



Lubricants



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.

Worlds 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.



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.

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.

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 a 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.

RACING OIL 10W-60 exceeds the following performance criteria:

Exceeds: API SN, ACEA A3/B4			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-60
Density@15°C	kg/m3	ASTM D4052	848
Kin. Viscosity @40°C	mm2/s	ASTM D7042	168
Kin. Viscosity @100°C	mm2/s	ASTM D7042	23.9
Viscosity Index		ASTM D2270	174
Viscosity CCS @-25°C, max	cP	ASTM D5293	6000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48
Total Base Number	mgKOH/g	ASTM D2896	10.1
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 a 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.

RACING OIL 5W-50 meets the following performance criteria:

Exceeds: API SN, ACEA A3/B4, MB 229.1			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-50
Density@15°C	kg/m3	ASTM D4052	853
Kin. Viscosity @40°C	mm2/s	ASTM D7042	112
Kin. Viscosity @100°C	mm2/s	ASTM D7042	18.5
Viscosity Index		ASTM D2270	186
Viscosity CCS @-30°C, max	cP	ASTM D5293	5660
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	10.2
Sulphated Ash	%Wt	ASTM D874	1.09



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.

Approved: MB-Approval 229.3, VW 502.00 / 505.00.

Meets: 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/m3	ASTM D4052	853
Kin. Viscosity @40°C	mm2/s	ASTM D7042	85.3
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.4
Viscosity Index		ASTM D2270	176
Viscosity CCS @-30°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	10.2
Sulphated Ash	%Wt	ASTM D874	1.20



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.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-40
Density@15°C	kg/m3	ASTM D4052	862
Kin. Viscosity @40°C	mm2/s	ASTM D7042	101
Kin. Viscosity @100°C	mm2/s	ASTM D7042	15.5
Viscosity Index		ASTM D2270	162
Viscosity CCS @-25°C, max	cP	ASTM D5293	4610
Flash Point COC	°C	ASTM D92	230
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	7.4
Sulphated Ash	%Wt	ASTM D874	0.91

MOTOR OIL SYNTHETIC 5W-20

Product Code 42050



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.

API SN PLUS, ILSAC GF-5, GM Dexos 1:2015 (Dexos 1: Gen2), MS 6395, GM 4718M

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-20
Density@15°C	kg/m3	ASTM D4052	847
Kin. Viscosity @40°C	mm2/s	ASTM D7042	42.3
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.2
Viscosity Index		ASTM D2270	174
Viscosity CCS @-30°C, max	cP	ASTM D5293	2770
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	8.4

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.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m3	ASTM D4052	884
Kin. Viscosity @40°C	mm2/s	ASTM D7042	152
Kin. Viscosity @100°C	mm2/s	ASTM D7042	17.8
Viscosity Index		ASTM D2270	130
Viscosity CCS @-15°C, max	cP	ASTM D5293	6660
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	8.7
Sulphated Ash	%Wt	ASTM D874	1.06

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/m3	ASTM D4052	859
Kin. Viscosity @40°C	mm2/s	ASTM D7042	88.7
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	159
Viscosity CCS @-25°C, max	cP	ASTM D5293	5260
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.5
Sulphated Ash	%Wt	ASTM D874	0.95

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.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m3	ASTM D4052	875
Kin. Viscosity @40°C	mm2/s	ASTM D7042	103
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	141
Viscosity CCS @-20°C, max	cP	ASTM D5293	4910
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	5.4
Sulphated Ash	%Wt	ASTM D874	0.66

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.

Approved:

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m3	ASTM D4052	878
Kin. Viscosity @40°C	mm2/s	ASTM D7042	94
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.3
Viscosity Index		ASTM D2270	141
Viscosity CCS @-20°C, max	cP	ASTM D5293	5160
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.6
Sulphated Ash	%Wt	ASTM D874	1.05

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.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m3	ASTM D4052	881
Kin. Viscosity @40°C	mm2/s	ASTM D7042	154
Kin. Viscosity @100°C	mm2/s	ASTM D7042	18.03
Viscosity Index		ASTM D2270	129
Viscosity CCS @-15°C, max	cP	ASTM D5293	5770
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	5.6
Sulphated Ash	%Wt	ASTM D874	0.66





MOTOR OIL 20W-50

Product Code 42400



MOTOR OIL 20W-50 is a universal high performance engine 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 20W-50 is formulated with high quality hydro-treated mineral 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 J300	20W-50
Density@15°C	kg/m3	ASTM D4052	865
Kin. Viscosity @40°C	mm2/s	ASTM D7042	139
Kin. Viscosity @100°C	mm2/s	ASTM D7042	18.3
Viscosity Index		ASTM D2270	147
Viscosity CCS @-15°C, max	cP	ASTM D5293	3890
Flash Point COC	°C	ASTM D92	>215
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	10.4
Sulphated Ash	%Wt	ASTM D874	1.31

RACING OIL CLASSIC 20W-50

Product Code 42410



RACING OIL CLASSIC 20W-50 is a 100% high quality mineral multi-grade SAE 20W-50 oil for gasoline and diesel engines for use in classic (pre-1980) high-performance cars. Formulated with supplementary ZDDP (Zinc dialkyldithiophosphate) additives to maximize wear protection of camshafts and cam followers.

RACING OIL CLASSIC 20W-50 is based on high quality virgin mineral base oil in combination with a specially selected additive technology to ensure the following properties:

- Very good lubrication of engine parts.
- Excellent protection against wear.
- High protection against corrosion.
- Good protection against wear, foam and corrosion.
- No danger of encrusted dirt becoming unstuck.
- Compatible with classic seals and rubbers.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	20W-50
Density@15°C	kg/m3	ASTM D4052	893
Kin. Viscosity @40°C	mm2/s	ASTM D7042	160
Kin. Viscosity @100°C	mm2/s	ASTM D7042	17.4
Viscosity Index		ASTM D2270	118
Viscosity CCS @-15°C, max	cP	ASTM D2270	9300
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	6.0
Sulphated Ash	%Wt	ASTM D874	1.1
Zinc content	ppm		2300
Phosphorus content	ppm		2000

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 converters.

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.

