

Products & services

An overview of the most common lubricants and services
2008



Photo: Dag Myrstrand / Statoilhydro



Friction Fighters™



changing your day



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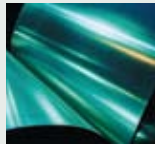


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StatoilHydro is an international oil and gas company established October 1 2007 through a fusion of Statoil and Hydro's oil and gas activities. StatoilHydro puts great focus on oil extraction in the North Sea and other parts of the world. With operations in 40 countries and about 31,000 employees, we can offer a complete product range, which covers the sale of petrol, diesel, fuel oil, aviation fuel, marine fuel, lubricants, technical lubrication expertise, chemical products, propane and bioenergy.

STATOIL LUBRICANTS

Statoil Lubricants is a part of the Statoil Group that specialises in lubricants. Our knowledge and experience of lubricants dates back to as early as 1896. The product range covers around 650 different lubricants that are sold in many different packages, 10% which are classified as Environmental Adapted Lubricants (EAL's). Statoil Lubricants is also a member of the technical association of the European lubricants industry – ATIEL.

Friction Fighters™

Our mission is to offer our customers both lubricants and technical lubrication expertise. Quite simply, we are a specialist company in the field of fighting friction, to the benefit of man, machine and the environment.

The right oil for the job

Is our signature

Our products are a result of the combined research and development work that takes place in our own laboratories as well as through collaboration with global research and development units in this specialist field. We are also often engaged directly by machinery and vehicle manufacturers or industry to help them develop lubricants and fluids that will meet entirely new requirements.



Statoil sells and markets its lubricants with the emphasis on Europe. Lubricants for the Scandinavian market are produced in our two factories: Nynäshamn in Sweden and Fagerstrand in Norway. We also have production operations in Lithuania and Poland, supplying the Eastern European market.

Quality and the environment

Our aim is to provide products and services with the best environmental properties on the market. Many of our very best products are now both biodegradable and based on renewable raw materials.

As part of our environmental and quality work, we have chosen to certify the operation in accordance with ISO 14001 and ISO 9001. These certifications mean for example that we have undertaken to continually improve our products, services and processes from a quality and environmental perspective.

Nynäshamn — mixing plant for lubricants and main store for Sweden.





Container, 1000 l

TEN RULES FOR THE STORAGE AND USE OF LUBRICANTS

1. Barrels and other packages should always be stored under shelter.
2. If barrels have to be stored outdoors, they must always be raised up so that they are clear of the ground.
3. Ensure that opened packages are properly closed after use.
4. Avoid contamination of the oil by cleaning the package before you open it.
5. Clean the filling points carefully before lubrication. This also applies to grease nipples.
6. Always use a clean can when topping up with oil. Use a funnel to prevent spillage.
7. Check the oil level regularly. Top up as required to the highest level. Never add too much oil.
8. Check and clean the oil and air filter frequently.
9. Use the correct lubricating equipment and keep it clean. Do not get oil on your skin.
10. Oil spillage increases the risk of accidents. Always wipe up spilled oil as soon as possible.



Our products are supplied in several different package sizes, from bulk deliveries in tanker lorries down to packages of just 2 dl. Containers holding 1,000 litres, barrels holding 208 litres and 10 litre cans are primarily used within industry. A large number of products are also available in small packages, such as 1 litre and 4 litres. All plastic packages are made of High Density Polyethylene (HDPE), a type of plastic that does not emit any harmful substances, e.g. dioxins, when incinerated.

AUTOMOTIVE LUBRICANTS

CHOICE OF ENGINE OIL GRADE

The car's owners manual contains information about what type of engine oil should be used. The type is specified according to the following systems:

Viscosity SAE (e.g. SAE 5W-40) designates how thick the oil is or its viscosity class. The higher the SAE rating an oil has, the higher its viscosity is at 100 °C. Viscosity at 100 °C is a measure of the oil's carrying capacity or ability to protect the engine during operation, while the viscosity at low temperatures (W-number, W = Winter) designates the oil's flow properties at low temperatures.

SAE 5W-40 is a multi-viscosity oil, which means that it delivers good starting characteristics at low temperatures, at the same time as maintaining the lubricating film at high engine temperatures.

(See the table of SAE engine oils on page 69.)

Grade

API (American Petroleum Institute) is a US classification system that indicates the quality level of an oil. The system is divided into two branches: one for petrol engines, which is designated with S (SA to SM), and one for diesel engines, which is designated with C (CA to CI-4). The second letter indicates the grade level. The further into the alphabet this letter is, the higher the requirements the oil satisfies.

