Load, 10s	kgf	IP 239	450
Four Ball Wear Scar, 40kg 1 hour	mm	IP 239	0.55
Extended Worked Penetration 100,000 strokes	dmm	ASTM D217	+48
Roll Stability - 2 hours @ 35°C	dmm	ASTM D1831	+20
Oil Separation 42 hours @ 40°C	%	IP 121	0.7
168 hours @ 40°C	%	IP 121	1.8
Copper Corrosion 24 hours @ 100°C	-	ASTM D4048	1a
Water Washout - 1 hour @ 79°C	%	ASTM D1264	3.5
Operating Temperature	-	-	-30°C to +150°C

## EPHT GREASE NLGI 2

Product Code 44040



**EPHT GREASE NLGI 2** is a bentone clay thickened lubricating grease based on mineral oil.

**EPHT GREASE NLGI 2** contains antioxidants and EP/AW additives. The inorganic thickener makes **EPHT GREASE NLGI 2** suitable for applications at elevated temperatures.

**EPHT GREASE NLGI 2** is a high performance product suitable for both industrial and automotive applications.

**EPHT GREASE NLGI 2** all-round properties make it suitable for various types of bearing applications, including temperature peaks up to 200°C.

Property	Test Method	Typical Value
Classification:	DIN 51502 ISO 6743 ASTM D217	KP2N-30 ISO-L-XCDAB2 2
NLGI Grade	ISO 12058	475 mm <sup>2</sup> /s
Base Oil Viscosity @ 40°C	ISO 12058	31 mm <sup>2</sup> /s
Base Oil Viscosity @ 100°C	Visual	Brown
Colour	IP 396	Not applicable
Dropping Point	IPPM-CS/03	920 kg/m <sup>3</sup>
Approximate Density @ 20°C	DIN 51350-4	2600 N
4-Ball weld load		
Temperature Range		
Continuous operation:	-	-30°C to +150°C
Maximum short period:	-	+200°C
Penetration 60 strokes:	ISO 2137	265-295
Penetration 100 strokes:	ISO 2137	+55
Copper Corrosion 24 hrs @ 100°C	ASTM D4048	1a
Oil Separation 168 hrs @ 40°C	IP 121	3%
Oxidation Stability 100 hrs @ 100°C	ASTM D942	50 kPa
Flow pressure @ -30°C	DIN 51805	<1400 hPa



## EP GREASE NLGI 1

Product Code 44060



**EP GREASE NLGI 1** is a high quality multipurpose lithium thickened EP-1 grease suited for automotive, agriculture and industrial applications. EP GREASE NLGI 1 is suitable for a wide range of plain and rolling bearings.

**EP GREASE NLGI 1** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Good mechanical stability.
- High load carrying capacity.
- Good corrosion protection.
- Easy to pump at low temperatures.
- Suited for loaded bearings as well as wet environments.

Temp Range: Continuous operation: -30°C to + 120°C. Short periods maximum +130°C

Meets: DIN 51502, KP1K-30, ISO 6743-9, ISO-L-XCCFB1

Property	Unit	Test Method	Typical Value
NLGI Grade		ASTM D217	1
Color		Visual	Yellow/Brown
Density @20°C	kg/m <sup>3</sup>	IPPM-CS/03	930
Dropping Point	°C	IP 396	>180
Base Oil Viscosity @40°C	mm <sup>2</sup> /s	ISO 12058	200
Base Oil Viscosity @100°C	mm <sup>2</sup> /s	ISO 12058	15
4-Ball Weld Load	N	DIN 51350-4	2600
Mechanical Stability			
Penetration 60 strokes		ISO 2137	310-340
Penetration 100.000 Strokes		ISO 2137	+30
Shell Roll Stability, 2 hrs / rt		ASTM D1831	+30
Shell Roll Stability, 50 hrs @80°C		ASTM D1831 mod	+80
Oxidation Stability, 100hrs @100°C	kPa	ASTM D942	30
Oil Separation 168hrs @40°C	%	IP 121	10

## EP GREASE NLGI 2

Product Code 43990



**EP GREASE NLGI 2** is a high quality multipurpose lithium thickened EP-2 grease suited for automotive, agriculture and industrial applications. EP GREASE NLGI 2 is suitable for use in a wide range of plain and rolling bearings.

**EP GREASE NLGI 2** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent resistance to humidity, preventing that moisture reaches the metal surfaces that need to be lubricated.
- High anti-corrosion, antioxidant and anti-rust capacity.
- High adhesion and smoothness.
- Excellent mechanical stability.

Temp Range: Continuous operation: -20°C to + 130°C. Short periods maximum +140°C

Meets: KP2K-30, L-XCEB-2

Property	Unit	Test Method	Typical Value
NLGI Grade		ASTM D217	2
Thickener type			Lithium
Color		Visual	Amber
Penetration loss after 105 strokes, 25 °C	mm	ASTM D-217	10
Dropping Point	°C	IP 396	>1+0
Base Oil Viscosity @40°C	mm <sup>2</sup> /s	ISO 12058	220
4-Ball Weld Load	N	DIN 51350-4	>2500
Water resistance, 3h, 90 °C		DIN 51807	1

## EPBF GREASE NLGI 2

Product Code 44000



**EPBF GREASE NLGI 2** is a multipurpose lithium thickened EP-2 grease suited for automotive, agriculture and industrial applications. EPBF GREASE NLGI 2 is suitable for use in a wide range of plain and rolling bearings.

**EPBF GREASE NLGI 2** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- All types of bearings subjected to high loads, vibrations or in a humid environment.
- In journal bearings, including yellow alloys, subjected to heavy loads or partial rotation with abrasive wear.
- To protect the development of rough or accelerated wear and tear of bearings and grooves in Cardan type transmissions and grooved joints with high torques.
- Lubrication in rolling mills.

Temp Range: Continuous operation: -20°C to + 120°C. Short periods maximum +135°C

Meets: KP2K-30, L-XCEB-2

Property	Unit	Test Method	Typical Value
NLGI Grade		ASTM D217	2
Thickener type			Lithium
Color		Visual	Amber
Penetration loss after 105 strokes, 25 °C	mm	ASTM D-217	10
Dropping Point	°C	IP 396	>185
Base Oil Viscosity @40°C	mm <sup>2</sup> /s	ISO 12058	100/150
4-Ball Weld Load	N	DIN 51350-4	>2500
Water resistance, 3h, 90 °C		DIN 51807	1

## EPX GREASE NLGI 2

Product Code 44020



**EPX GREASE NLGI 2** is a lithium complex thickened lubricating grease based on mineral oil and contains antioxidants, corrosion inhibitors and EP/AW additives.

The lithium complex soap makes **EPX GREASE NLGI 2** suitable for applications within a very wide temperature range and especially applications at elevated temperatures. The complex soap structure also gives **EPX GREASE NLGI 2** a high degree of mechanical stability. This enhances the performance in vibrating housings and prolongs relubrications intervals.

**EPX GREASE NLGI 2** is a modern high performance product setting a new standard for a truly universal grease suitable for both industrial and automotive applications.

**EPX GREASE NLGI 2** all-round properties make it the primary choice for various types of bearing applications including heavy load conditions.

Property	Unit	Test Method	Typical Value
Colour	-	-	Brown
NLGI Grade	-	-	2
Thickener	-	-	Lithium Complex
Base Oil Viscosity @ 40°C	cSt	ASTM D445	220
Worked Penetration	dmm	ASTM D217	267
Dropping Point	°C	ASTM D2265	>260
Four Ball Weld Load, 10s	kgf	IP 239	500
Four Ball Wear Scar, 40kg 1 hour	mm	IP 239	0.55
Extended Worked Penetration 100,000 strokes	dmm	ASTM D217	+49
Roll Stability - 2 hours @ 35°C	dmm	ASTM D1831	+20
Oil Separation			
42 hours @ 40°C	%	IP 121	0.6
168 hours @ 40°C	%	IP 121	1.6
Copper Corrosion 24 hours @ 100°C	-	ASTM D4048	1a
Water Washout - 1 hour @ 79°C	%	ASTM D1264	3.0
Operating Temperature	-	-	-30°C to +150°C



## EPWR GREASE NLGI 2.5

Product Code 44050



**EPWR GREASE NLGI 2.5** is a lithium-calcium thickened lubricating grease based on mineral oil.

**EPWR GREASE NLGI 2.5** contains antioxidants, corrosion inhibitors and EP/AW additives. The thickener, together with the base oil, makes

**EPWR GREASE NLGI 2.5** suitable for the lubrication of slow moving and heavily loaded bearings.

**EPWR GREASE NLGI 2.5** has excellent water resistance, good load carrying capacity and endures high shock loads.

**EPWR GREASE NLGI 2.5** is suitable for heavily loaded agricultural & industrial applications where water wash is problematic.

**EPWR GREASE NLGI 2.5** is also suitable for heavy-duty vehicles working outdoors in wet and dirty conditions.

Property	Test Method	Typical Value
Classification:	DIN 51502 ISO 6743	KP2.5K-20 ISO-L-XBCHB2.5
NLGI Grade	ASTM D217	2.5
Base Oil Viscosity @ 40°C	ISO 12058	465 mm <sup>2</sup> /s
Base Oil Viscosity @ 100°C	ISO 12058	27 mm <sup>2</sup> /s
Colour	Visual	Brown
Dropping Point	IP 396	>180°C
Approximate Density @ 20°C	IPPM-CS/03	920 kg/m <sup>3</sup>
4-Ball weld load	DIN 51350-4	3200 N
Temperature Range		
Continuous operation:	-	-20°C to +120°C
Maximum short period:	-	+130°C
Penetration 60 strokes:	ISO 2137	245-275
Penetration 100 strokes:	ISO 2137	+40
SKF Emcor WWO distilled water	ISO 11007mod	2-2
Copper Corrosion 24 hrs @ 100°C	ASTM D4048	1b
Oil Separation 168 hrs @ 40°C	IP 121	3%
Water resistance	DIN 51807-1	1-90
4-ball wear scar 1 hr @ 400 N	DIN 51350-5	0.7 mm
Flow pressure @ -35°C	DIN 51805	<1400 hPa

## COMPRESSOR OIL VDL 32

Product Code 43790



**COMPRESSOR OIL VDL 32** is a high performance ash less air compressor oil specially designed to meet the stringent requirements of major compressor manufacturers. **COMPRESSOR OIL VDL 32** is suited for reciprocating air-, rotary screw and vane compressors. Also used in circulating oil systems, plain and rolling element bearings, lightly loaded Gear sets, etc

**COMPRESSOR OIL VDL 32** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Improved equipment reliability, availability and efficiency.
- Low ash and carbon forming tendency ensures improved valve performance.
- Reduced potential for fires and explosions in the discharge systems.
- Exceptional wear and rust protection.