API: SG/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

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	10W-40
Density@15°C	kg/m3	ASTM D4052	868
Kin. Viscosity @40°C	mm2/s	ASTM D7042	89
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.6
Viscosity Index		ASTM D2270	155
Viscosity CCS @-25°C, max	cP	ASTM D2270	<7000
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.4
Zinc content	ppm		1600
Phosphorus content	ppm		1450



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 a 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.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m3	ASTM D4052	841
Kin. Viscosity @40°C	mm2/s	ASTM D7042	45.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	9.6
Viscosity Index		ASTM D2270	204
Viscosity CCS @-35°C, max	cP	ASTM D5293	5050
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	0.79

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.

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.

- High viscosity index.
- Added fuel economy

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-20
Density@15°C	kg/m3	ASTM D4052	844
Kin. Viscosity @40°C	mm2/s	ASTM D7042	46.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.9
Viscosity Index		ASTM D2270	178
Viscosity CCS @-35°C, max.	cP	ASTM D5293	4890
Flash Point COC	°C	ASTM D92	230
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	7.9
Sulphated Ash	%Wt	ASTM D874	0.80

MOTOR OIL MP 5W-40

Product Code 42470



MOTOR OIL MP 5W-40 is an high performance engine oil based on 100% synthetic technology for use especially in Mercedes-Benz and Porsche 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-40 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

Approved: Approved, MB-Approval 229.5
Meets: API SN, ACEA A3/B4, BMW Longlife-01 > until 2019, Porsche A40, GM-LL-A-25/B025, Renault RN 0700/0710, VW 502.00 / 505.00

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-40
Density@15°C	kg/m3	ASTM D4052	854
Kin. Viscosity @40°C	mm2/s	ASTM D7042	86
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	173
Viscosity CCS @-30°C, max	cP	ASTM D5293	6150
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	10.4
Sulphated Ash	%Wt	ASTM D874	1.26

MOTOR OIL SEMI-SYNTH 5W-30

Product Code 45210



MOTOR OIL SEMI-SYNTH 5W-30 is a 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.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m3	ASTM D4052	850
Kin. Viscosity @40°C	mm2/s	ASTM D7042	61.7
Kin. Viscosity @100°C	mm2/s	ASTM D7042	10.7
Viscosity Index		ASTM D2270	166
Viscosity CCS @-30°C, max	cP	ASTM D5293	4600
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	7.0
Sulphated Ash	%Wt	ASTM D874	1.26



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.

ACEA C3, VW 504 00 / 507 00

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	0W-30
Density@15°C	kg/m3	ASTM D4052	844
Kin. Viscosity @40°C	mm2/s	ASTM D7042	58.7
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.4
Viscosity Index		ASTM D2270	203
Viscosity CCS @-35°C, max	cP	ASTM D2270	5900
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48
Total Base Number	mgKOH/g	ASTM D2896	8.4
Sulphated Ash	%Wt	ASTM D874	0.7

MOTOR OIL BLE 5W-30

Product Code 45320



MOTOR OIL BLE 5W-30 is a high performance fuel saving MID SAPS engine oil for use in the latest generation gasoline and diesel engines of passenger cars and light vans with or without turbocharger. MOTOR OIL BLE 5W-30 is developed for use in engines which are equipped with or without an exhaust gas after treatment system.

MOTOR OIL BLE 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 en corrosion.
- Low temperature properties, to ensure a smooth cold start.
- Equipped for diesel engines with an exhaust after treatment system.
- Fuel saving properties.

ACEA C3, API SN/CF, MB 229.51, Dexos 2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	5W-30
Density@15°C	kg/m3	ASTM D4052	850
Kin. Viscosity @40°C	mm2/s	ASTM D7042	67.5
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.9
Viscosity Index		ASTM D2270	175
Viscosity CCS @-30°C, max	cP	ASTM D5293	4700
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	7.9
Sulphated Ash	%Wt	ASTM D874	≤0.8

MOTOR OIL SFD 20W-50

Product Code 45330



MOTOR OIL SFD 20W-50 is an engine oil which is recommended for older vehicles, with or without turbo-charger. It is suitable for use in gasoline-, diesel- and LPG fuelled engines of passenger cars and light commercial vehicles, where an API SF/CD specification is prescribed

MOTOR OIL SFD 20W-50 is formulated with a mineral base oil in combination with an 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.

API SF/CD

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	20W-50
Density@15°C	kg/m3	ASTM D4052	875
Kin. Viscosity @40°C	mm2/s	ASTM D7042	167
Kin. Viscosity @100°C	mm2/s	ASTM D7042	18.3
Viscosity Index		ASTM D2270	123
Viscosity CCS @-15°C, max	cP	ASTM D5293	9500
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
Total Base Number	mgKOH/g	ASTM D2896	5.0

PERFORMANCE RACING OIL SAE 70

Product Code 45990



PERFORMANCE RACING OIL SAE 70 is a motor oil specially developed for racing engines running on alcohol and nitro-methane in (drag)racing conditions.

PERFORMANCE RACING OIL SAE 70 is based on a unique blend of base oils in combination with an special additive package to ensure the following properties:

- Excellent thermal- and oxidation stability.
- Excellent handling of combustion by-products of alcohol and nitro-methane fuel (water vapour).
- Very good dispersant and detergent properties.
- Excellent cold temperature properties for a smooth cold start.
- Excellent protection against wear, foam.
- Suited for extreme and severe conditions.

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	70
Density@15°C	kg/m3	ASTM D4052	904
Kin. Viscosity @40°C	mm2/s	ASTM D7042	394
Kin. Viscosity @100°C	mm2/s	ASTM D7042	27.4
Viscosity Index		ASTM D2270	94
Flash Point COC	°C	ASTM D92	>220
Pour Point	°C	ASTM D7346	-21





MONO ENGINE OIL SA 50

Product Code 42840



MONO ENGINE OIL SA 50 is an engine oil developed to meet the requirements of a variety of older engines.

API SA

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	50
Density@15°C	kg/m3	ASTM D4052	895
Kin. Viscosity @40°C	mm2/s	ASTM D7042	264.3
Kin. Viscosity @100°C	mm2/s	ASTM D7042	21.2
Viscosity Index		ASTM D2270	97
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18

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 Particle 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/m3	ASTM D4052	858
Kin. Viscosity @40°C	mm2/s	ASTM D7042	68
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.8
Viscosity Index		ASTM D2270	170
Viscosity CCS @-30°C, max	cP	ASTM D5293	5600
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-42
Total Base Number	mgKOH/g	ASTM D2896	12.3
Sulphated Ash	%Wt	ASTM D874	1.0

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.