ACEA (the European car manufacturing organisation). European classification system, which also indicates the engine oil's grade level. This system is divided into three branches — one for petrol/light diesel engines with the designation A/B (A1/B1, A3/B3, A3/B4, A5/B5). One new for engines with after treatment devices C (C1, C2, C3), and one for heavier diesel engines with the designation E (E2, E4, E6, E7).

ACEA A1/B1 and A5/B5 also cover requirements for fuel-saving properties. This means that the ACEA system does not consistently designate higher quality with higher figures.

In addition to API and ACEA, the various car manufacturers also have their own, special requirements for the approval of engine oils (e.g. VW, MB). These approvals are displayed on the label, along with classification in accordance with API and ACEA.

Change intervals for engine oils

How frequently the oil should be changed depends on driving patterns.





It is important to be aware that the oil change intervals given by the car manufacturers are only guide values under favourable driving conditions. Unfavourable driving conditions can include:

- driving distances shorter than 10 km
- temperatures below 5 °C
- excessive driving in traffic jams and idling
- high engine temperatures, e.g. when driving with a caravan or other trailer.

In Scandinavia, people often drive short distances in cold, damp weather conditions. These are operating conditions that continually impair the oil's lubricating and protective properties. A good rule is therefore to change the oil at least twice a year — spring and autumn.

CHOISE OF OIL GRADE IN THE TRANSMISSION

The car's owners manual also contains information about what type of transmission oil should be used. It is very important for these instructions to be followed, regardless of whether they relate to SAE, API or 'special oils' recommended by the car manufacturer.

Viscosity

The SAE system for transmission oils is structured in the same way as the system for engine oils, but the viscosity classes have higher numerical values (70W, 75W, 80W, 85W, 80, 85, 90, 110, 140, 190 and 250). This means, for example, that a transmission oil SAE 75W corresponds to an engine oil SAE 10W.

(See the table of SAE transmission oils on page 69.)

Grade

API: the classification system indicates the grade of the transmission oil in the order GL-1, GL-4 and GL-5. Here, rising numbers do not designate rising quality. The prefix letters GL (Gear Lubricant) indicate that it is a transmission oil, while the number indicates the amount of EP (Extreme Pressure) additives and the area of application.

API GL-1 is an oil without EP additives. API GL-4 contains mild EP additives and is used to a large extent in manual transmissions. API GL-5 contains powerful EP additives and is normally used in hypoid gears and differentials.

AUTOMOTIVE LUBRICANTS

Engine oil: Passenger cars and light trucks							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40 °C	100 °C				
LazerWay 5W-40	5W-40	82	14,1	173	-42	230	11
Fully synthetic engine oil for all types of petrol engines and small diesel engines with or without turbo. The oil ensures easy starting at low temperatures, as well as retaining its lubricating properties during hard driving at high engine temperatures. The oil contributes to improved fuel economy. ACEA A3/B3, A3/B4, API SL/CF, VW 505.00/502.00 MB-Approval 229.1, 229.3, BMW Longlife Oil. Porsche, Opel GM-LL-B-025							
LazerWay 5W-50	5W-50	109	17,8	180	-45	220	10,3
Fully synthetic motor oil for both diesel and gasoline engines with or without turbo. The oil is build to protect the engine in a big range of ambient temperatures with an excellent lubricating performance. ACEA A3/B3, API SL/CF							
LazerWay C 5W-30	5W-30	58	10	163	-42	220	7,3
LazerWay C 5W-30 is a fully synthetic motor oil developed to meet and exceed the toughest demands for gasoline and diesel engines according to ACEA C2 and the new "Mid SAPS" regulations. LazerWay C 5W-30 has properties that make it particularly well suited to extreme cold and when good fuel economy is desired. ACEA C2/A5/B5/B4, API SM/CF M111FE>2,5% Fuel saving							
LazerWay C 5W-40	5W-40	82	14	170	-42	220	7,6
LazerWay C is the ultimate generation Mid SAPS Euro 4 engine oils. Has also latest BMW LL-04 and MB 229.31 approvals. Increased engine cleanliness and improved fuel economy as well as high performance endurance is some of the advantages of this latest generation of oils. API SM/CF, ACEA C3/A3/B3, A3/B4, MB-Approval 229.31, BMW LL-04, VW 502.00/505.00/505.01							
LazerWay C1 5W-30	5W-30	54	10	175	-42	220	
Fully synthetic motor oil according to ACEA C1/A5/B5 and JASO DL-1 for gasoline and diesel engines with Low SAPS demand.							
LazerWay F 5W-30	5W-30	56	10,2	174	-42	220	9,1
Fully synthetic motor oil especially developed for FORD passenger cars and light trucks with or without turbo. The oil secures a safety start with good lubrication also at low temperatures as well as high temperatures. The oil contributes to good fuel economy. Ford WSS-M2C 912A1//M2C 913 A/B//917							