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, ISO 6743 DAA, ISO 6743 DAB, ISO 6743 DAG, ISO 6743 DAH, DIN 51503-1 KAA, DIN 51503-1 KE

Property	Unit	Test Method	Typical Value
ISO VG Class			32
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	850.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.7
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>190
Pour Point	°C	ASTM D7346	-33
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

## COMPRESSOR OIL VDL 46

Product Code 43810



**COMPRESSOR OIL VDL 46** is a high performance ash less air compressor oil specially designed to meet the stringent requirements of major compressor manufacturers. **COMPRESSOR OIL VDL 46** is suited for reciprocating air-, rotary screw and vane compressors. Also used in circulating oil systems, plain and rolling element bearings, lightly loaded Gear sets, etc

**COMPRESSOR OIL VDL 46** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Improved equipment reliability, availability and efficiency.
- Low ash and carbon forming tendency ensures improved valve performance.
- Reduced potential for fires and explosions in the discharge systems.

- Exceptional wear and rust.
- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, ISO 6743 DAA, ISO 6743 DAB, ISO 6743 DAG, ISO 6743 DAH, DIN 51503-1 KAA, DIN 51503-1 KE

Property	Unit	Test Method	Typical Value
ISO VG Class			46
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	862.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	45.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.9
Viscosity Index		ASTM D2270	108
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

## COMPRESSOR OIL VDL 68

Product Code 43820



**COMPRESSOR OIL VDL 68** is a high performance ash less air compressor oil specially designed to meet the stringent requirements of major compressor manufacturers. **COMPRESSOR OIL VDL 68** is suited for reciprocating air-, rotary screw and vane compressors. Also used in circulating oil systems, plain and rolling element bearings, lightly loaded Gear sets, etc

**COMPRESSOR OIL VDL 68** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Improved equipment reliability, availability and efficiency.
- Low ash and carbon forming tendency ensures improved valve performance.
- Reduced potential for fires and explosions in the discharge systems.
- Exceptional wear and rust protection.

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, ISO 6521 DAA, ISO 6521 DAB, ISO 6521 DAG, ISO 6521 DAH, DIN 51503-1 KAA, DIN 51503-1 KE

Property	Unit	Test Method	Typical Value
ISO VG Class			68
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	863.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.2
Viscosity Index		ASTM D2270	111
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30



## COMPRESSOR OIL VDL 100

Product Code 43830



**COMPRESSOR OIL VDL 100** is a high performance ashless air compressor oil specially designed to meet the stringent requirements of major compressor manufacturers. **COMPRESSOR OIL VDL 100** is suited for reciprocating air-, rotary screw and vane compressors. Also used in circulating oil systems, plain and rolling element bearings, lightly loaded Gear sets, etc

**COMPRESSOR OIL VDL 100** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Improved equipment reliability, availability and efficiency.
- Low ash and carbon forming tendency ensures improved valve performance.
- Reduced potential for fires and explosions in the discharge systems.
- Exceptional wear and rust protection.

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, ISO 6521 DAA, ISO 6521 DAB, ISO 6521 DAG, ISO 6521 DAH, DIN 51503-1 KAA, DIN 51503-1 KE

Property	Unit	Test Method	Typical Value
ISO VG Class			100
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	865.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	99.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	12.2
Viscosity Index		ASTM D2270	114
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

## COMPRESSOR OIL VDL 150

Product Code 43840



**COMPRESSOR OIL VDL 150** is a high performance ash less air compressor oil specially designed to meet the stringent requirements of major compressor manufacturers.

**COMPRESSOR OIL VDL 150** is suited for reciprocating air-, rotary screw and vane compressors. Also used in circulating oil systems, plain and rolling element bearings, lightly loaded Gear sets, etc

**COMPRESSOR OIL VDL 150** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Improved equipment reliability, availability and efficiency.
- Low ash and carbon forming tendency ensures improved valve performance.
- Reduced potential for fires and explosions in the discharge systems.

- Exceptional wear and rust protection.
- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, ISO 6521 DAA, ISO 6521 DAB, ISO 6521 DAG, ISO 6521 DAH, DIN 51503-1 KAA, DIN 51503-1 KE

Property	Unit	Test Method	Typical Value
ISO VG Class			150
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	888
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	142
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.0
Viscosity Index		ASTM D2270	95
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

## COMPRESSOR OIL VDL 220

Product Code 44760



**COMPRESSOR OIL VDL 220** is a high performance ash less air compressor oil specially designed to meet the stringent requirements of major compressor manufacturers. **COMPRESSOR OIL VDL 220** is suited for reciprocating air-, rotary screw and vane compressors. Also used in circulating oil systems, plain and rolling element bearings, lightly loaded Gear sets, etc

**COMPRESSOR OIL VDL 220** is based on high quality mineral base oil in combination with an unique additive package to ensure the following properties:

- Excellent thermo- and oxidation stability.
- Improved equipment reliability, availability and efficiency.
- Low ash and carbon forming tendency ensures improved valve performance.
- Reduced potential for fires and explosions in the discharge systems.
- Exceptional wear and rust protection.

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, ISO 6743 DAA, ISO 6743 DAB, ISO 6743 DAG, ISO 6743 DAH, DIN 51503-1 KAA, DIN 51503-1 KE

Property	Unit	Test Method	Typical Value
ISO VG Class			220
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	897
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	220
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

## COMPRESSOR OIL SYNTH 32

Product Code 44120



**COMPRESSOR OIL SYNTH 32** is an advanced fully synthetic ashless air compressor lubricant developed for use in rotary compressors of screw or vane design, reciprocating compressors and centrifugal compressors. **COMPRESSOR OIL SYNTH 32** is suited single or multiple stage rotary screw or vane, centrifugal compressors and reciprocating compressors of various OEMs including Hydrovane, Atlas Copco, Compare, and Worthington.

**COMPRESSOR OIL SYNTH 32** is based on high quality Polyalphaolefin (PAO) base oil in combination with an unique additive package to ensure the following properties:

- Outstanding thermo-oxidative stability.
- Excellent anti-wear protection leads to longer oil and equipment life.
- Low varnish and carbon forming tendency help in reducing maintenance cost.
- Extra high viscosity index.
- Excellent low temperature fluidity for use in wide operating temperature range.
- Zinc-free formulation ensures excellent filterability by minimizing oil

- filter blockage in wet condition.
- Excellent low volatility characteristics give low oil.
- Improved surface properties results in very good anti-foaming and air release properties and superior demulsibility.
- Offers excellent protection against rust and corrosion.
- Compatible with mineral lubricants and also with seals and paints normally used with mineral oils.

Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, DIN 51503-1 KAA, DIN 51503-1 KE, ISO/DP 6521 DAA, SO/DP 6521 DAB, ISO/DP 6521 DAG, ISO/DP 6521 DAH

Property	Unit	Test Method	Typical Value
ISO VG Class			32
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	829.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	30.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.9
Viscosity Index		ASTM D2270	139
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D97	-66
FZG A/8, 3/90°C		DIN 51354-2	>12



## COMPRESSOR OIL SYNTH 46

Product Code 44130



**COMPRESSOR OIL SYNTH 46** is an advanced fully synthetic ashless air compressor lubricant developed for use in rotary compressors of screw or vane design, reciprocating compressors and centrifugal compressors. **COMPRESSOR OIL SYNTH 46** is suited for single or multiple stage rotary screw or vane, centrifugal compressors and reciprocating compressors of various OEMs including Hydrovane, Atlas Copco, Compare, and Worthington. **COMPRESSOR OIL SYNTH 46** is based on high quality Polyalphaolefin (PAO) base oil in combination with an unique additive package to ensure the following properties:

- Outstanding thermo-oxidative stability.
- Excellent anti-wear protection leads to longer oil and equipment life.
- Low varnish and carbon forming tendency help in reducing maintenance cost.
- Extra high viscosity index.
- Excellent low temperature fluidity for use in wide operating temperature range.
- Zinc-free formulation ensures excellent filterability by minimizing oil filter blockage in wet condition.

- Excellent low volatility characteristics give low oil.
- Improved surface properties results in very good anti-foaming and air release properties and superior demulsibility.
- Offers excellent protection against rust and corrosion.
- Compatible with mineral lubricants and also with seals and paints normally used with mineral oils.

**Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, DIN 51503-1 KAA, DIN 51503-1 KE, ISO/DP 6521 DAA, SO/DP 6521 DAB, ISO/DP 6521 DAG, ISO/DP 6521 DAH**

Property	Unit	Test Method	Typical Value
ISO VG Class			46
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	833.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	46.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.8
Viscosity Index		ASTM D2270	140
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D97	-63
FZG A/8, 3/90°C		DIN 51354-2	>12
Demulsibility @54°C,	max min	DIN 51599	Pass

## COMPRESSOR OIL SYNTH 68

Product Code 44140



**COMPRESSOR OIL SYNTH 68** is an advanced fully synthetic ashless air compressor lubricant developed for use in rotary compressors of screw or vane design, reciprocating compressors and centrifugal compressors. **COMPRESSOR OIL SYNTH 68** is suited single or multiple stage rotary screw or vane, centrifugal compressors and reciprocating compressors of various OEMs including Hydrovane, Atlas Copco, Compare, and Worthington. **COMPRESSOR OIL SYNTH 68** is based on high quality Polyalphaolefin (PAO) base oil in combination with an unique additive package to ensure the following properties:

- Outstanding thermo-oxidative stability.
- Excellent anti-wear protection leads to longer oil and equipment life.
- Low varnish and carbon forming tendency help in reducing maintenance cost.
- Extra high viscosity index.
- Excellent low temperature fluidity for use in wide operating temperature range.
- Zinc-free formulation ensures excellent filterability by minimizing oil

- filter blockage in wet condition.
- Excellent low volatility characteristics give low oil.
- Improved surface properties results in very good anti-foaming and air release properties and superior demulsibility.
- Offers excellent protection against rust and corrosion.
- Compatible with mineral lubricants and also with seals and paints normally used with mineral oils.