API CI-4, API SL, ACEA E7, MB 228.3/MB228.1, MAN M 3275, Volvo VDS-3, CAT ECF-1a

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J3000	15W-50
Density@15°C	kg/m3	ASTM D4052	884
Kin. Viscosity @40°C	mm2/s	ASTM D7042	126
Kin. Viscosity @100°C	mm2/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

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 5 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 excel-

- 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 5, GE Generation 4 Long Life

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density @15°C	kg/m3	ASTM D4052	898
Kin. Viscosity @40°C	mm2/s	ASTM D7042	154
Kin. Viscosity @100°C	mm2/s	ASTM D7042	15.5
Viscosity Index		ASTM D2270	102
Flash Point COC	°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





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.

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

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.

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

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m3	ASTM D4052	875
Kin. Viscosity @40°C	mm2/s	ASTM D7042	50
Kin. Viscosity @100°C	mm2/s	ASTM D7042	9.1
Viscosity Index		ASTM D2270	164
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-54
Total Base Number	mgKOH/g	ASTM D2896	1.6
Sulphated Ash	%Wt	ASTM D78	0.15

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.

API TC, JASO FB, ISO-L-EGC

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m3	ASTM D4052	878
Color	Visual		amber
Kin. Viscosity @40°C	mm2/s	ASTM D7042	69.6
Kin. Viscosity @100°C	mm2/s	ASTM D7042	9.3
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 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.

API SL, JASO MA-2

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	10W-50
Density@15°C	kg/m3	ASTM D4052	858
Kin. Viscosity @40°C	mm2/s	ASTM D7042	114
Kin. Viscosity @100°C	mm2/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 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.

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

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m3	ASTM D4052	872
Kin. Viscosity @40°C	mm2/s	ASTM D7042	68
Kin. Viscosity @100°C	mm2/s	ASTM D7042	9.7
Viscosity Index		ASTM D2270	122
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-36
Total Base Number	mgKOH/g	ASTM D2896	1.4
Sulphated Ash	%Wt	ASTM D78	0.14

MOTOR CYCLE OIL SYN 2T

Product Co 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.

MOTOR CYCLE OIL SYN 2T meets the following performance criteria:

API TC
ROTAX 253

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m3	ASTM D4052	875
Kin. Viscosity @40°C	mm2/s	ASTM D7042	50
Kin. Viscosity @100°C	mm2/s	ASTM D7042	9.1
Viscosity Index		ASTM D2270	164
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-54
Total Base Number	mgKOH/g	ASTM D2896	1.6
Sulphated Ash	%Wt	ASTM D78	0.15

JASO FD
ISO 6743-15

Husqvarna 372
Husqvarna 346

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

NMMA TC-W3®

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m3	ASTM D4052	874
Kin. Viscosity @40°C	mm2/s	ASTM D7042	43.2
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.8
Viscosity Index		ASTM D2270	116
Flash Point COC	°C	ASTM D92	>90
Pour Point	°C	ASTM D7346	-33
Total Base Number	mgKOH/g	ASTM D2896	8.7
Sulphated Ash	%Wt	ASTM D78	0.15



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.

API GL-4, MIL-L-2105

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m3	ASTM D4052	891
Kin. Viscosity @40°C	mm2/s	ASTM D7042	142
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.3
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	< 150000
Viscosity Index		ASTM D2270	98
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30

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.

API GL-4, MIL-L-2105

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-140
Density@15°C	kg/m3	ASTM D4052	904
Kin. Viscosity @40°C	mm2/s	ASTM D7042	437
Kin. Viscosity @100°C	mm2/s	ASTM D7042	29.8
Low-Temperature Brookfield Viscosity @ -12°	cP	ASTM D2983	< 150000
Viscosity Index		ASTM D2270	97
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15



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.

API GL-5, MIL-L-2105D, MAN 342 M1, MAN 342 M2, MB 235.0, Volvo 1273.10, ZF TE-ML 05A, 7A, 16B, 16C, 16D, 17B, 19B, 21A

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-90
Density@15°C	kg/m3	ASTM D4052	895
Kin. Viscosity @40°C	mm2/s	ASTM D7042	138
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.4
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	< 150000
Viscosity Index		ASTM D2270	103
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30

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.

API GL-5, MIL-L-2105D, MAN 342 M1/M2, MB 235.6, VOLVO 97310, VOLVO 97316, SAE J2360, Meritor 0-76-D, MACK GO-J, Scania STO 1.0, ZF TE-ML05A/07A/08/12M/16D/17B/19B/21A

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-90
Density@15°C	kg/m3	ASTM D4052	885
Kin. Viscosity @40°C	mm2/s	ASTM D7042	167
Kin. Viscosity @100°C	mm2/s	ASTM D7042	16.3
Low-Temperature Brookfield Viscosity @ -12°	cP	ASTM D2983	< 150000
Viscosity Index		ASTM D2270	102
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.

API GL-5, MIL-L-2105D

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	85W-140
Density@15°C	kg/m3	ASTM D4052	906
Kin. Viscosity @40°C	mm2/s	ASTM D7042	414
Kin. Viscosity @100°C	mm2/s	ASTM D7042	29.0.
Low-Temperature Brookfield Viscosity @ -12°	cP	ASTM D2983	100000
Viscosity Index		ASTM D2270	99
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.

API GL-5, MIL-L-2105D

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J306	80W-140
Density@15°C	kg/m3	ASTM D4052	894
Kin. Viscosity @40°C	mm2/s	ASTM D7042	224
Kin. Viscosity @100°C	mm2/s	ASTM D7042	26.7
Low-Temperature Brookfield Viscosity @ -26°	cP	ASTM D2983	< 150000
Viscosity Index		ASTM D2270	153
Flash Point	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-33



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.

FORD M2C33-F, Ford M2C33-G, Ford M2C9007-AA, Borg-Warner

Property	Unit	Test Method	Typical Value
Color		Visual	Red
Density @15°C	kg/m3	ASTM D4052	865
Kin. Viscosity @40°C	mm2/s	ASTM D7042	35
Kin. Viscosity @100°C	mm2/s	ASTM D7042	7.2
Viscosity Index		ASTM D2270	177
Flash Point COC	°C	ASTM D92	195
Pour Point	°C	ASTM D7346	-42

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.