Engine oil: Private cars and light goods vehicles							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40 °C	100 °C				
LazerWay V 0W-30	0W-30	54	9,8	169	-57	220	11,8
ACEA A5/B5, API SJ/CF Especially developed for Volvo.							
LazerWay G 5W-30	5W-30	70	11,8	165	-42	240	10,5
Fully synthetic motor oil especially developed for Opel and SAAB passenger cars and light trucks with or without turbo. The oil secures a safety start with good lubrication also at low temperatures as well as at high temperatures. The oil contributes to good fuel economy. ACEA A3/B3, A3/B4, API SL/CF, GM-LL-A-025, GM-LL-B-025							
LazerWay LL 5W-30 507/504	5W-30	73	11,9	160	-54	210	-
LazerWay LL 5W-30 (507.00/504.00) is the latest development in engine oils for Long Life for VW and Audi. These new norm replaces older specification like 505.01, 503.00/01, 506.00/01 and meet all other basic VW specifications like 505.00 and 502.00 VW 507.00/504.00, ACEA C3, A3/B3, A3/B4							
LazerWay TDI 5W-40	5W-40	85,7	14,4	175	-45	220	10
Fully synthetic diesel motor oil for Passenger cars and light trucks with or without turbo. The oil secures a safety start with good lubrication also at low temperatures as well as high temperatures. The oil contributes to good fuel economy. ACEA B3/B4, API CF, MB-Approval 229.3 VW 500.00, Opel GM LL-B-025							
SuperWay 10W-40	10W-40	91	13,7	152	-42	220	9
Semi-synthetic, high-performance oil for all petrol and diesel cars and light goods vehicles with or without turbo. Recommended when stringent demands are placed on the engine oil. ACEA A3/B3, API SL/CF, VW 505.00/501.01, MB-Approval 229.1							
SuperWay TDI 10W-40	10W-40	94	14,1	156	-36	220	11,5
Semi-synthetic, high-performance oil, primarily for diesel engines in modern private cars, although also for light turbo diesel engines. The oil has low evaporation, which reduces oil consumption. The oil also delivers low friction, which reduced fuel consumption. ACEA A4/B3, A3/B4, E3, API CF/SJ, VW 505.00/500.00, MB-Approval 229.1/228.1							

AUTOMOTIVE LUBRICANTS

Engine oil: Private cars and light goods vehicles							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
ClassicWay 10W-40	10W-40	91	13,9	150	-41	220	9
ClassicWay 15W-40	15W-40	100	13,5	135	-39	230	9,1
ClassicWay 20W-50	20W-50	157	17,7	124	-30	250	9,1
<p>Mineral oil offering good performance for newer and older petrol and diesel engines with or without turbo. 20W-50 is not recommended during the winter months</p> <p>10W-40, 15W-40: ACEA A3/B3, API SL/CF, VW 505.00/501.01, MB-Approval 229.1</p> <p>20W-50: ACEA A2/B2, API SJ/CF, VW 505.00/501.01, MB-Approval 229.1</p>							
ClassicWay Low Smoke 10W-40	10W-40	86	13,5	159	-36	220	9
<p>High performance motor oil that reduces smoke as well as mechanical noise from the engine.</p> <p>API SJ/CF</p>							
Engine oil: Heavy vehicles							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
DieselWay 10W	10W	41	6,6	114	-33	230	9,5
DieselWay 30	30	98	10,5	105	-33	225	10
DieselWay 40	40	125	13,9	102	-24	240	10
<p>Mineral oil-based diesel engine oil that is also suitable for petrol engines, hydraulic systems, compressors, converters, etc., where a single grade engine oil is prescribed. SAE 30 and 40 are recommended for stationary engines and marine engines for e.g. fishing boats and coastal shipping.</p> <p>10W: API CF/SG, Allison C-4</p> <p>30 and 40: API CF/SG, CI-4, MB-Approval 228.0, MAN 270, MTU-2, Allison C-4</p>							
PowerWay 10W-30 (part synt.)	10W-30	85	12,1	136	-36	220	10,9
PowerWay 15W-40	15W-40	108	14,4	137	-33	230	9,9
PowerWay 20W-50	20W-50	147	17,1	127	-27	230	9,8
<p>Mineral oil-based engine oil for diesel engines with or without turbo. Recommended for vehicles in heavy traffic, processing machines, forestry and agricultural machines, but can also be used in petrol engines. This oil is excellent if you have a mixture of vehicles.</p> <p>10W-30: API CH-4/SG, Volvo VDS-2, MB-Approval 228.1. Performance level: Allison C-4, VW 505/501.1, RVI RD/RD-2</p> <p>15W-40: ACEA A3/E2/B3, API SJ/CH-4, Volvo VDS-2, MB-Approval 228.1, MAN 271, CAT ECF-1, Performance level: Allison C-4, RVI RD/RD-2</p> <p>20W-50: API CH-4/SJ, ACEA E2/B3/A3, Performance level: MB-Approval 228.1 MAN 271, Volvo VDS-2, ZF TE-ML 03/07, Allison C-4</p>							