**Meets: DIN 51506 VBL, DIN 51506 VCL, DIN 51506 VDL, DIN 51503-1 KAA, DIN 51503-1 KE, ISO/DP 6521 DAA, SO/DP 6521 DAB, ISO/DP 6521 DAG, ISO/DP 6521 DAH**

Property	Unit	Test Method	Typical Value
ISO VG Class			68
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	835.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	70.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.2
Viscosity Index		ASTM D2270	153
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D97	-57
FZG A/8, 3/90°C		DIN 51354-2	>12
Demulsibility @54°C,	max min	DIN 51599	Pass





## HYDRAULIC OIL HV 32

Product Code 43580



**HYDRAULIC OIL HV 32** is an universal HVI mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV 32** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Cincinnati P-68; Sauer Danfoss 520L0463; Eaton Vickers M-2950-S; Eaton Vickers I-286**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	869.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.5
Viscosity Index		ASTM D2270	160
Flash Point COC	°C	ASTM D92	>190
Pour Point	°C	ASTM D7346	-48
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HV 15

Product Code 43490



**HYDRAULIC OIL HV 15** is an universal HVI mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV 15** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Sauer Danfoss 520L0463**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	15
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	843.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	14.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	3.7
Viscosity Index		ASTM D2270	158
Flash Point COC	°C	ASTM D92	>145
Pour Point	°C	ASTM D7346	-54
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HV 22

Product Code 43590



**HYDRAULIC OIL HV 22** is an universal HVI mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV 22** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Sauer Danfoss 520L0463**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	22
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	854.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	21.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.3
Viscosity Index		ASTM D2270	193
Flash Point COC	°C	ASTM D92	>190
Pour Point	°C	ASTM D7346	-54
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HV 46

Product Code 43600



**HYDRAULIC OIL HV 46** is an universal extreme HVI mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV 46** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Cincinnati P-70; Sauer Danfoss 520L0463; Eaton Vickers M-2950-S; Eaton Vickers I-286**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	878.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	46.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.2
Viscosity Index		ASTM D2270	153
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-42
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass



## HYDRAULIC OIL HV 68

Product Code 43620



**HYDRAULIC OIL HV 68** is a universal HVI mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV 68** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Cincinnati P-69; Sauer Danfoss 520L0463; Eaton Vickers M-2950-S; Eaton Vickers I-286**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.1
Viscosity Index		ASTM D2270	154
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-39
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HV 100

Product Code 43550



**HYDRAULIC OIL HV 100** is an universal HVI mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV 100** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Sauer Danfoss 520L0463**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	100
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	104.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	15.9
Viscosity Index		ASTM D2270	163
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-39
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HV ZF 32

Product Code 43750



**HYDRAULIC OIL HV ZF 32** is an universal Zinc free mineral oil with a High Viscosity Index (HVI) for the use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV ZF 32** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Cincinnati P-68; Sauer Danfoss 520L0463; Denison HF-0; Denison HF-1; Denison HF-2; Bosch Rexroth RE 90 220; Eaton Vickers M-2950-S; Eaton Vickers I-286; General Motors LS-2**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	862.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	31.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.6
Viscosity Index		ASTM D2270	171
Flash Point COC	°C	ASTM D92	>190
Pour Point	°C	ASTM D7346	-42
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HV ZF 46

Product Code 43630



**HYDRAULIC OIL HV ZF 46** is an universal Zinc free mineral oil with a High Viscosity Index (HVI) for the use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV ZF 46** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVLP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Cincinnati P-70; Sauer Danfoss 520L0463; Denison HF-0; Denison HF-1; Denison HF-2; Bosch Rexroth RE 90 220; Eaton Vickers M-2950-S; Eaton Vickers I-286; General Motors LS-2**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	878.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	47.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.4
Viscosity Index		ASTM D2270	157
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass



## HYDRAULIC OIL HV ZF 68

Product Code 43770



**HYDRAULIC OIL HV ZF 68** is a universal Zinc free mineral oil with a High Viscosity Index (HVI) for the use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HV ZF 68** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

**Meets: DIN 51524-3 HVP; ISO 11158 HV; ASTM D6158 HV; AFNOR NF E 48-603 HV; Cincinnati P-69; Sauer Danfoss 520L0463; Denison HF-0; Denison HF-1; Denison HF-2; Bosch Rexroth RE 90 220; Eaton Vickers M-2950-S; Eaton Vickers I-286; General Motors LS-2**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	880.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	70.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.7
Viscosity Index		ASTM D2270	162
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-36
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HM 22

Product Code 43510



**HYDRAULIC OIL HM 22** is a universal mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HM 22** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

**Meets: DIN 51524-2 HLP; ISO 11158 HM; ASTM D6158 HM; AFNOR NF E 48-603 HM; Sauer Danfoss 520L0463**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	22
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	861.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	21.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	4.4
Viscosity Index		ASTM D2270	108
Flash Point COC	°C	ASTM D92	>165
Pour Point	°C	ASTM D97	-36
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HM 32

Product Code 43520



**HYDRAULIC OIL HM 32** is a universal mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HM 32** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

**Meets: DIN 51524-2 HLP; ISO 11158 HM; ASTM D6158 HM; AFNOR NF E 48-603 HM; Sauer Danfoss 520L0463; Cincinnati P-68; Eaton Vickers M-2950-S; Eaton Vickers I-286**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	875.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.5
Viscosity Index		ASTM D2270	104
Flash Point COC	°C	ASTM D92	>190
Pour Point	°C	ASTM D97	-33
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HM 46

Product Code 43540



**HYDRAULIC OIL HM 46** is a universal mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HM 46** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

**Meets: DIN 51524-2 HLP; ISO 11158 HM; ASTM D6158 HM; AFNOR NF E 48-603 HM; Sauer Danfoss 520L0463; Cincinnati P-70; Eaton Vickers M-2950-S; Eaton Vickers I-286**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	879.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	47.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.0
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D97	-30
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass



## HYDRAULIC OIL HM 68

Product Code 43560



**HYDRAULIC OIL HM 68** is an universal mineral high grade EP oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. Not suitable for turbine application.

**HYDRAULIC OIL HM 68** is formulated with high quality refined mineral base stocks in combination with a special EP-additive technology to achieve the following performance:

- Excellent stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

**Meets: DIN 51524-2 HLP; ISO 11158 HM; ASTM D6158 HM; AFNOR NF E 48-603 HM; Sauer Danfoss 520L0463; Cincinnati P-69; Eaton Vickers M-2950-S; Eaton Vickers I-286**

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	70.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.9
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D97	-30
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HM ZF 32

Product Code 43530



**HYDRAULIC OIL HM ZF 32** is a premium quality zinc free mineral oil with a high viscosity index for use in high pressure hydraulic systems, light duty gearboxes, bearings, and general lubrication. The oil is not suitable for turbine applications.

**HYDRAULIC OIL HM ZF 32** is formulated with high quality refined mineral base stocks in combination with a special additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Good thermal stability.

**Meets: DIN 51524-2 HLP, ISO 11158 HM, ASTM D6158 HM, AFNOR NF E 48-603 HM, Sauer Danfoss 520L0463, Cincinnati P-68, Denison HF-0, Denison HF-1, Denison HF-2, Bosch Rexroth RE 90 220, Eaton Vickers M-2950-S, Eaton Vickers I-286, General Motors LS-2**

Property	Unit	Test Method	Typical Value
ISO grade		ISO 3448	32
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	872.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.5
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>190
Pour Point	°C	ASTM D7346	-30
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HM ZF 46

Product Code 43650



**HYDRAULIC OIL HM ZF 46** is a premium quality zinc free mineral oil with a high viscosity index for use in high pressure hydraulic systems, light duty gearboxes, bearings, and general lubrication. The oil is not suitable for turbine applications.

**HYDRAULIC OIL HM ZF 46** is formulated with high quality refined mineral base stocks in combination with a special additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Good thermal stability.

**Meets: DIN 51524-2 HLP, ISO 11158 HM, ASTM D6158 HM, AFNOR NF E 48-603 HM, Sauer Danfoss 520L0463, Cincinnati P-70, Denison HF-0, Denison HF-1, Denison HF-2, Bosch Rexroth RE 90 220, Eaton Vickers M-2950-S, Eaton Vickers I-286, General Motors LS-2**

Property	Unit	Test Method	Typical Value
ISO grade		ISO 3448	46
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	880.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	46.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.9
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-27
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HM ZF 68

Product Code 43710



**HYDRAULIC OIL HM ZF 68** is a premium quality zinc free mineral oil with a high viscosity index for use in high pressure hydraulic systems, light duty gearboxes, bearings, and general lubrication. The oil is not suitable for turbine applications.

**HYDRAULIC OIL HM ZF 68** is formulated with high quality refined mineral base stocks in combination with a special additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Good thermal stability.

**Meets: DIN 51524-2 HLP, ISO 11158 HM, ASTM D6158 HM, AFNOR NF E 48-603 HM, Sauer Danfoss 520L0463, Cincinnati P-68, Denison HF-0, Denison HF-1, Denison HF-2, Bosch Rexroth RE 90 220, Eaton Vickers M-2950-S, Eaton Vickers I-286, General Motors LS-2**

Property	Unit	Test Method	Typical Value
ISO grade		ISO 3448	68
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	880.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	68.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.8
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-21
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass



## HYDRAULIC OIL HLPD 46

Product Code 43660



**HYDRAULIC OIL HLPD 46** is a superior quality so called “detergent” hydraulic oil blended from high quality base stocks with an ashless antiwear hydraulic oil package having water tolerance and detergency properties to meet the requirements of the HLPD classification for hydraulic oils formulated primarily as heavy duty, anti-wear hydraulic oil. **HYDRAULIC OIL HLPD 46** specially suitable for use in a wide variety of applications where drain of water condensation is difficult.

**HYDRAULIC OIL HLPD 46** is formulated with high quality refined mineral base stocks in combination with a special ashless additive technology to achieve the following performance:

- Good stability against oxidation.
- Compatible with a wide variety of pump designs (vane type pumps, axial piston, gear and other types of hydraulic pumps and motors) at oil pressures in the range of 70 to 350 bar.
- Very good protection against wear.

- Good water absorbing properties (upto 2%)
- Very good foaming properties.
- Very effective to rust and corrosion.
- Good thermal stability.

Meets: MB DBL 6713, DIN 51524-2 HLPD

Property	Unit	Test Method	Typical Value
ISO grade		ISO 3448	46
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	881.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	46.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.9
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-30
Air Release Value @50°C	Minutes	ASTM D3427	Pass

## HYDRAULIC OIL HVLPD 46

Product Code 44200



**HYDRAULIC OIL HVLPD 46** is heavy duty detergent type ashless anti-wear high viscosity hydraulic oil specially developed for machine-tool hydraulic systems, mobile hydraulic systems and clutch drives where minor water contamination can be expected.

**HYDRAULIC OIL HVLPD 46** is formulated with high quality mineral base oil in combination with a special additive package to ensure to following properties.

- Special detergent and dispersant properties ensure smooth functioning of hydraulic systems by minimizing formation of sticky residues and deposits.
- Excellent water emulsifying ability maintains proper functioning of hydraulic systems even in case of contamination of oil with small amounts of water.
- Superior anti-wear properties help reduce wear of mechanical components.
- High resistance to oxidation and thermal degradation controls the

formation of sludge & varnish and improves oil life .

- Superior foam control and rapid air release properties ensure trouble-free operations.
- Effective corrosion inhibitors provide corrosion protection in arduous service conditions.
- Superior thermo- and oxidation stability.
- High Viscosity.