MB 236.14 Ssang Yong

Property	Unit	Test Method	Typical Value
Color		Visual	RED
Density @15°C	kg/m3	ASTM D4052	849
Kin. Viscosity @40°C	mm2/s	ASTM D7042	27.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.7
Viscosity Index		ASTM D2270	160
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-48

ATF DX II

Product Code



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

ATF DX II is formulated on high quality re-refined mineral and virgin synthetic base oil 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 pour point.
- Excellent shifting at very low and high temperatures.
- Excellent protection against corrosion, foam and wear.

GM Dexron II-D, MAN 339 type V1, MAN 339 type Z1 MB 236.9, Voith H55.6335. xx, ZF TE-ML 03D/04D/14A/17

Property	Unit	Test Method	Typical Value
Color		Visual	Red
Density @15°C	kg/m3	ASTM D4052	855
Kin. Viscosity @40°C	mm2/s	ASTM D7042	35.9
Kin. Viscosity @100°C	mm2/s	ASTM D7042	7.3
Viscosity Index		ASTM D2270	175
Viscosity Brookfield @-40°, max	cP	ASTM D2983	50.000
Flash Point COC	°C	ASTM D92	172
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.

BMW DCTF-1, BMW 6-speed DCT, BMW EU 83 22 2 148 578, 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/m3	ASTM D4052	848
Kin. Viscosity @40°C	mm2/s	ASTM D7042	33.2
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.9
Viscosity Index		ASTM D2270	178
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45





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.

DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005 E-02, AGMA 9005-F16, David Brown S1.53.101 E, AIST 224 (former US Steel 224)

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	320
Density@15°C	kg/m3	ASTM D4052	899
Kin. Viscosity @40°C	mm2/s	ASTM D7042	323
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	96
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 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.

DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005 E-02, AGMA 9005-F16, David Brown S1.53.101 E, AIST 224 (former US Steel 224)

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	460
Density@15°C	kg/m3	ASTM D4052	903
Kin. Viscosity @40°C	mm2/s	ASTM D7042	467
Kin. Viscosity @100°C	mm2/s	ASTM D7042	31.1
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 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.

DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005 E-02, AGMA 9005-F16, David Brown S1.53.101 E, AIST 224 (former US Steel 224)

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	680
Density@15°C	kg/m3	ASTM D4052	903
Kin. Viscosity @40°C	mm2/s	ASTM D7042	670
Kin. Viscosity @100°C	mm2/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.

DIN 51517-3 CLP, ISO 12925-1 CKD, AGMA 9005 -E02, David Brown S1.53.101 AGMA 9005-F16, AIST 224 (former US Steel 224)

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	1000
Density@15°C	kg/m3	ASTM D4052	900
Kin. Viscosity @40°C	mm2/s	ASTM D7042	1012
Kin. Viscosity @100°C	mm2/s	ASTM D7042	54.2
Viscosity Index		ASTM D2270	102
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	<0.6



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.

ISO 19378 GA & 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			32
Density@15°C	kg/m3	ASTM D4052	874
Kin. Viscosity @40°C	mm2/s	ASTM D7042	330
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.5
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	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.

ISO 19378 GA & 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			68
Density@15°C	kg/m3	ASTM D4052	881
Kin. Viscosity @40°C	mm2/s	ASTM D7042	69.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.8
Viscosity Index		ASTM D2270	99
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	0.5

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.

ISO 19378 GA & 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			150
Density@15°C	kg/m3	ASTM D4052	893
Kin. Viscosity @40°C	mm2/s	ASTM D7042	152
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.5
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	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.

ISO 19378 GA & 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			220
Density@15°C	kg/m3	ASTM D4052	895
Kin. Viscosity @40°C	mm2/s	ASTM D7042	214
Kin. Viscosity @100°C	mm2/s	ASTM D7042	18.5
Viscosity Index		ASTM D2270	95
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	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.

ISO 19378 GA & 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/m3	ASTM D4052	904
Kin. Viscosity @40°C	mm2/s	ASTM D7042	488
Kin. Viscosity @100°C	mm2/s	ASTM D7042	31.3
Viscosity Index		ASTM D2270	94
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 D974	0.5



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.

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/m3	ASTM D4052	883
Kin. Viscosity @40°C	mm2/s	ASTM D7042	66
Kin. Viscosity @100°C	mm2/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 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.

DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade			220
Density@15°C	kg/m3	ASTM D4052	894
Kin. Viscosity @40°C	mm2/s	ASTM D7042	207
Kin. Viscosity @100°C	mm2/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 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.

DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade			100
Density@15°C	kg/m3	ASTM D4052	877
Kin. Viscosity @40°C	mm2/s	ASTM D7042	91.8
Kin. Viscosity @100°C	mm2/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 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.

DIN 51517-CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade			460
Density@15°C	kg/m3	ASTM D4052	900
Kin. Viscosity @40°C	mm2/s	ASTM D7042	460
Kin. Viscosity @100°C	mm2/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

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.

DIN 51517-2 CL, DIN 51524-1 HL, AFNOR NF E 48-603 HL

Property	Unit	Test Method	Typical Value
ISO VG Grade			150
Density@15°C	kg/m3	ASTM D4052	892
Kin. Viscosity @40°C	mm2/s	ASTM D7042	142
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.0
Viscosity Index		ASTM D2270	95
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15
Demulsibility @82°C	max	ASTM D1401	10

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.

FMVSS-116 DOT 4.0, SAE J1704, ISO 4925

Property	Unit	Test Method	Typical Value
Density@15°C	kg/m3	ASTM D4052	1,07
Kin. Viscosity @-40°C	mm2/s	FMVSS 116	<900
Kin. Viscosity @100°C	mm2/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	



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 ³	ASTM D4052	894
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	217
Kin. Viscosity @100°C	mm ² /s	ASTM D7042	19.2
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12



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

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

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.

Property	Unit	Test Method	Typical Value
ISO VG Class			68
Density @15°C	kg/m ³	ASTM D4052	883.7
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	71.2
Kin. Viscosity @100°C	mm ² /s	ASTM D7042	8.5
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

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 ³	ASTM D4052	894
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	329
Kin. Viscosity @100°C	mm ² /s	ASTM D7042	25.7
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-15

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

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

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.

Property	Unit	Test Method	Typical Value
ISO VG Class			100
Density @15°C	kg/m ³	ASTM D4052	884
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	94.8
Kin. Viscosity @100°C	mm ² /s	ASTM D7042	10.7
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
FZG A/8, 3/90°C		DIN 51354-2	12
Demulsibility @54°C, max	min	DIN 51999	30

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

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

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.