Engine oil: Heavy vehicles							
	SAE	Viscosity mm ² /s		Viskositets index VI	Minimum flow temp. °C	Flam-punkt °C	TBN mg KOH/g
		40°C	100°C				
MaxWay 10W-30	10W-30	78	12,1	152	-36	220	12,0
See text MaxWay 15W/40. 10W-30: ACEA E7/E5/B3, API CI-4, MB-Approval 228.3, MAN 3275, Volvo VDS-2, Performance level: Allison C-4, RVI RD/RD-2							
MaxWay 10W-40	10W-40	94	14,2	156	-36	220	11,5
MaxWay 10W-40 is an SHPD grade (Super High Performance Diesel) semi-synthetic diesel engine oil. Recommended for heavily loaded diesel engines, with or without turbo. The product is also recommended as a standard oil when the machinery comprises different diesel engines which require various oil specifications. ACEA E7/E5/E3/B3/A3, API CI-4/SL, JASO DH-1, DHD-1, Scania LDF/LDF-2, MB-Approval 228.3, MAN 3275, Volvo VDS-3, MTU-2 Performance level: Allison C-4, RVI RXD, RD/RD-2							
MaxWay 15W-40	15W-40	107	14,9	144	-33	230	13,0
SHPD grade (Super High Performance Diesel) diesel engine oil. The oil is used for diesel engines with or without turbo, which are heavily loaded and/or operate with extended change intervals. MaxWay satisfies and exceeds engine manufacturers' stringent demands for engine oil. It provides good lubrication in all operating conditions, as well as low oil consumption. The oil is also used as a standard oil when you have many different diesel engines with different oil specifications. SAE 15W-40 is mineral oil-based, and SAE 10W-30 is semi-synthetic, which gives lower fuel consumption and easier starting at low temperatures. 15W-40: ACEA E7/E3, B3/A3, API CI-4/SJ, Volvo VDS-3, MB-Approval 228.3, MAN 3275, MTU-2, Performance Level: Allison C-4, RVI RXD, RD/RD-2							
TruckWay 5W-30	5W-30	74	12	159	-63	228	15,4
TruckWay E6 10W-40	10W-40	93	13,8	150	-36	240	9,5
Fully synthetic diesel engine oils of the highest quality for demanding operating conditions within a wide temperature range. Ensure easy starting in cold conditions and help save fuel. Satisfy and exceed engine manufacturers' most stringent requirements. Recommended for Euro 4 engines. 5W-30: API CF, Scania LDF, Volvo VDS-3, ACEA E4/E7 MTU-3.0, MAN M 3277, MB-Approval 228.5, SFD 8127, Performance level: Allison C-4, VW 505.00 10W-40: ACEA E6/E7, DAF HP-2, RVI RXD, MTU-3.1, MB-Approval 228.51, MAN 3477, Volvo VDS-3							
CityWay ENR 15W-40	15W-40	99	13,8	136	-39	220	10
A very specific HD diesel motoroil which reduce smoke and noise as well as sludge and increases oil change intervals. Level of performance: ACEA E5/B3/A3, API CH-4/SS							