Meets: MB DBL 6713, DIN 51524-2 HVLPD

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	876.0
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	47.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.5
Viscosity Index		ASTM D2270	160
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-37
Air Release Value @50°C	Minutes	ASTM D3427	Pass

## BIO SYNTH HYDRAULIC OIL 46

Product Code 43610



**BIO-SYNTH HYDRAULIC OIL 46** is a premium quality biodegradable hydraulic oil for heavy duty hydraulic systems of earthmoving equipment and permanent installations working under severe conditions like high pressures over a wide range of temperatures where pollution of the environment is expected.

**BIO-SYNTH HYDRAULIC OIL 46** is developed from easily biologically degradable synthetic ester base oils together with an environmentally friendly additive package to ensure the following properties:

- High and stable Viscosity Index.
- Excellent wear-preventing properties.
- High good activity against corrosion.
- Excellent stability against oxidation.
- Good deaerating and foam suppressing properties.
- Good compatibility with seals and gaskets made from synthetic material.

- Low pour point.
- Good water separation.
- Reduced harm for water and soil during use.

Meets: ISO 15380 HEES, Swedish Standard (SS) 155434, CEC L33-T82 >90% in three weeks

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	920
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	46
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.8
Viscosity Index		ASTM D2270	190
Flash Point COC	°C	ASTM D92	>300
Pour Point	°C	ASTM D7346	-33

## HYDRAULIC OIL BC 32

Product Code 45340



**HYDRAULIC OIL BC 32** is an universal mineral high grade AW oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. This product is not suitable for turbine applications.

**HYDRAULIC OIL BC 32** is formulated with high quality re-refined mineral base stocks in combination with a special AW-additive technology to achieve the following performance:

- Good stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

Meets: DIN 51524-2 HLP, ISO 11158 HM, ASTM D6158 HM, AFNOR NF E 48-603 HM

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Colour		ASTM D1500	3.5
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	866.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.5
Viscosity Index		ASTM D2270	111
Flash Point COC	°C	ASTM D92	>175
Pour Point	°C	ASTM D7346	-33
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass



## HYDRAULIC OIL BC 46

Product Code 45100



**HYDRAULIC OIL BC 46** is an universal mineral high grade AW oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. This product is not suitable for turbine applications.

**HYDRAULIC OIL BC 46** is formulated with high quality re-refined mineral base stocks in combination with a special AW-additive technology to achieve the following performance:

- Good stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

Meets: DIN 51524-2 HLP, ISO 11158 HM, ASTM D6158 HM, AFNOR NF E 48-603 HM

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Colour		ASTM D1500	3.5
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	871.3
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	45.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.0
Viscosity Index		ASTM D2270	110
Flash Point COC	°C	ASTM D92	>185
Pour Point	°C	ASTM D7346	-30
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL BC 68

Product Code 45110



**HYDRAULIC OIL BC 68** is an universal mineral high grade AW oil for use in heavy duty hydraulic systems and light duty gearboxes, bearings and general lubrication. This product is not suitable for turbine applications.

**HYDRAULIC OIL BC 68** is formulated with high quality re-refined mineral base stocks in combination with a special AW-additive technology to achieve the following performance:

- Good stability against oxidation.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.

Meets: DIN 51524-2 HLP, ISO 11158 HM, ASTM D6158 HM, AFNOR NF E 48-603 HM

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Colour		ASTM D1500	3.5
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	875.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	67.9
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.0
Viscosity Index		ASTM D2270	107
Flash Point COC	°C	ASTM D92	>195
Pour Point	°C	ASTM D97	-27
Air Release Value @50°C	Minutes	ASTM D3427	Pass
Demulsibility @54°C	Minutes	ASTM D1401	Pass

## HYDRAULIC OIL HPV 32

Product Code 45270



**HYDRAULIC OIL HPV 32** is an universal high viscosity index (HVI) mineral grade AW oil for use in heavy duty hydraulic systems, light duty gearboxes, bearings and general lubrication applications. This product is not suitable for the use in turbine applications.

**HYDRAULIC OIL HPV 32** is formulated with high quality re-refined mineral base stocks in combination with a special AW-additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

Meets: DIN 51524-3 HVL, ISO 11158 HV, ASTM D6158 HV, AFNOR NF E 48-603 HV

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Colour		ASTM D1500	3.5
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	864.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	6.2
Viscosity Index		ASTM D2270	144
Flash Point COC	°C	ASTM D92	>175
Pour Point	°C	ASTM D7346	-48
Air Release Value @50°C	Minutes	ASTM D3427	5
Demulsibility @54°C	Minutes	ASTM D1401	20

## HYDRAULIC OIL HPV 46

Product Code 45280



**HYDRAULIC OIL HPV 46** is an universal high viscosity index (HVI) mineral grade AW oil for use in heavy duty hydraulic systems, light duty gearboxes, bearings and general lubrication applications. This product is not suitable for the use in turbine applications.

**HYDRAULIC OIL HPV 46** is formulated with high quality re-refined mineral base stocks in combination with a special AW-additive technology to achieve the following performance:

- Good stability against oxidation.
- High Viscosity Index.
- Very good protection against wear.
- Good water demulsibility.
- Very good foaming properties.
- Very effective to rust and corrosion.
- Very good thermal stability.

Meets: DIN 51524-3 HVL, ISO 11158 HV, ASTM D6158 HV, AFNOR NF E 48-603 HV

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Colour		ASTM D1500	3.5
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	871.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	46.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.6
Viscosity Index		ASTM D2270	164
Flash Point COC	°C	ASTM D92	>185
Pour Point	°C	ASTM D7346	-48
Air Release Value @50°C	Minutes	ASTM D3427	8
Demulsibility @54°C	Minutes	ASTM D1401	15



## MARINE TPEO 312

Product Code 42880



**MARINE TPEO 312** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 1.0%

**MARINE TPEO 312** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Good anti wear properties,
- Good superior demulsibility
- Good protection against bearing corrosion
- Good protection against 'bore-polishing' and lacquering.
- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	890.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	94.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.0
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	12.0

## MARINE TPEO 412

Product Code 42850



**MARINE TPEO 412** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 1.0%

**MARINE TPEO 412** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Good anti wear properties,
- Good superior demulsibility
- Good protection against bearing corrosion
- Good protection against 'bore-polishing' and lacquering.
- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	897.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	139.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.1
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	12.5

## MARINE TPEO 315

Product Code 42890



**MARINE TPEO 315** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 1.5%

**MARINE TPEO 315** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Good anti wear properties,
- Good superior demulsibility
- Good protection against bearing corrosion
- Good protection against 'bore-polishing' and lacquering.
- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	894.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	95.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.0
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	15.8

## MARINE TPEO 415

Product Code 42860



**MARINE TPEO 415** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 1.5%

**MARINE TPEO 415** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Good anti wear properties,
- Good superior demulsibility
- Good protection against bearing corrosion
- Good protection against 'bore-polishing' and lacquering.
- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	899.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	142.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.4
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	15.8

## MARINE TPEO 330

Product Code 44660



**MARINE TPEO 330** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 2.5%.

**MARINE TPEO 330** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Good anti wear properties.
- Good superior demulsibility.
- Good protection against bearing corrosion.
- Good protection against 'bore-polishing' and lacquering.
- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	898.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	91.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.9
Viscosity Index		ASTM D2270	104
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	30.7

## MARINE TPEO 430

Product Code 42900



**MARINE TPEO 430** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 2.5%.

**MARINE TPEO 430** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Acidic by-products are effectively neutralized and the engine is protected from corrosive wear by the unique formulation providing the reserve alkalinity.
- Superior demulsibility characteristics.
- Robust anti-wear technology provides excellent piston & linear wear control and good gear performance.

- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	904.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	135.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.1
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	30.6



## MARINE TPEO 340

Product Code 44770



**MARINE TPEO 340** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 3.5%.

**MARINE TPEO 340** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Acidic by-products are effectively neutralized and the engine is protected from corrosive wear by the unique formulation providing the reserve alkalinity.
- Superior demulsibility characteristics.
- Robust anti-wear technology provides excellent piston & linear wear control and good gear performance.

- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

**Meets: API CF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	906
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	93
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.2
Viscosity Index		ASTM D2270	107
Flash Point COC	°C	ASTM D92	>220
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	40
Sulphated Ash	%Wt	ASTM D874	5.1

## MARINE TPEO 440

Product Code 42820



**MARINE TPEO 440** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 3.5%.

**MARINE TPEO 440** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Acidic by-products are effectively neutralized and the engine is protected from corrosive wear by the unique formulation providing the reserve alkalinity.
- Superior demulsibility characteristics.
- Robust anti-wear technology provides excellent piston & linear

wear control and good gear performance.

- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

**Meets: API CF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	909.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	133.1
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.0
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	40.5
Sulphated Ash	%Wt	ASTM D874	5.1

## MARINE TPEO 420

Product Code 44600



**MARINE TPEO 420** is a high quality marine diesel engine oil, developed for high output, medium speed trunk piston diesel engines, running on distillate or light residual fuel with a sulphur content of maximum 1.5%.

**MARINE TPEO 420** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency reduces build-up of soot & black sludge, improves tolerance for fuel contaminants and keeps the engine clean.
- Good anti wear properties.
- Good superior demulsibility.
- Good protection against bearing corrosion.
- Good protection against 'bore-polishing' and lacquering.
- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

**Meets: API CF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	899.5
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	136.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.0
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	20.6

## MARINE SO 307

Product Code 44570



**MARINE SO 307** is a premium quality trunk piston engine oil designed for use in the modern medium speed diesel engines operating on distillate fuels.

**MARINE SO 307** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Superior detergency ensures piston and crankcase cleanliness.
- Improved anti-wear property minimizes engine wear.
- Excellent thermo-oxidative stability.
- Protection of engine parts against corrosive combustion products.
- Better demulsibility characteristics ensure water.
- Special rust & corrosion inhibitors prevent corrosion of engine parts in severe salt water environment.
- Excellent dispersancy and detergency properties.
- Good protection against "Bore Polishing" and lacquering.

**Meets: API CF**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	897.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	102
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.2
Viscosity Index		ASTM D2270	95
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15
Total Base Number	mgKOH/g	ASTM D2896	6.8
Sulphated Ash	%Wt	ASTM D874	1.1

## MARINE SO 407

Product Code 44580



**MARINE SO 407** is a premium quality trunk piston engine oil designed for use in the modern medium speed diesel engines operating on distillate fuels.

**MARINE SO 407** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Superior detergency ensures piston and crankcase cleanliness.
- Improved anti-wear property minimizes engine wear.
- Excellent thermo-oxidative stability.
- Protection of engine parts against corrosive combustion products.
- Better demulsibility characteristics ensure water.
- Special rust & corrosion inhibitors prevent corrosion of engine parts in severe salt water environment.
- Excellent dispersancy and detergency properties.
- Good protection against "Bore Polishing" and lacquering.