Property	Unit	Test Method	Typical Value
ISO VG Class			32
Density @15°C	kg/m ³	ASTM D4052	873
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	46.6
Kin. Viscosity @100°C	mm ² /s	ASTM D7042	6.7
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24
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.

- Exceptional wear and rust protection.
- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

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.

Property	Unit	Test Method	Typical Value
ISO VG Class			150
Density @15°C	kg/m ³	ASTM D4052	888
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	142
Kin. Viscosity @100°C	mm ² /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 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

- Exceptional wear and rust.
- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

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.

Property	Unit	Test Method	Typical Value
ISO VG Class			46
Density @15°C	kg/m ³	ASTM D4052	873
Kin. Viscosity @40°C	mm ² /s	ASTM D7042	43.3
Kin. Viscosity @100°C	mm ² /s	ASTM D7042	6.6
Viscosity Index		ASTM D2270	105
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-27
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

- Superior demulsibility reduces oil carryover and corrosion, maintains lubrication efficiency.
- Reduces sludge formation and improves life of coalesces.

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.

Property	Unit	Test Method	Typical Value
ISO VG Class			220
Density @15°C	kg/m ³	ASTM D4052	897
Kin. Viscosity @40°C	mm ² /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 Polyalpha-olefin (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.

DIN 51506 VDL; ISO 6743-3-DAB/DAJ

Property	Unit	Test Method	Typical Value
ISO VG Class			32
Density @15°C	kg/m3	ASTM D4052	833
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.2
Viscosity Index		ASTM D2270	145
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 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.

AFNOR NF E-48-603, ISO 11158 HV, DIN 51524/3 HVLP, ISO 6743-4 HV, Sauer Danfoss 520L0463, Eaton Vickers M-2950-S/I-386

Property	Unit	Test Method	Typical Value
ISO Grade			ISO 3448
Density@15°C	kg/m3	ASTM D4052	858
Kin. Viscosity @40°C	mm2/s	ASTM D7042	21.8
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.2
Viscosity Index		ASTM D2270	184
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C	Minutes	ASTM D1401	10

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 Polyalpha-olefin (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.

DIN 51506 VDL; ISO 6743-3-DAB/DAJ

Property	Unit	Test Method	Typical Value
ISO VG Class			46
Density @15°C	kg/m3	ASTM D4052	839
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.2
Viscosity Index		ASTM D2270	143
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.

AFNOR NF E-48-603, ISO 11158 HV, DIN 51524/3 HVLP, ISO 6743-4 HV, Sauer Danfoss 520L0463, Eaton Vickers M-2950-S/I-386

Property	Unit	Test Method	Typical Value
ISO Grade			ISO 3448
Density@15°C	kg/m3	ASTM D4052	868
Kin. Viscosity @40°C	mm2/s	ASTM D7042	33.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.7
Viscosity Index		ASTM D2270	165
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C	Minutes	ASTM D1401	10

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 Polyalpha-olefin (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.

DIN 51506 VDL; ISO 6743-3-DAB/DAJ

Property	Unit	Test Method	Typical Value
ISO VG Class			68
Density @15°C	kg/m3	ASTM D4052	839
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.0
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 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.

AFNOR NF E-48-603, ISO 11158 HV, DIN 51524/3 HVLP, Eaton Vickers M-2950-S/I-386, Sauer Danfoss 520L0463, ISO 6742-4 HV

Property	Unit	Test Method	Typical Value
ISO Grade			ISO 3448
Density@15°C	kg/m3	ASTM D4052	850
Kin. Viscosity @40°C	mm2/s	ASTM D7042	15.9
Kin. Viscosity @100°C	mm2/s	ASTM D7042	4.2
Viscosity Index		ASTM D2270	177
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C	Minutes	ASTM D1401	5





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.

AFNOR NF E-48-603, ISO 11158 HVISO 6743-4 HV, DIN 51524/3 HVLP, Sauer Danfoss 520L0463, Eaton Vickers M-2950-S/I-386

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m3	ASTM D4052	874
Kin. Viscosity @40°C	mm2/s	ASTM D7042	47.9
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.7
Viscosity Index		ASTM D2270	162
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C	Minutes	ASTM D1401	15



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.

DIN 51524/3 HVLP, GM LS-2, ISO 11158 HV, ASTM D6158-99, SAE MS1004, ISO 6743-4 HV, Eaton Vickers M-2950-S, Eaton Vickers I-286-S, Bosch Rexroth RE 90 220

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Density@15°C	kg/m3	ASTM D4052	874
Kin. Viscosity @40°C	mm2/s	ASTM D7042	49
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.7
Viscosity Index		ASTM D2270	157
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C		ASTM D1401	10
FZA A/8.3/90, Load Stage Fail, min		DIN 51354-2	11

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.

AFNOR NF E-48-603, ISO 11158 HVISO 6743-4 HV, DIN 51524/3 HVLP, Sauer Danfoss 520L0463, Eaton Vickers M-2950-S/I-386

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Density@15°C	kg/m3	ASTM D4052	877
Kin. Viscosity @40°C	mm2/s	ASTM D7042	68.2
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.6
Viscosity Index		ASTM D2270	165
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C	Minutes	ASTM D1401	15

HYDRAULIC OIL HV ZF 68

Product Code 43770



HYDRAULIC OIL HV ZF 68 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 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.

DIN 51524/3 HVLP, GM LS-2, ISO 11158 HV, ASTM D6158-99, SAE MS1024, ISO 6743-4 HV, Eaton Vickers M-2950-S, Eaton Vickers I-286-S, Bosch Rexroth RE 90 220

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Density@15°C	kg/m3	ASTM D4052	877
Kin. Viscosity @40°C	mm2/s	ASTM D7042	70
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.4
Viscosity Index		ASTM D2270	154
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C		ASTM D1401	20
FZA A/8.3/90, Load Stage Fail, min		DIN 51354-2	11

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.

AFNOR NF E-48-603, ISO 11158 HVISO 6743-4 HV, DIN 51524/3 HVLP, Sauer Danfoss 520L0463, Eaton Vickers M-2950-S/I-386

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	100
Density@15°C	kg/m3	ASTM D4052	884
Kin. Viscosity @40°C	mm2/s	ASTM D7042	104.9
Kin. Viscosity @100°C	mm2/s	ASTM D7042	15.7
Viscosity Index		ASTM D2270	159
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-39
Demulsibility @54°C	Minutes	ASTM D1401	15

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.