AUTOMOTIVE LUBRICANTS

Engine oil: Gas engines							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40 °C	100 °C				
PowerWay GE 40	40	131	13,5	98	-24	220	5,2
PowerWay GE 15W-40	15W-40	101,3	14,0	140	-30	>200	7
<p>Gas engine oil with low ash content. GE 40 is specially developed for stationary gas engines that are powered by biogas or landfill gas as well as clean natural gas. GE 15W-40 is developed primarily for e.g. gas-powered buses and lorries.</p> <p>40: Stationary gas engine 15W-40: API CF/CF-2/CF-4, Volvo /MB/Man CNG Engines</p>							
Engine oil: Racing							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40 °C	100 °C				
RacingWay HP 25W-50	25W-50	173	19,6	130	-27	240	10,6
RacingWay HP 15W-40	15W-40	100	14	143	-42	240	10,6
<p>Synthetic engine oil that is extremely viscosity stable. Recommended for engines used in competition with or without turbo or compressor feed. For example rallying, track racing, drag racing (including with alcohol operation), boat racing.</p> <p>Not for standard use in the winter.</p> <p>25W/50: API SG/CD, Porsche 15W/40: API SH/SG/CD, Porsche Special Oil</p>							
RacingWay MC 15W-40	15W-40	100	14,2	144	-42	230	11,8
RacingWay MC 10W-40	10W-40	92	15	170	-33	220	7,1
<p>Synthetic motorcycle oil that is extremely viscosity stable. The oil delivers good gear functions and is friction-adapted for motorcycle clutches to avoid jerking, catching and sticking of the clutch facings.</p> <p>15W/40: API SG, SH/JASO MA 10W/40: API SM, JASO MA2 T903:2006 4T</p>							
RacingWay 2T	-	64	10,4	151	-54	82	-
<p>Synthetic 2-stroke oil developed for heavily loaded 2-stroke engines. Causes little excess smoke. Satisfies the latest 2-stroke oil specifications in accordance with the Japanese JASO requirements. Recommended for 2-stroke engines that run very hot and/or are driven in competition, e.g. motocross, enduro, etc. Works excellently in snowmobiles, even in extreme cold.</p> <p>ISO EGD, API TC, JASO FC, Rotax 253 HVA 242 Snowmobile test. ISO EGD</p>							

Engine oil: 2-stroke							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
2-TWay Low Smoke		60	8,9	125	-39	82	3,1
<p>Provides excellent protection against wear. Meets the strictest Low Smoke demands, and reduces deposits. It is highly pumpable and works exceptionally well at low temperatures. The oil is blue.</p> <p>Performance level: ISO EGD, API TC, JASO FC, Rotax 253 Snowmobile test, HVA 346/232/372</p>							
2-Stroke Engine Oil		35	6,4	-	-42	82	3,1
<p>The oil composition makes it possible to use with varying fuel qualities and fuels with high sulphur. Provides excellent protection against wear. It is a low smoke product, which also reduces deposits. It is highly pumpable and provides excellent properties at low temperatures.</p> <p>Performance level: JASO FB, ISO EGB, Rotax 253 Snowmobile test.</p>							
2-TWay Revolution Racing	-	16,7	4,4		-62	95	
<p>2-TWay Revolution Racing offers exceptional protection against wear. The oil has excellent pumpability properties and ensures good lubrication at high engine temperatures and varying rpm's. 2-TWay Revolution Racing produces little smoke, and keeps the engine free of soot deposits and combustion residue.</p> <p>JASO FD, ISO EGD, Rotax 253</p>							
2-TWay Revolution Snowmobile	-	16,6	4,3	136	-62		2,4
<p>2-TWay Revolution Snowmobile is a fully synthetic 2-stroke engine oil especially developed for snowmobiles and other 2-stroke engines operating in extreme cold conditions. This oil is excellent for pre-mixing with fuel or for use in separate oil reservoirs.</p> <p>Performance Level: JASO FC, ISO EGD, Rotax 253 Snowmobile test.</p>							
2-TWay Snowmobile		38,4	7,0	142	-41	81	6,2
<p>Semi-synthetic 2-stroke oil for snowmobiles and other 2-stroke engines that are heavily loaded and/or have to work in extreme cold. Also recommended for 2-stroke engines cleaned with catalytic converters. The oil can be mixed in the petrol or used for separate lubrication.</p> <p>API TC, Rotax 253 Snowmobile test. HVA 232/242/346 ISO EGD, JASO FC</p>							
AquaWay		34,8	6,2	131	-36	78	8,8
<p>Mineral-based, ashless, self-mixing 2-stroke oil for all types of outboard motor. Withstands heavy loads and produces no soot sediment or deposits in the engine. Can also be used for separate oil lubrication. The oil is not recommended for land-based 2-stroke vehicles.</p> <p>NMMA TC-W3, NMMA (BIA) TC-W</p>							