### Meets: API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	896
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	150
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.6
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	7
Sulphated Ash	%Wt	ASTM D874	1.1

## MARINE CEO 570

Product Code 44520



**MARINE CEO 570** is an extra high performance Marine Cylinder Lubricant (MCL) designed for the latest generation technology of low speed crosshead diesel engines operating on wide range of residual fuels having sulphur content in excess of 1.0%

Feed rates recommended by the manufacturer should be maintained as a minimum. Higher feed rates may be required when running new liners and/or rings.

**MARINE CEO 570** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Good acid neutralising capability.
- Superior detergency minimises deposits on critical parts such as pistons, piston rings, ring grooves and cylinder ports.
- Good antiwear properties minimizes piston ring & cylinder wear leading to reduced maintenance costs.
- Good compatibility with all normal seal materials.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	50
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	935.8
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	229.2
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	20.3
Viscosity Index		ASTM D2270	102
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	69.9

## MARINE MGEO 15W-40

Product Code 42870



**MARINE MGEO 15W-40** is a mineral based marine engine oil and is recommended for turbo charged and naturally aspirated diesel engines such as used on board ships and can also be used in marine transmissions requiring an oil with Allison C-4 specifications.

**MARINE MGEO 15W-40** is formulated with high quality mineral base stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Controlling deposits and viscosity increase
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.

**Meets: API CH-4; API SJ; ACEA E7; Volvo VDS-3; Renault RLD-2; Deutz DQC-III; MTU type 2; Cat ECF-1a; Cummins CES 20077; MAN M 3275; MB 228.1; Mack EO-N; DTFR 15B110 (MB 228.3)**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	885.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	104.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	139
Viscosity CCS @-20°C	cP	ASTM D5293	6200
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	11
Sulphated Ash	%Wt	ASTM D874	1.27

## MARINE MGEO SP 15W-40

Product Code 44870



**MARINE MGEO SP 15W-40** is an extra high performance universal marine engine oil recommended for turbo charged and naturally aspirated diesel engines such as used on board ships and can also be used in marine transmissions requiring an oil with Allison C-4 specifications.

**MARINE MGEO SP 15W-40** is formulated with high refined solvent mineral stock in combination with a special additive package to reach the following properties:

- Excellent thermal- and oxidation stability.
- Very good dispersancy and detergency.
- High anti-foam, anti-wear and anti-corrosion properties.
- Excellent protection against Bore Polishing.
- Extended drain intervals.

**Meets: DTFR 15B110 (MB 228.3); Volvo VDS-3; Renault RLD-2; Mack EO-N; API CI-4/SL; ACEA E7; MTU Type 2; Caterpillar ECF-2; MB 228.1; Caterpillar ECF-1a; Global DHD-1; JASO DH-1; Deutz DQC-III; MAN M 3275; DDC 93K215; Cummins CES 20077; Cummins CES 20078**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	885.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	104.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	139
Viscosity CCS @-20°C	cP	ASTM D2270	6200
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	11
Sulphated Ash	%Wt	ASTM D874	1.27



## MARINE DDEO 40

Product Code 44670



**MARINE DDEO 40** is a good quality monograde engine oil developed for high output, high speed two- and four cycle diesel engines. MARINE DDEO 40 is particularly recommended for Detroit Diesel two-cycle diesel engines in marine fleets operating on low sulphur fuels.

**MARINE DDEO 40** is based on high quality virgin mineral base oils in combination with an unique additive package to ensure the following properties:

- Exceptional detergency thus reducing deposits, sludge build-up & varnish and extends engine life & durability.
- Superior thermo-oxidative stability assists in controlling oxidative thickening and increases oil life.
- Antiwear technology protects against scuffing & wear of cylinder liner and walls.
- Rust inhibitors retard rust & corrosion formation in critical engine parts.

- Adequate TBN level ensures protection against corrosive combustion products.

Meets: API CF-2; API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	897.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	141.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.5
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>220
Pour Point	°C	ASTM D7346	-21
Total Base Number	mgKOH/g	ASTM D2896	12.2

## TURBINE OIL 32

Product Code 44550



**TURBINE OIL 32** is a supreme performance turbine oil specially designed for use in non-geared steam turbines, gas turbines and combined cycle gas turbines (CCGT) including the gas turbines operating at high temperatures.

**TURBINE OIL 32** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Outstanding thermal and oxidation stability.
- Prevents sludge formation, controls deposits and minimizes oil degradation.
- Excellent water separation capability resists formation of emulsion and leads to easy removal of excess water from the lubrication system.
- Effective rust and corrosion inhibitors provide long term protection to critical system components.

- Good air release properties and foam control.
- Increased conductivity to prevent build-up of electrostatic charges (microsparks) than can cause fire/explosion hazards.

Meets: ASTM D4304 Type I; DIN 51515-1 (TD); DIN 51515-2 (TG); ALSTOM HTGD 90117 W (non EP); GEK 107395A; GEK 27070; GEK 32568J; GEK 46506E; AIST 125; Solar ES 9-224; Siemens TLV 9013 04 (non EP); Siemens TLV 9013 05 (non EP); Fives Cincinnati P-38

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	853
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	32.3
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.7
Viscosity Index		ASTM D2270	118
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-31
Copper Corrosion		ASTM D130	1b
Air Release Value @50°C	Minutes	ASTM D3427	<4:00
Total Acid Number	mgKOH/g	ASTM D664	0.1
Water separability @54°C	Min.	ASTM D1401	10
Oil Stability Test (TOST)	Hrs	ASTM D943	>10.000

## TURBINE OIL 46

Product Code 44540



**TURBINE OIL 46** is a supreme performance turbine oil specially designed for use in geared and non-geared steam turbines, gas turbines and combined cycle gas turbines (CCGT) including the gas turbines operating at high temperatures.

**TURBINE OIL 46** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Outstanding thermal and oxidation stability.
- Prevents sludge formation, controls deposits and minimizes oil degradation.
- Superior anti-wear property and load carrying capability provide excellent protection for geared turbines.
- Excellent water separation capability resists formation of emulsion and leads to easy removal of excess water from the lubrication system.
- Effective rust and corrosion inhibitors provide long term protection

- to critical system components.
- Good air release properties and foam control.
- Increased conductivity to prevent build-up of electrostatic charges (microsparks) than can cause fire/explosion hazards.

ASTM D4304 Type I; DIN 51515-1 (TD); DIN 51515-2 (TG); ALSTOM HTGD 90117 W (non EP); GEK 107395A; GEK 27070; GEK 32568J; GEK 46506E; AIST 125; Solar ES 9-224; Siemens TLV 9013 04 (non EP); Siemens TLV 9013 05 (non EP); Fives Cincinnati P-55; AGMA 9005-E02

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	855.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	45.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.2
Viscosity Index		ASTM D2270	117
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
FZG A/8, 3 90°C		DIN 51354-2	>10
Demulsibility @54°C	Min.	DIN 51599	10
Total Acid Number	mgKOH/g	ASTM D664	0.1

## TURBINE OIL 68

Product Code 44530



**TURBINE OIL 68** is a supreme performance turbine oil specially designed for use in geared and non-geared steam turbines, gas turbines and combined cycle gas turbines (CCGT) including the gas turbines operating at high temperatures.

**TURBINE OIL 68** is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Outstanding thermal and oxidation stability.
- Prevents sludge formation, controls deposits and minimizes oil degradation.
- Superior anti-wear property and load carrying capability provide excellent protection for geared turbines.
- Excellent water separation capability resists formation of emulsion and leads to easy removal of excess water from the lubrication system.

- Effective rust and corrosion inhibitors provide long term protection to critical system components.
- Good air release properties and foam control.

Meets: ASTM D4304 Type I; DIN 51515-1 (TD); DIN 51515-2 (TG); Alstom HTGD 90117 W (non EP); Fives Cincinnati P-54; GEK 27070; GEK 32568J; GEK 46506E; GEK 107395A; Siemens TLV 9013 04 (non EP); Siemens TLV 9013 05 (non EP); Solar Turbines ES9-224; AIST 125; AGMA 9005-E02(R&O)

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	864
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	70
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	9.5
Viscosity Index		ASTM D2270	113
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
Total Acid Number	mgKOH/g	ASTM D664	0.1
Copper Corrosion		ASTM D130	1b
Water separability @54°C		ASTM D1401	Pass
FZG, Fail Load Stage		DIN 51534-2	10
Oil Stability Test (TOST)	Hrs	ASTM D943	>10.000



## GAS ENGINE OIL MA 40

Product Code 44500



**GAS ENGINE OIL MA 40** is a medium ash high performance Heavy Duty Gas Engine Oil specially designed for use in stationary gas engines which run on natural and/or biogas and operate under severe conditions and high temperatures.

**GAS ENGINE OIL MA 40** is based on a high quality hydro processed base oils in combination with a special selected additive package to obtain the following properties:

- Excellent thermal-, nitration-, and oxidation stability.
- Reducing of combustion chamber deposits.
- Minimize ring scuffing.
- Protect against corrosive wear.
- Improving engine performance.

**Meets: API CF, Waukesha Cogeneration, Dresser Rand Cat II**

**77 recommends this product where following specifications are required: MAN 3271-4, GE Jenbacher for Fuel Class B (Biogas) and C, (Landfill gas), Type 2 and 3 all engines; Type 4, Version A, B; Type 6 up to version E**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	878.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	129.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	109
Flash Point COC	°C	ASTM D92	240
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	8.4
Sulphated Ash	%Wt	ASTM D874	0.9

## GAS ENGINE OIL LA 40

Product Code 44510



**GAS ENGINE OIL LA 40** is a low ash high performance Heavy Duty Gas Engine Oil specially designed for use in stationary gas engines which run on natural and/or biogas and operate under severe conditions and high temperatures.

**GAS ENGINE OIL LA 40** is based on a high quality hydro processed base oils in combination with a special selected additive package to obtain the following properties:

- Excellent thermal-, nitration-, and oxidation stability.
- Reducing of combustion chamber deposits.
- Minimize ring scuffing.
- Protect against corrosive wear.
- Improving engine performance.

**Approved: MWM (Natural and Biogas)**

**Exceeds:**

**Jenbacher Type 2, Type 3, Type 4 (version A&B), Type 6 (version C&E) Natural Gas (Class A), Biogas (Class B)**

**API CF**

**MAN M3271-2**

**Rolls-Royce B35:40, C26:33, K-G1/G2/G3/G4**

**Wärtsilä SG34, SG50**

**Cummins QSK 60**

**Dresser Rand Category III**

**Waukesha Cogeneration**

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density @15°C	kg/m <sup>3</sup>	ASTM D4052	872.2
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	117.4
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	13.5
Viscosity Index		ASTM D2270	112
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	5.3
Sulphated Ash	%Wt	ASTM D874	0.49

## FLUSHING OIL 32

Product Code 45120



**FLUSHING OIL 32** is a high quality effective oil to flush gasoline- and diesel engines. FLUSHING OIL is very effective in between switching from a low quality oil to a higher quality oil. It is also suitable to clean out the used engine oil if it is contaminated with moisture, coolant, fuel and/or engine sludge.