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

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	22
Density@15°C	kg/m3	ASTM D4052	859
Kin. Viscosity @40°C	mm2/s	ASTM D7042	22
Kin. Viscosity @100°C	mm2/s	ASTM D7042	4.5
Viscosity Index		ASTM D2270	112
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D97	-30
Demulsibility @54°C	min	ASTM D1401	5

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.

DIN 51524/3 HVLP, GM LS-2, ISO 11158 HV, ASTM D6158-99, SAE MS1024, ISO 6743-4 HV, Eaton Vickers M-2950-S, Eaton Vickers I-286-S, Bosch Rexroth RE 90 220

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Density@15°C	kg/m3	ASTM D4052	856
Kin. Viscosity @40°C	mm2/s	ASTM D7042	32
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.7
Viscosity Index		ASTM D2270	172
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-45
Demulsibility @54°C		ASTM D1401	10
FZA A/8.3/90, Load Stage Fail, min		DIN 51354-2	11

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.

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	22
Density@15°C	kg/m3	ASTM D4052	871
Kin. Viscosity @40°C	mm2/s	ASTM D7042	32
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.5
Viscosity Index		ASTM D2270	104
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D97	-33
Demulsibility @54°C	min	ASTM D1401	10



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.

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

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Colour		ASTM D1500	3.5
Density@15°C	kg/m3	ASTM D4052	858
Kin. Viscosity @40°C	mm2/s	ASTM D7042	32.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.7
Viscosity Index		ASTM D2270	118
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D7346	-36
Demulsibility @54°C	min	DIN 51381	10
FZA A/8.3/90, Load Stage Fail		DIN 51354-2	>10

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.

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

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Colour		ASTM D1500	3.5
Density@15°C	kg/m3	ASTM D4052	867
Kin. Viscosity @40°C	mm2/s	ASTM D7042	45.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	7.1
Viscosity Index		ASTM D2270	116
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D7346	-33
Demulsibility @54°C	min	ASTM D1401	15
FZA A/8.3/90, Load Stage Fail		DIN 51354-2	>10

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.

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

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	68
Colour		ASTM D1500	3.5
Density@15°C	kg/m3	ASTM D4052	876
Kin. Viscosity @40°C	mm2/s	ASTM D7042	64.6
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.6
Viscosity Index		ASTM D2270	104
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D97	-30
Demulsibility @54°C	min	DIN 51381	15
FZA A/8.3/90, Load Stage Fail		DIN 51354-2	>10

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.

AFNOR NF E 48-603, ISO 11158 HV, DIN 51524/3 HVLP, ISO 6743-4 HV

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	32
Colour		ASTM D1500	3.5
Density@15°C	kg/m3	ASTM D4052	856
Kin. Viscosity @40°C	mm2/s	ASTM D7042	33.9
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.9
Viscosity Index		ASTM D2270	168
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D7346	-42
Demulsibility @54°C	min	DIN 51381	10
FZA A/8.3/90, Load Stage Fail		DIN 51354-2	>10





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.

AFNOR NF E 48-603, ISO 11158 HV, DIN 51524/3 HVLV, ISO 6743-4 HV

Property	Unit	Test Method	Typical Value
ISO Grade		ISO 3448	46
Colour		ASTM D1500	3.5
Density@15°C	kg/m3	ASTM D4052	859
Kin. Viscosity @40°C	mm2/s	ASTM D7042	43.3
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.5
Viscosity Index		ASTM D2270	177
Flash Point COC	°C	ASTM D92	>180
Pour Point	°C	ASTM D7346	-42
Demulsibility @54°C	min	DIN 51381	15
FZA A/8.3/90, Load Stage Fail		DIN 51354-2	>10



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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m3	ASTM D4052	900
Kin. Viscosity @40°C	mm2/s	ASTM D7042	96
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.1
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	30

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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m3	ASTM D4052	890
Kin. Viscosity @40°C	mm2/s	ASTM D7042	97
Kin. Viscosity @100°C	mm2/s	ASTM D7042	12.3
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	12

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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m3	ASTM D4052	906
Kin. Viscosity @40°C	mm2/s	ASTM D7042	93
Kin. Viscosity @100°C	mm2/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

- Excellent thermo-oxidative stability retards oil degradation facilitating extended oil life.

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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m3	ASTM D4052	895
Kin. Viscosity @40°C	mm2/s	ASTM D7042	99
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.2
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	15

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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	899
Kin. Viscosity @40°C	mm2/s	ASTM D7042	146
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.4
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-18
Total Base Number	mgKOH/g	ASTM D2896	12

MARINE TPEO 320

Product Code 44590



MARINE TPEO 320 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 320 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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m3	ASTM D4052	891
Kin. Viscosity @40°C	mm2/s	ASTM D7042	141
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.1
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	20

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.

API CF

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	893
Kin. Viscosity @40°C	mm2/s	ASTM D7042	131
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.3
Viscosity Index		ASTM D2270	98
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	15



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.

API CF			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	898
Kin. Viscosity @40°C	mm2/s	ASTM D7042	141
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.1
Viscosity Index		ASTM D2270	96
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	20

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.

API CF			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	903
Kin. Viscosity @40°C	mm2/s	ASTM D7042	140
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.3
Viscosity Index		ASTM D2270	99
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-18
Total Base Number	mgKOH/g	ASTM D2896	30

MARINE TPEO 440

Product Code 42870



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.

API CF			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	908
Kin. Viscosity @40°C	mm2/s	ASTM D7042	137
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	102
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-18
Total Base Number	mgKOH/g	ASTM D2896	40
Sulphated Ash	%Wt	ASTM D874	5.1

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.

API CF			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	30
Density@15°C	kg/m3	ASTM D4052	891
Kin. Viscosity @40°C	mm2/s	ASTM D7042	104
Kin. Viscosity @100°C	mm2/s	ASTM D7042	11.2
Viscosity Index		ASTM D2270	93
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 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.

API CF			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	896
Kin. Viscosity @40°C	mm2/s	ASTM D7042	150
Kin. Viscosity @100°C	mm2/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 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.

API CG-4, ACEA E2, Volvo VDS, MTU Type 1, MAN M271, MB 228.1			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m3	ASTM D4052	882
Kin. Viscosity @40°C	mm2/s	ASTM D7042	108
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	135
Viscosity CCS @-20°C	cP	ASTM D5293	6700
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	8.5
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 in 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.