AUTOMOTIVE LUBRICANTS

Engine oil: 2-stroke							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
AquaWay Bio	-	47	8,4	145	-39	250	-
<p>Synthetic 2-stroke oil that is easily biodegradable. Has less of an impact on the environment than a conventional 2-stroke oil. AquaWay Bio delivers effective lubrication and minimal oil smoke. For mixing in petrol or separate oil lubrication. Not recommended for land-based 2-stroke vehicles.</p> <p>NMMA TC-W3, HVA 266 API TC, TC+</p>							
4-TWay Outboard 10W-30	10W-30	90,4	13,1	144	-36	220	-
<p>Semi Synthetic motor oil developed especially for 4-stroke outboard engines. It has very good corrosion performance as well as high temperature performance. It has good compability with seals.</p> <p>API SL, NMMA FC-W</p>							
Engine oil: Universal							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
MultiWay 10W-30	10W-30	69	10,2	132	-39	220	-
<p>Universal oil for agriculture and construction machinery, with or without turbo. The oil can be used all year round for engines, transmissions with wet brakes and hydraulic systems.</p> <p>API CE/SF, CCMC D4, MIL-L-2104D, MB 227.1, Ford M2C-159B, Massey Ferguson MF 1144, 1139, JD J 27, Case 1207, Allison C-4, Caterpillar T O-2, ZF TE-ML 06, API GL-4, ISO VG 68, JD J20C.</p>							
Transmission oil: Manual transmissions							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
GearWay G5 80W-90	80W-90	157	16,5	107	-30	190	-
GearWay G5 80W-140	80W-140	220	26,0	151	-30	190	-
GearWay G5 85W-140	85W-140	385	28,4	99	-18	190	-
<p>Mineral oil-based transmission oil with broad range of applications in transmissions and hypoid gears where API GL-5 is recommended.</p> <p>80W-90: API GL-5, MIL-L-2105 D/E, Scania STO 1:0, MB-Approval 235.6, MAN 342, ZF TE-ML 05/07/12/16/17</p> <p>80W-140: API GL-5, MIL-L-2105 D/E, Scania STO 1:0 ZF TE-ML 05/07/12/16/17</p> <p>85W-140: API GL-5, MIL-L-2105 D/E, Scania STO 1:0</p>							

Transmission oil: Manual transmissions							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
GearWay G1 80W-90	80W-90	134	14,4	106	-30	240	-
Mineral oil-based transmission oil for manual transmissions where API GL-1 is recommended. API GL-1, Volvo 97305.							
GearWay G4 80W	80W	84,3	10,1	100	-30	190	-
Mineral oil-based transmission oil for manual transmissions and final drives where API GL-4 is recommended. The oil contains mild EP additives, which mean that it can cope with high loads. API GL-4, ZF TE-ML 02/17, MAN 341, MB-Approval 235.5							
GearWay LS5 80W-90	80W-90	158	15,9	104	-30	204	-
Mineral oil-based transmission oil with LS additive (limited slip) to avoid noise and wear on wheel axles with differential brakes in all types of vehicles, cars, processing machines, etc. Can also be used in hypoid gears without differential brakes where API GL-5 is recommended. API GL-5, MIL-L-2105 D.							
GearWay PS 45 75W-90	75W-90	90,6	14,4	165	-51	210	-
Semi-synthetic transmission oil for the entire drive line for private cars, light goods vehicles, differentials, etc., where API GL-4 or GL-5 is recommended. The oil has extremely good cold properties and delivers smooth gear changing at low temperatures. API GL-4, GL-5, ZF TE-ML 08. MAN 3343							
GearWay PS 45 75W-80	75W-80	59,6	9	127	-48	192	-
Semi Synthetic transmission fluid for long durability and good protection against wear and surface fatigue. The product has compatibility with seals and is a problem solver when gear shifts are to hard. API GL-4, API GL-5 Level: MIL 2105 D/E							
GearWay S5 75W-90	75W-90	119	15,6	139	-54	205	-
GearWay S 75W-90 is a fully synthetic transmission and gear fluid for heavily loaded axles and gears. Excellent performance both in cold and warm climate. API GL-5 and perf. spec MB-Approval 235.11							