**FLUSHING OIL 32** is based on high quality base oil, in combination with special additive to obtain the following properties.

- High dispersant and detergent properties.
- Good resistance against corrosion.
- Mixable with mineral and synthetic multigrade engine oils.
- Good emulsification and neutralization properties.
- Good antiwear, anticorrosion and antifoam properties.

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	ISO 32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	878.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.5
Viscosity Index		ASTM D2270	103
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D97	-21
Total Base Number	mgKOH/g	ASTM D2896	5.5

## THERM OIL 32

Product Code 43890



**THERM OIL 32** is a premium quality heat transfer oil intended for use in closed indirect heating systems with expansion tanks temperatures up to 315°C and for open heating systems provided that the oil temperature does not exceed 180°C

**THERM OIL 32** is based on high quality mineral base oil to ensure the following properties:

- Excellent thermal and oxidation stability.
- Minimizes deposit formation and viscosity increase.
- Extended service life and reduced downtime.
- Exceptional resistance to thermal cracking and decomposition enables this oil to perform well up to a maximum bulk oil temperature of 315°C with minimal interference with heat transfer capability.
- High specific heat and thermal conductivity of this oil provides more rapid heat dissipation.

- Superior low temperature fluidity ensures quick circulation at start-up and reduced risk of local over-heating.
- Non corrosive to aluminium, steel, copper, brass or bronze.
- Non-toxicity of this oil provides easy disposal of used oil.

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	32
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	875.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	5.4
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	230
Fire Point	°C	ISO 2592	250
Pour Point	°C	ASTM D7346	-12
Initial Boiling Point	°C	ISO 3771	>355
Auto Ignition Temperature	°C	DIN 51794	>360
Total Acid Number	mgKOH/g	ASTM D974	< 0.05



## SYNTHETIC HEAT TRANSFER OIL 25

Product Code 43895



**SYNTHETIC HEAT TRANSFER OIL 25** is a high quality synthetic heat transfer oil intended for use in closed indirect heating systems with expansion tanks temperatures up to 350°C.

- Non corrosive to aluminium, steel, copper, brass or bronze.
- Non-toxicity of this oil provides easy disposal of used oil.

**SYNTHETIC HEAT TRANSFER OIL 25** is based on high quality synthetic base oil to ensure the following properties:

- Excellent thermal and oxidation stability.
- Minimizes deposit formation and viscosity increase.
- Extended service life and reduced downtime.
- Exceptional resistance to thermal cracking and decomposition enables this oil to perform well up to a maximum bulk oil temperature of 350°C with minimal interference with heat transfer capability.
- High specific heat and thermal conductivity of this oil provides more rapid heat dissipation.
- Superior low temperature fluidity ensures quick circulation at start-up and reduced risk of local over-heating.

Property	Unit	Typical Value
Density at 15°C	kg/m <sup>3</sup>	833.18
Kinematic Viscosity at 40°C	mm <sup>2</sup> /s	24.2
Kinematic Viscosity at 100°C	mm <sup>2</sup> /s	5.0
Viscosity index		133
Pour Point	°C	-27
Flash Point COC	°C	220
Total Acid Number	mg KOH/g	0,1
Spec. Heat at 300°C	KJ/kg*K	3,051
Spec. Heat at 200°C	KJ/kg*K	2,757
Spec. Heat at 100°C	KJ/kg*K	2,343
Thermal conductivity at 150°C	W/m*K	0,1099

## FORM OIL 10

Product Code 43900



**FORM OIL 10** is a concrete mould oil for the construction of houses, buildings, subways and bridges.

Appliance in a thin layer, by spraying, swabbing or brushing. Over spill must be removed.

**FORM OIL 10** is based on high-grade refined base oils containing non-toxic surface-active compounds and together with the bleeding water from the concrete, it provides a low interfacial surface tension, which gives a smooth surface finish.

**FORM OIL 10** is ready to use, and should be applied as thin as possible on the surface.

**FORM OIL 10** enables easy removal from the moulds without damaging the concrete and gives a good rust protection of the steel moulds under normal condition. Has good release characteristics and gives no discolouring of the concrete-surface and can be used where limited heated moulds are adapted.

Property	Unit	Test Method	Typical Value
ISO VG Grade			10
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	857.7
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	10.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	2.7
Viscosity Index		ASTM D2270	114
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30

## FORM OIL 68

Product Code 44700



**FORM OIL 68** is a concrete mould oil for the construction of houses, buildings, subways and bridges.

Appliance in a thin layer, by spraying, swabbing or brushing. Over spill must be removed.

**FORM OIL 68** is based on high-grade refined base oils containing non-toxic surface-active compounds and together with the bleeding water from the concrete, it provides a low interfacial surface tension, which gives a smooth surface finish.

**FORM OIL 68** is ready to use, and should be applied as thin as possible on the surface.

**FORM OIL 68** enables easy removal from the moulds without damaging the concrete and gives a good rust protection of the steel moulds under normal condition. Has good release characteristics and gives no discolouring of the concrete-surface and can be used where limited heated moulds are adapted.

Property	Unit	Test Method	Typical Value
ISO VG Grade			68
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	882.9
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	66.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	8.6
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12

## FORM OIL 150

Product Code 43910



**FORM OIL 150** is a concrete mould oil for the construction of houses, buildings, subways and bridges.

Appliance in a thin layer, by spraying, swabbing or brushing. Over spill must be removed.

**FORM OIL 150** is based on high-grade refined base oils containing non-toxic surface-active compounds and together with the bleeding water from the concrete, it provides a low interfacial surface tension, which gives a smooth surface finish.

**FORM OIL 150** is ready to use, and should be applied as thin as possible on the surface.

**FORM OIL 150** enables easy removal from the moulds without damaging the concrete and gives a good rust protection of the steel moulds under normal condition. Has good release characteristics and gives no discolouring of the concrete-surface and can be used where limited heated moulds are adapted.

Property	Unit	Test Method	Typical Value
ISO VG Grade			150
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	888.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	139.7
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	14.03
Viscosity Index		ASTM D2270	97
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12



## BRAKE FLUID DOT 4

Product Code 43920



**BRAKE FLUID DOT 4** is a very high performance brake fluid especially designed for use in disc, drum and Anti Brake Systems (ABS) of all commercial vehicles, passenger cars and motor cycles operating under moderate to severe conditions, where a DOT 4 fluid is prescribed.

**BRAKE FLUID DOT 4** should never be used in place of or mixed with silicone based brake fluids (DOT 4)

**BRAKE FLUID DOT 4** is based on a Glycol-type Base fluid combination with an unique additive package to ensure the following properties:

- Superior oxidative stability resists oxidation at high temperatures encountered in disk braking systems.
- Superior high temperature stability and low temperature fluidity ensure trouble free operation.
- Effective corrosion inhibitors provide long term corrosion protection to the metallic components of the brake systems.

- Provides lubricity and system protection.
- Compatible with all seals and metals used in conventional braking systems requiring glycol-type brake fluids.

Meets: FMVSS-116 DOT 4.0, SAE J1704, ISO 4925 (class 6)

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	1,07
Kin. Viscosity @-40°C	mm <sup>2</sup> /s	FMVSS 116	<900
Kin. Viscosity @100°C	mm <sup>2</sup> /s	FMVSS 116	>1,5
Equilibrium Reflex Boiling Point (ERBP)	°C	FMVSS 116	>260
Wet Equilibrium Reflex Boiling Point (WBP)	°C	FMVSS 116	>175
pH Value			7,0 – 11,5
Flash Point COC	°C	DIN 51354-2	

## DEF BLUE

Product Code 44850



**DEF BLUE** is an extremely pure solution, especially developed for the diesel engines with a SCR system. It is injected into exhaust gas to reduce harmful NOx emissions and exceeds the Euro 5 and Euro 6 emission standards.

**DEF BLUE** is formulated with demineralized water in combination with a special additive and is produced according to ISO standards, which insures the quality of this product.

**DEF BLUE** exceeds the following performance criteria:

Meets: DIN 70070, ISO 22241-1

Property	Unit	Test Method	Typical Value
Color			Colorless
Density@20°C	kg/m <sup>3</sup>		1090
UREA Content	%Wt		31.8 – 33.2
pH (10% HS-Solution), max			10
Refractive Index @20°C			1.3814 – 1.3843
Alkalinity as NH <sub>3</sub> , max	%Wt		0.2
Freezing point	°C		-11
Boiling Point	°C		100
Insoluble matter, max	mg/kg		20





## ROCK DRILL OIL 46

Product Code 45418



**ROCK DRILL OIL 46** is a premium quality rock drilling and air tool oil special develop to lubricate pneumatic drilling and power tools.

**ROCK DRILL OIL 46** is based on high quality mineral base oil with a special additive technology to ensure the following properties:

- an excellent protection against wear.
- a very good activity against rust and corrosion.
- excellent stability against oxidation.
- good compatibility with seals and gaskets made from synthetic material.
- a low pour point.

**ROCK DRILL OIL 46** is suitable for use on equipment of Garner-Denver, Ingersoll-Rand, Chicago-Pneumatic and many others.

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	46
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	879.4
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	45.5
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	7.0
Viscosity Index		ASTM D2270	111
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-33

## ROCK DRILL OIL 100

Product Code 45420



**ROCK DRILL OIL 100** is a premium quality rock drilling and air tool oil special develop to lubricate pneumatic drilling and power tools.

**ROCK DRILL OIL 100** is based on high quality mineral base oil with a special additive technology to ensure the following properties:

- an excellent protection against wear.
- a very good activity against rust and corrosion.
- excellent stability against oxidation.
- good compatibility with seals and gaskets made from synthetic material.
- a low pour point.

**ROCK DRILL OIL 100** is suitable for use on equipment of Garner-Denver, Ingersoll-Rand, Chicago-Pneumatic and many others.

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	100
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	886.6
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	97.0
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	11.3
Viscosity Index		ASTM D2270	102
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-30

## ROCK DRILL OIL 220

Product Code 45440



**ROCK DRILL OIL 220** is a premium quality rock drilling and air tool oil special developed to lubricate pneumatic drilling and power tools.

**ROCK DRILL OIL 220** is based on high quality mineral base oil with a special additive technology to ensure the following properties:

- Excellent protection against wear.
- Very good activity against rust and corrosion.
- Excellent stability against oxidation.
- Good compatibility with seals and gaskets made from synthetic material.
- Low pour point.