API CF-2/CF			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density@15°C	kg/m3	ASTM D4052	895
Kin. Viscosity @40°C	mm2/s	ASTM D7042	149
Kin. Viscosity @100°C	mm2/s	ASTM D7042	15.0
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>220
Pour Point	°C	ASTM D7346	-21
Total Base Number	mgKOH/g	ASTM D2896	7.5

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.

- 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			
Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	50
Density@15°C	kg/m3	ASTM D4052	932
Kin. Viscosity @40°C	mm2/s	ASTM D7042	227
Kin. Viscosity @100°C	mm2/s	ASTM D7042	19.8
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>230
Pour Point	°C	ASTM D7346	-12
Total Base Number	mgKOH/g	ASTM D2896	70



MARINE MGEO SP 15W-40

Product Code 44780



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.

MB 228.1 / 228.3, VOLVO VDS-3, API CI-4/ SL, ACEA E7, DDC 93K215, Global DHD-1 JASO DH-1, Deutz DQC-III, MTU Type 2, CAT ECF-1a, MAN M 3275, Cummins CES 2077/20078

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m3	ASTM D4052	884
Kin. Viscosity @40°C	mm2/s	ASTM D7042	100
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	140
Viscosity CCS @-20°C	cP	ASTM D2270	5740
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mg KOH/g	ASTM D2896	11.6
Sulphated Ash	%Wt	ASTM D874	1.5



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.

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/m3	ASTM D4052	893
Kin. Viscosity @40°C	mm2/s	ASTM D7042	143
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	97
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-18
Total Base Number	mgKOH/g	ASTM D2896	8.6
Sulphated Ash	%Wt	ASTM D874	0.9

TURBINE OIL 32

Product Code 44550



TURBINE OIL 32 is a supreme performance turbine oil specially designed for use in non-g 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.

ASTM D4304 Type 1, DIN 51515-1 (TD), DIN 51515-2 (TG), ALSTOM HTGD 90117 W (non EP), GEK 107395A/27070/32568J/46506E, AIST 125, Solar ES 9-224, Siemens TLV 9013 04 & 05 (non EP), Fives Cincinnati P-38

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	32
Density@15°C	kg/m3	ASTM D4052	850
Kin. Viscosity @40°C	mm2/s	ASTM D7042	33.9
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.9
Viscosity Index		ASTM D2270	122
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
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

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 Exceeds: GE Jenbacher for Fuel Class A (Natural gas) and B (Biogas), Type 2 and 3 all engines; Type 4, Version A, B; Type 6 up to version E, API CF, Waukesha Cogeneration, Dresser Rand Cat II

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	40
Density @15°C	kg/m3	ASTM D4052	877
Kin. Viscosity @40°C	mm2/s	ASTM D7042	126
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.1
Viscosity Index		ASTM D2270	110
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
Total Base Number	mgKOH/g	ASTM D2896	5.6
Sulphated Ash	%Wt	ASTM D874	0.49

TURBINE OIL 46

Product Code 44540



TURBINE OIL 46 is a supreme performance turbine oil specially designed for use in geared and non-g 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

- 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 1, DIN 51515-1 (TD), DIN 51515-2 (TG), ALSTOM HTGD 90117 W (non EP), GEK 107395A/27070/32568J/46506E, AIST 125, Solar ES 9-224, Siemens TLV 9013 04 & 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/m3	ASTM D4052	853
Kin. Viscosity @40°C	mm2/s	ASTM D7042	44.5
Kin. Viscosity @100°C	mm2/s	ASTM D7042	7.2
Viscosity Index		ASTM D2270	124
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-30
FZG A/B, 3 90°C		DIN 51354-2	>10
Demulsibility @54°C	Min.	DIN 51599	10
Total Acid Number	mgKOH/g	ASTM D664	0.1

GAS ENGINE OIL ZA 15W-40

Product Code 44560



GAS ENGINE OIL ZA 15W-40 is a premium quality heavy-duty ashless natural gas engine oil specially developed for lubrication of high performance, turbo-charged, 2-stroke gas engines requiring "ashless" oil.

GAS ENGINE OIL ZA 15W-40 is based on a high quality virgin mineral base oils in combination with a special selected additive package to obtain the following properties:

- Excellent thermal-, nitration-, and oxidation stability.
- Very effective in controlling carbon and ash deposits in combustion chamber and on exhaust and intake ports.
- Minimize ring scuffing.
- Controls carbon and ash deposits minimizing port plugging in two cycle engines and keeps spark plugs clean.

Ajax, Superior, Cooper, Clark, Dresser-Rand

Property	Unit	Test Method	Typical Value
SAE Grade		SAE J300	15W-40
Density@15°C	kg/m3	ASTM D4052	887
Kin. Viscosity @40°C	mm2/s	ASTM D7042	96
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.8
Viscosity Index		ASTM D2270	145
Flash Point COC	°C	ASTM D92	>240
Pour Point	°C	ASTM D7346	-24
Total Base Number	mgKOH/g	ASTM D2896	1.2
Sulphated Ash	%Wt	ASTM D874	<0.01

TURBINE OIL 68

Product Code 44530



TURBINE OIL 68 is a supreme performance turbine oil specially designed for use in geared and non-g 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.

ASTM D4304 Type 1, DIN 51515-1 (TD), DIN 51515-2 (TG), Alstom HTGD 90117 W (non EP), Fives Cincinnati P-54, GEK 27070,32568J,46506E,107395A, Siemens TLV 9013 04 & 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/m3	ASTM D4052	864
Kin. Viscosity @40°C	mm2/s	ASTM D7042	70
Kin. Viscosity @100°C	mm2/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 51354-2	10
Oil Stability Test (TOST)	Hrs	ASTM D943	>10.000

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-11655, Ford M2C195-A, Ford M2C204-A, GM P/N 88901975, GM P/N 89021184, GM 9985010 P/N 1052884, ATF+4, GM IID/II/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/m3	ASTM D4052	838
Kin. Viscosity @40°C	mm2/s	ASTM D7042	26.2
Kin. Viscosity @100°C	mm2/s	ASTM D7042	6.2
Viscosity Index		ASTM D2270	199
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-72



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/m3	ASTM D4052	864
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.8
Viscosity Index		ASTM D2270	32
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D92	-21
Total Base Number	mgKOH/g	ASTM D2896	2.4



FORM OIL 10

Product Code 43900



FORM OIL 10 is a concrete mould oil for the construction of houses, buildings, subways and bridges.