AUTOMOTIVE LUBRICANTS

Transmission oil: Manual transmissions							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
GearWay S6 85W-250	85W-250	380	42,4	166	-42	210	-
<p>Fully synthetic transmission oil for extremely heavily loaded transmissions. The additives are dosed to an optimal GL-6 level.</p> <p>Satisfies API GL-6 level.</p>							
GearWay LS WB	-	199	17	100	-21	200	-
<p>Transmission oil for heavy processing machines with differential brakes. The oil also works excellently for wheel axles in oil baths, known as wet brakes, and for combination differential brakes/wet brakes.</p> <p>API GL-5, MIL-L-2105 D</p>							
Syntol 75W-90	75W-90	104	14,9	149	-54	210	-
Syntol 75W-140	75W-140	190	25	165	-51	210	-
<p>Fully synthetic transmission oil for axles and transmissions that work under heavy and demanding operating conditions where API GL-5 is prescribed. The oil can also be used as a problem-solver where regular transmission oils do not work satisfactorily.</p> <p>API GL-5, MIL-L-2105 D, MAN 342 SL, Scania STO 1:0</p>							
Syntol LS 75W-90	75W-90	104	15	150	-54	210	-
<p>Fully synthetic transmission oil for axles and transmissions where API GL-5 is prescribed. Has extremely good low temperature properties. LS 75W-90 is intended for axles with differential brakes.</p> <p>API GL-5, MIL-L-2105 D. HEMEK</p>							
Gerol 75W-90	75W-90	93	17	200	-51	220	-
<p>Fully synthetic transmission oil that has been developed for mechanical transmissions in heavy goods vehicles and buses and/or where the manufacturer recommends a transmission oil that satisfies API GL-1 or GL-4. The oil delivers easy gear changes at low temperatures and excellent lubrication during hard driving.</p> <p>API GL-1/GL-4, Volvo 97305.</p>							
GearWay Outboard	90	214	18,9	96	-21	214	-
<p>Mineral oil-based transmission oil for outboard motors (bevel gear drive/propeller housing). The oil satisfies the US requirement 'Type B Lubricant'.</p>							

Transmission oil: Automatic transmissions							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40 °C	100 °C				
TransWay DX II	-	38,2	7,3	160	-48	210	-
Mineral oil-based transmission oil type ATF Dexron. The oil is recommended for automatic transmissions and power steering, as well as manual transmissions where an 'ATF oil' is prescribed. Dexron IID, Allison C-4, MB-Approval 236.7 Voith G 607, ZF TE-ML 11/14A, CAT TO-2, MAN 339 type D.							
TransWay DX III	-	34,6	7,4	206	-48	206	-
The latest generation of ATF-Dexron Semi Synthetic. Has a wider temperature range. Delivers better gear changing function and a longer lifetime for automatic transmissions. Can be used where oil is recommended in accordance with Dexron II D and II E. Dexron IIIG, Ford Mercon, Allison C-4, MB-Approval 236.9, 236.5, ZF TE-ML 03/04/14 Voith. G. 607, Nissan. MAN 339 type F.							
Syntomatic	-	52	8,6	142	-57	230	-
Fully synthetic oil type ATF Dexron for transmissions with high operating temperatures. Also has good low temperature properties and provides excellent protection against wear. Allows long oil change intervals. ZF TE-ML 14B(C), Volvo 97331, Allison C-3, Voith, Renk, Scania GAV, Dexron II D THOT, CAT TO-2, API GL-4 MB-Approval 236.7							
ATF A 52	-	40	7,6	160	-45	220	-
Mineral oil-based transmission oil for automatic transmissions, converters, hydraulic transmissions, etc., where the manufacturer recommends an ATF oil in accordance with the following specifications. MB -Approval 236.2. Performance level: A-Suffix 'A', Allison C-4, Leyland E85, Renk							
TransWay Type G	-	36	7,5	178	-45	208	-
Mineral oil-based transmission oil for automatic transmissions and power steering, where Ford's specifications are prescribed. Also suitable for some manual transmissions, e.g. Volvo. Ford M2C-33 F and G							