**ROCK DRILL OIL 220** is suitable for use on equipment of Garner-Denver, Ingersoll-Rand, Chicago-Pneumatic and many others.

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	220
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	886.1
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	229.6
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	19.8
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>200
Pour Point	°C	ASTM D7346	-21

## VACUUMPUMP OIL 100

Product Code 44990



**VACUUMPUMP OIL 100** is a premium quality vacuum pump oil special develop to lubricate the gearboxes of vacuum pumps.

**VACUUMPUMP OIL 100** is based on high quality mineral base oil with a special additive technology to ensure the following properties:

- an excellent protection against wear.
- a very good activity against rust and corrosion.
- excellent stability against oxidation.
- very good deaerating and foam-suppressing properties.
- very good demulsification properties.
- good compatibility with seals and gaskets made from synthetic material.
- a low pour point.

Meets: DBL 6713 HLPD

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	100
Density@15°C	kg/m <sup>3</sup>	ASTM D4052	888
Kin. Viscosity @40°C	mm <sup>2</sup> /s	ASTM D7042	94.8
Kin. Viscosity @100°C	mm <sup>2</sup> /s	ASTM D7042	10.5
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
Total Acid Number	mg KOH/g	ASTM D974	< 0.25
FZG Fail Load		DIN 51354-2	11

## PETROL INJECTOR CLEANER



**PETROL INJECTOR CLEANER** is a special fuel additive for effective and thorough cleaning and protection of the injectors. Internal contamination in the engine may largely be attributed to the presence of sediment such as gum, varnish etc. in the injectors. As a consequence, over time the engine operation deteriorates, and the fuel consumption increases considerably. Therefore, it is important to clean the injectors every 10.000 kilometers by adding Petrol Injector Cleaner. Regular use will keep the injectors in prime condition and ensure optimum engine performance.

**PETROL INJECTOR CLEANER** features are:

- Cleans and prevents deposits in the entire injection system
- Dissolves varnish, gum, resin, and other lacquer-like compounds in the entire fuel system
- Thoroughly cleans injectors, creating an optimal spray pattern

- Cleans and protects intake valves, combustion chamber, and exhaust valves
- Neutralizes acidic condensate formed because of fuel oxidation
- Reduces fuel consumption and improves engine performance

**PETROL INJECTOR CLEANER** applications are:

- Suitable for all petrol engines with injection system, also for turbo engines
- At every maintenance service and/or in case of fuel system malfunctions
- In case of irregular RPM, stalling, difficult starting, knocking, and excessively high emissions of harmful exhaust gases.
- The content of the 250ml. bottle is suitable for a tank capacity of up to 60 liters

## DIESEL INJECTOR CLEANER



**DIESEL INJECTOR CLEANER** is a special fuel additive for effective and thorough cleaning and protection of the diesel injectors. Internal contamination in diesel engines may largely be attributed to the presence of sediment such as gum, varnish etc. in the diesel injectors. As a consequence, over time the engine operation deteriorates, and the fuel consumption increases considerably. Therefore, it is important to clean the diesel injectors every 10.000 kilometers by adding Diesel Injector Cleaner. Regular use will keep the diesel injectors in prime condition and ensure optimum engine performance.

**DIESEL INJECTOR CLEANER** features are:

- Protects against corrosion and reduces soot emissions
- Dissolves varnish, gum, etc. in the entire fuel system
- Increase the cetane number by 5 points.

- Guarantees optimal combustion
- Prevents diesel knocking and irregular idling of the engine
- Reduces smoke development, especially under full load.
- Removes deposits in the diesel injectors and fuel pump
- Increases operational reliability
- Reduces fuel consumption and improves engine performance

**DIESEL INJECTOR CLEANER** applications are:

- Suitable for all diesel engines
- At every maintenance service and/or in case of fuel system malfunctions
- In case of irregular RPM, loss of engine power, starting problems, increased fuel consumption, and excessive soot emissions
- The content of the 250ml. bottle is suitable for a tank capacity of up to 60 liters.

## PETROL HYBRID ADDITIVE



**PETROL HYBRID ADDITIVE** is an additive with excellent cleaning operation and specially developed for modern hybrid vehicles with a gasoline engine. Hybrid vehicles are characterized by low fuel consumption and partly pure electric drive. The gasoline engine is often used in a cold state and results in many start-stop situations. In contrast to non-hybrid vehicles, the fuel remains relatively longer in the fuel tank. That is why there is a fuel stabilizer added on this high-quality products, which ensures optimum aging stability.

**PETROL HYBRID ADDITIVE** features are:

- Offers optimum corrosion protection
- Prevents deposits and cleans the injection system
- Reduces emissions of harmful exhaust gases

- Contains a fuel stabilizer and conditioner
- Ensures optimum aging stability

**PETROL HYBRID ADDITIVE** applications are:

- Suitable for all hybrid vehicles with a gasoline engine
- Use preferably every 10.000 kilometer
- The content of the 250ml. bottle is suitable for a tank capacity of up to 60 liters

## DPF CLEANER



**DPF CLEANER** is a product that cleans and regenerates the clogged diesel particulate filter (DPF) without disassembly. Driving short distances, traffic jams, and urban traffic ensure that the diesel particle filter becomes clogged. Also, the engine power diminishes as it is more difficult for the exhaust to leave the polluted particulate filter.

**DPF CLEANER** ensures an optimal cleaning and increases the lifespan of the particulate filter.

**DPF CLEANER** features are:

- Prevents clogging of the DPF
- Cleaning the DPF without disassembly

- Prevents costly workshop repairs
- Optimize combustion
- Reduces harmful exhaust gasses and smoke
- Reducing fuel consumption
- Keeps the DPF clean by preventive use
- Increases operational reliability

**DPF CLEANER** applications are:

- Suitable for all diesel passenger cars, vans, and trucks
- Apply with malfunctioning and/or every 3.000 kilometer
- The content of the 250ml. bottle is suitable for a tank capacity of up to 60 liters

## RADIATOR FLUSH



**RADIATOR FLUSH** contains well-balanced cleaning agents like de-oxidation and descaling components which remove dirt, rust, and lime deposits in the entire cooling system. Ensure an optimum heat exchange which prevents overheating of the engine. Does not affect metal, plastics, alu, and rubber parts and is free of acids.

Suitable for cooling systems with a capacity of no more than 12 liters.

**RADIATOR FLUSH** features are:

- Does not affect metal, plastics, alu, and rubber parts
- Acid-free
- Prevents overheating of the engine
- Removes dirt, rust, and lime deposits

**RADIATOR FLUSH** applications are:

- Instructions for use:
- Follow car manufacturers directions to drain cooling system
- Shake canister well before use, add product to the cooling system and fill with fresh water
- Turn on the heater and allow engine to warm-up
- Run the engine for approx.. 10 minutes after reaching normal operation temperatures
- Stop engine, drain radiator, and allow cooling system to cool off
- Refill with water and anti-freeze or coolant
- The content of the 250ml. bottle is suitable for a capacity of no more than 12 liters
- Do not add cold water to a warm cooling system!!



## RADIATOR SEALER



**RADIATOR SEALER** is water-based and consists of natural resinous fibers, stabilizers, and anti-corrosion additives in suspension. Recommended for sealing off leaks in radiators, heaters, cylinder heads and engine block cracks up to 0,9mm wide. Works quickly, permanently, and reliably and cause no obstructions. Miscible with all types of anti-freeze and cooling liquids. Does not damage hoses, gaskets, or metals. Suitable for cooling systems with a capacity of no more than 12 liters. By adding this product preventively to the cooling system, it affords comprehensive leakage protection and guarantees a trouble-free working system

**RADIATOR SEALER** features are:

- Does not affect metal, plastics, alu, and rubber parts
- By adding preventively, it affords comprehensive leakage protection

- For a trouble-free working cooling system

**RADIATOR SEALER** applications are:

- Instructions for use:
- Shake canister well before use, add product to the cooling system when warm, with the engine running and with the cabin heating switched on!!
- Keep the engine running for approx. 10 minutes or drive a short distance
- Dirty cooling systems should be first cleaned with RADIATOR FLUSH!
- The content of the 250ml. bottle is suitable for a capacity of no more than 12 liters

## VALVE CLEANER



**VALVE CLEANER** cleans combustion deposits from valves, valve seats, plugs and cylinder heads, thoroughly and effectively and reduces harmful exhaust gasses and fuel consumption. Increases compression and improves engine performance.

Combines with water to prevent breakdown and corrosion. Ensures the fuel system remains in in optimum condition when used regularly.

**VALVE CLEANER** features are:

- Improves compression
- Good corrosion protection

- Prevents new deposits
- Ensures optimum engine performance
- Reduces harmful exhaust gasses
- Reducing fuel consumption
- Tested for us with turbo chargers and catalytic converters
- Increases operational reliability

**VALVE CLEANER** applications are:

- Suitable for all petrol engines
- The content of the 250ml. bottle is suitable for a tank capacity of up to 60 liters

## OIL ADDITIVE



**OIL ADDITIVE** is very effective liquid tool, with three important features which in many cases prevents expensive engine repairs. First it prevents oil leaks from rubber gaskets, crankcase, and valve-stem oil seals. The second important property is it reduces oil consumption from between the piston and cylinder-wall by increasing the viscosity of the oil at operating temperature resulting in improved combustion from a higher compression ratio in the engine. And thirdly it stops or reduce the blue exhaust fumes caused by oil bypassing the piston rings into the combustion chamber.

**OIL ADDITIVE** features are:

- Prevents costly engine repairs

- Reduces oil consumption
- Stops blue exhaust smoke
- Stops oil leakage

**OIL ADDITIVE** applications are:

- Suitable for petrol, diesel and LPG engines
- Add one can at every oil change when engine is at operating temperature
- The content of the 250ml. bottle is suitable for maximum 6 liters engine oil

## ENGINE FLUSH



**ENGINE FLUSH** cleans sludge, gum, rust, and varnish formations from the inside of the engine within 10 minutes. Helps to release stuck valves and piston rings. Increases compression and improves engine performance. Reduces dangerous exhaust gasses and improves fuel consumption. Harmless to metal parts.

Suitable for all petrol, diesel, and LPG engines.

**ENGINE FLUSH** features are:

- Internal engine cleaning within 10 minutes
- Increases compression and performance
- Reduces harmful exhaust gasses
- Harmless to all engine parts

**ENGINE FLUSH** applications are:

- Suitable for petrol, diesel, and LPG engines
- Shake canister before use and add to the engine oil at operating temperature
- Allow engine to run 10 minutes at approx. 1.500 rpm
- Then switch-off engine and drain engine oil
- Replace the oil filter and refill engine with new engine oil as recommended by the engine manufacturer
- The content of the 250ml. bottle is suitable for maximum 6 liters engine oil

## HANDCLEANER ORANGE

Product Code 44940



**HANDCLEANER ORANGE** is a very effective solvent-free hand cleaning paste. Made with natural Citrus oils, Aloe Vera extracts, Jojoba Esters and an environmentally friendly abrasive. **HANDCLEANER ORANGE** is extremely suitable for removing stubborn soiling such as lubricants and sealants.