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/m3	ASTM D4052	845
Kin. Viscosity @40°C	mm2/s	ASTM D7042	10.5
Kin. Viscosity @100°C	mm2/s	ASTM D7042	2.8
Viscosity Index		ASTM D2270	104
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-24

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.

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.

- Non corrosive to aluminium, steel, copper, brass or bronze.
- Non-toxicity of this oil provides easy disposal of used oil.

Property	Unit	Typical Value
Density at 15°C	kg/m3	838
Kinematic Viscosity at 40°C	mm2/s	23.2
Kinematic Viscosity at 100°C	mm2/s	4.8
Viscosity index		131
Pour Point	°C	-18
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 68

Product Code 44700



FORM OIL 68 is a concrete mould oil for the construction of houses, buildings, subways and bridges.

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.

Appliance in a thin layer, by spraying, swabbing or brushing. Over spill must be removed.

Property	Unit	Test Method	Typical Value
ISO VG Grade			68
Density@15°C	kg/m3	ASTM D4052	883
Kin. Viscosity @40°C	mm2/s	ASTM D7042	66.1
Kin. Viscosity @100°C	mm2/s	ASTM D7042	8.6
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12

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:

Property	Unit	Test Method	Typical Value
Color			Colorless
Density@20°C	kg/m3		1090
UREA Content	%Wt		31.8 – 33.2
pH (10% HS-Solution), max			10
Refractive Index @20°C			1.3814 – 1.3843
Alkalinity as NH3, max	%Wt		0.2
Freezing point	°C		-11
Boiling Point	°C		100
Insoluble matter, max	mg/kg		20

FORM OIL 135

Product Code 44030



FORM OIL 135 is a concrete mould oil for the construction of houses, buildings, subways and bridges.

FORM OIL 135 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 135 is ready to use, and should be applied as thin as possible on the surface.

FORM OIL 135 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.

Appliance in a thin layer, by spraying, swabbing or brushing. Over spill must be removed.

Property	Unit	Test Method	Typical Value
ISO VG Grade			135
Density@15°C	kg/m3	ASTM D4052	892
Kin. Viscosity @40°C	mm2/s	ASTM D7042	122.5
Kin. Viscosity @100°C	mm2/s	ASTM D7042	13.1
Viscosity Index		ASTM D2270	100
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-9

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/m3	ASTM D4052	868
Kin. Viscosity @100°C	mm2/s	ASTM D7042	5.3
Viscosity Index		ASTM D2270	101
Flash Point COC	°C	ASTM D92	230
Fire Point	°C	ISO 2592	250
Pour Point	°C	ASTM D7346	-15
Initial Boiling Point	°C	ISO 3771	>355
Auto Ignition Temperature	°C	DIN 51794	>360
Total Acid Number	mgKOH/g	ASTM D974	< 0.05

FORM OIL 150

Product Code 43910



FORM OIL 150 is a concrete mould oil for the construction of houses, buildings, subways and bridges.

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.

Appliance in a thin layer, by spraying, swabbing or brushing. Over spill must be removed.

Property	Unit	Test Method	Typical Value
ISO VG Grade			150
Density@15°C	kg/m3	ASTM D4052	893
Kin. Viscosity @40°C	mm2/s	ASTM D7042	142.5
Kin. Viscosity @100°C	mm2/s	ASTM D7042	14.2
Viscosity Index		ASTM D2270	97
Flash Point COC	°C	ASTM D92	>201
Pour Point	°C	ASTM D7346	-12



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.

DBL 6713 HLPD

Property	Unit	Test Method	Typical Value
ISO VG Grade		ISO 3448	100
Density@15°C	kg/m3	ASTM D4052	888
Kin. Viscosity @40°C	mm2/s	ASTM D7042	94.8
Kin. Viscosity @100°C	mm2/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

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 an 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



DISPENSER PUMP

Product Code H1022





POLO SHIRT

Product Code MERCHA 77011 / 77012 / 77013

This high quality polo shirt with embroidered logo is available in L / XL / XXL
Made of 100% cotton



RACE CAP

Product Code MERCHA 77002

This a high quality Racing Cap fits every number One.



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)



MONEY-DRUM

Product Code MERCHA 77001

Save money with this 77 lubricants money-drum.



PRODUCT DISPLAY

Product Code MERCHA 77005

This high quality polo shirt with embroidered logo is available in L / XL / XXL
Made of 100% cotton



OVERALL

Product Code



DRUM SLEEVE

Product Code



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.

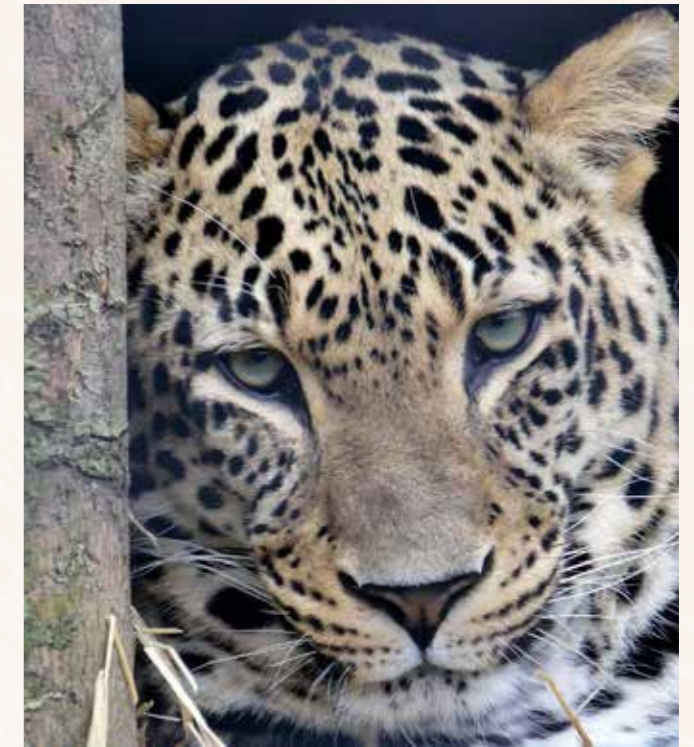


Stichting Leeuw has established partnerships with big rescue organisations where the sheltered animals will go as soon as they are strong enough to live in their natural surroundings.

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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JANUARY 2020

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