**HANDCLEANER ORANGE** is a powerful workshop hand cleaning gel for removing industrial soiling and is formulated with a pleasant fresh fragrance. **HANDCLEANER ORANGE** is a classic hand cleaning paste for workshops and factories.

Directions for use: Rub a small amount of **HAND CLEANER ORANGE** on the hands until dirt loosens, preferably with the use of a dispenser pump. Rinse off with water or wipe off with a towel. Dry hands thoroughly.

Storage: Keep the package of **HAND CLEANER ORANGE** well closed and store in a cool but frost-free place.

### ENVIRONMENT & SAFETY:

Complies with EEC directive 73/404/EEC on biodegradation for surfactants. In addition, the surfactants in the products comply with the criteria for biodegradation set out in Directive 648/2004/EC concerning detergents. Complies with European regulations on cosmetics (76/768/EU).

Property	Unit	Test Method	Typical Value
Color		Visual	Orange
pH			6.5
Skin care			Aloe Vera Extracts, Jojoba Oil, Glycerine
Cleaning			Surfactants
Abrasive			Natural granules

## HANDCLEANER YELLOW

Product Code 44820



**HANDCLEANER YELLOW** is a premium quality hand cleaning paste based on Orange Terpenes, Aloe Vera extracts, Jojoba Esters and natural abrasives. **HAND CLEANER YELLOW** is specially developed for removing extremely stubborn industrial contamination. It's unique product formulation easily removes contaminations such as lubricants, grease, paint, varnish, ink, tar, bitumen and adhesives.

**HAND CLEANER YELLOW** cleans, moisturizes, protects and is dermatologically tested, pH-neutral and biodegradable.

**HANDCLEANER YELLOW** has fresh citrus scent from natural ingredients and is extreme effective due to skin-friendly abrasive and natural ingredients.

Directions for use: Rub a small amount of **HAND CLEANER YELLOW** on the hands until dirt loosens, preferably with the use of a dispenser pump. Rinse off with water or wipe off with a towel. Dry hands thoroughly.

Storage: Keep the package of **HAND CLEANER YELLOW** well closed and store in a cool but frost-free place.

### ENVIRONMENT & SAFETY:

Complies with EEC directive 73/404/EEC on biodegradation for surfactants. In addition, the surfactants in the products comply with the criteria for biodegradation set out in Directive 648/2004/EC concerning detergents. Complies with European regulations on cosmetics (76/768/EU).

Property	Unit	Test Method	Typical Value
Color		Visual	Yellow
pH			9
Skin care			Aloe Vera Extracts, Jojoba Oil
Cleaning			Surfactants
Abrasive			Natural granules

## HANDCLEANER SPECIAL

Product Code 44830



**HANDCLEANER SPECIAL** is a very effective solvent-free hand cleaning paste. Made with Aloe Vera extracts, Jojoba Esters and an environmentally friendly abrasive. **HAND CLEANER SPECIAL** is specially developed for removing extremely stubborn industrial contamination. It's unique product formulation easily removes contaminations such as lubricants, grease, paint, varnish, ink, tar, bitumen and adhesives.

**HAND CLEANER SPECIAL** cleans, moisturizes, protects and is dermatologically tested, pH-neutral and biodegradable.

**HANDCLEANER SPECIAL** moisturizes the skin and keeps hands soft and free from irritation.

Directions for use: Rub a small amount of **HAND CLEANER SPECIAL** on the hands until dirt loosens, preferably with the use of a dispenser pump. Rinse off with water or wipe off with a towel. Dry hands thoroughly.

Storage: Keep the package of **HAND CLEANER SPECIAL** well closed and store in a cool but frost-free place.

### ENVIRONMENT & SAFETY:

Complies with EEC directive 73/404/EEC on biodegradation for surfactants. In addition, the surfactants in the products comply with the criteria for biodegradation set out in Directive 648/2004/EC concerning detergents. Complies with European regulations on cosmetics (76/768/EU).

Property	Unit	Test Method	Typical Value
Color		Visual	Beige
pH			9
Skin care			Aloe Vera Extracts, Jojoba Oil, Lanolin
Cleaning			Derivatives
Abrasive			Surfactants Natural granules



## WALL BRACKET FOR HANDCLEANER

Product Code H1001



## DISPOSABLE DISPENSER PUMP

Product Code H1016



HANDCLEANER ACCESSORIES

## DISPENSER PUMP

Product Code H1022





T-SHIRT

Product Code MERCHA 77011 / 77012 / 77013

This high quality T-shirt with logo is available in L / XL / XXL  
Made of 100% cotton



Front

Back

RACE CAP

Product Code MERCHA 77002

This a high quality Racing Cap fits every number One.



MONEY-DRUM

Product Code MERCHA 77001

Save money with this 77 lubricants money-drum.



PRODUCT DISPLAY

Product Code MERCHA 77005





## PRODUCT GUIDE

Product Code MERCHA 77004

77Lubricants Product Guide. Delivered in a box of 100 pieces.



## FLAG

Product Code MERCHA 77003

77Lubricants flag. Dimensions: 150x100cm (width x height)



MERCHANDISE

## KEY-CHAIN

Product Code MERCHA 704961



# LET THE LIONS ROAR

Stichting Leeuw is a rescue facility for big cats, which is situated on Landgoed Hoenderdaell. In April 2012 the first big cats were moved to Stichting Leeuw. The foundation aims to shelter big cats in need. If at all possible, shelter will be temporary and will prepare the animals for a return to the wild. The rescued cats come for example from private parties or from circuses, which as a result of new legislation in an increasing number of countries, are no longer allowed wild animal acts. The owners look for a place where these lions and tigers can live in comfort for the rest of their lives. Stichting Leeuw provides such a place.



## BACK TO THE ORIGINS

Stichting Leeuw strives to return the rescued animals, if at all possible, to their natural habitats. Because all animals at the foundation were kept in captivity their whole lives, they cannot survive in the wild. They are not used to natural enemies and have never had to hunt for their own food. It is possible, however, to relocate the animals to an enclosed natural reserve in their land of origin, where they can be closely observed.



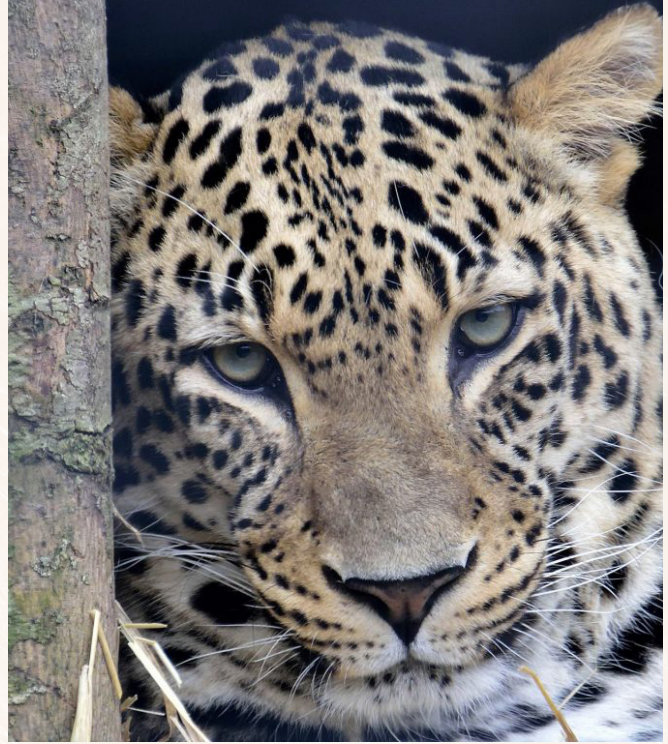
Stichting Leeuw has established partnerships with big rescue organisations where the sheltered animals will go as soon as they are strong enough to live in their natural surroundings.

## LEARN ABOUT THE FATE OF FELINE PREDATORS

One of the objectives of Stichting Leeuw is education. The foundation aims to make visitors aware of the ways in which feline predators all over the world are endangered, and show them how they can help determine their fate on a small scale and a larger scale.

So what can we do to prevent the abuse of lions, tigers and other feline predators? Sometimes apparently harmless activities can have a major effect on an animal's well-being. For instance posing for a photograph with a cute small cub. These cubs are taken away from their mother at a very young age, to be photographed with





tourists. As long as tourists are willing to pay to have their picture taken with a cub, this form of animal abuse will continue to happen.

### LEARN FROM THE ANIMALS

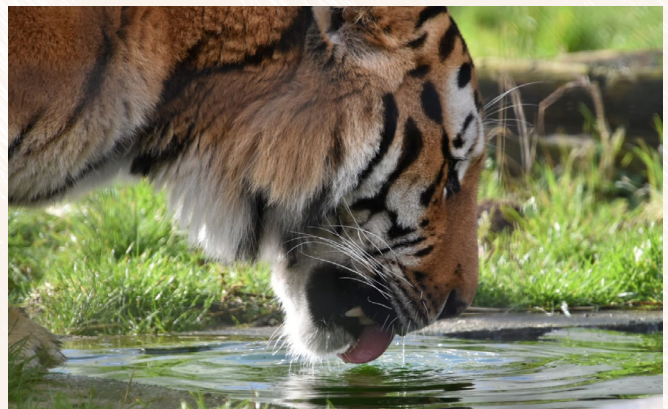
Stichting Leeuw aims to provide a comfortable life to all feline predators that arrive in the rescue facility. All animals have different requirements. That is why the foundation spends a lot of time on behavioural research.

In the interest of the animals, Stichting Leeuw tries to imitate the natural surroundings of the felines as closely as possible, for example by using a hunting simulator and natural fencing. The effects of these on the animals is being studied. The results of these studies will be used to improve the quality of life of the rescued animals wherever possible. The research on the well-being of the animals doesn't stop when they are returned to their natural habitat.

### SAVE ENDANGERED BIG CATS

To ensure the survival of lions and tigers in the wild, Stichting Leeuw is happy to participate in breeding programmes. The one and only purpose of breeding should be to return more animals to the wild, and not to have more animals in zoos.

**77 B.V. supports this initiative, buy 77 Lubricants products and let the lions roar!**



### HUNTING SIMULATOR UNIQUE IN THE WORLD

Since September 2015 Stichting Leeuw has a unique hunting simulator at its disposal. It took three years to get the system up and running smoothly and it is the first hunting simulator in the world. The simulator consists of a system of pulleys, which allows an operator to manoeuvre a piece of meat randomly through the big hall. The foundation uses the simulator to stimulate the hunting instincts and techniques of the big cats.









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