AUTOMOTIVE LUBRICANTS

Transmission oil: Automatic transmissions							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40°C	100°C				
TransWay WB	-	67	11,25	151	-36	218	9,5
<p>Mineral oil-based universal transmission oil for tractors and contracting plant with combined transmission, differential and hydraulic systems as well as wet brakes. Provides extremely good protection against wear.</p> <p>John Deere JDM J20 C/D, Ford M2C 134D/41B/48B/53A, MF M1110/M1127 M1129A/M1135/M1141/M 1143. Case International J/C 145/MS 1210, J/C 185/ MS 1204, MS 1205, MS 1206, MS 1207, B6, Allison C-4, CAT TO-2, VME WB 101, ZF TE-ML 05/06, API GL-4, Denison HF O-2, Sperry Vickers I-280-S/M2950S. HEMEK.</p>							
TransWay WB LL PS	75W	38,9	8,3	201	-42	204	
<p>Semi-synthetic oil for long drain intervals (>3000 h) in wet brakes transmissions. It delivers silent, vibration free operation both with paper and sinter lamellas. Even more extraordinary lifetime can be achieved with proper maintenance and handling. Due to long drain intervals the product delivers better environmental care.</p> <p>API GL-4, For wet brakes Performance Level: ZF TE-ML 03(torque converters), Case MS 1206/1207, MF 1135, MF 1141, VME, John D J20C</p>							
TransWay AC 10W	10W	30,6	5,4	111	-33	210	-
TransWay AC 30	30	82	10,2	105	-27	235	-
TransWay AC 50	50	202	17,7	95	-21	230	-
<p>Mineral oil-based transmission oil of HTF type. For processing machines with combined transmission and hydraulic systems as well as wet brakes. Satisfies the requirements in accordance with the Caterpillar TO-4 specification.</p> <p>API CF, Performance level: Cat TO-4, Allison C-4, ZF TE-ML 03, API MT-1, Komatsu Microlutch test.</p>							

Special fluid/oil							
	SAE	Viscosity mm ² /s		Viscosity index VI	Minimum flow temp. °C	Flash point °C	TBN mg KOH/g
		40 °C	100 °C				
Pentosin CHF 11 S		19	6	320	-55	154	-
<p>Synthetic oil for central hydraulic systems, level control, fluid/pneumatic suspension, shock absorbers and servo steering. Pentosin CHF 11S works in an extremely wide temperature range. Working temp.: -40 °C to + 130 °C. Works exceptionally well at low temperatures.</p> <p>ISO 7308, MAN 3623/93, Daimler Chrysler MB 345.0, Opel B 040 0070, VW TL 52146</p>							
Pentosin LHM Plus	-	20	6	-	-58	>200	
The oil has been developed for the hydraulic system for Citroën vehicles							
Brake & Clutch Fluid DOT 4.0	-		2	-	<-50	>100	10
<p>Synthetic brake fluid for hydraulic brake systems. Can be mixed with other brake fluids with the same Dot designation.</p> <p>SAE J 1703 (SAE 70 R 3), DOT 4 (US Federal Motor Vehicle Safety Standard 116), ISO 4925</p> <p>1: Do not use in Citroen hydraulic systems 2: Do not mix with DOT 5.0 which is silicone based.</p>							
Brake & Clutch Fluid DOT 5.1		30	2,1		-47		
<p>Recommended for brake systems in light and heavy vehicles with hydraulic brake systems that requires DOT 4.0 or 5.1. Statoil Brake Fluid DOT 4.0 has a boiling point > 100 °C.</p> <p>Statoil Brake Fluid 5.1 has a boiling point > 260 °C and can be used for heavily loaded brakes or racing applications. It is fully mixable with Standard Brake Fluids of type DOT 4.0. DOT 4 and 5.1 SAE J 1703 and ISO 4925.</p> <p>1: Do not use in Citroen hydraulic systems 2: Do not mix with DOT 5.0 which is silicone based.</p>							
GardenWay	30	103	11,8	104	-30	220	7,7
<p>Mineral oil-based engine oil suitable for small 4-stroke engines, e.g. lawnmowers and rotary cultivators. Also suitable for household use.</p> <p>API SG</p>							

INDUSTRIAL LUBRICANTS

Lubricants for use within industry and neighbouring areas span a large range. The various lubricants are made up of different types of base oil: pure mineral, synthetic such as polyalphaolefins (PAO), polyglycol, alkyl benzene or biodegradable esters. When it comes to typical industrial oils, they cannot all be mixed with each other in the same way as engine oils. Polyglycol-based oils, for example, cannot be mixed with other oils, and any mixing can give rise to damage and breakdowns. It is therefore necessary to ensure that a mixture of different oils will work before the machine or the equipment is used. In the event of uncertainty, it may be appropriate to contact Statoil Lubricants.

The lubricants must have different properties in order to work within their respective areas of application. Hydraulic oils for use outdoors have to cope with temperature variations, for example, while this requirement is not stipulated for hydraulic oils for use indoors. The outer limits for use are oils for the lubrication of heavily loaded toothed gears at one end and pure process oils at the other. Toothed gear oils contain additives that ensure maximum lubrication under difficult conditions. Process oils, on the other hand, are often pure base oils without any form of additives. Such oils are included as raw materials in industry for the manufacture of other products, for example.

The viscosity of industrial oils is not specified according to the SAE system, rather as ISO VG grades. In 1975, the ISO (International Standardisation Organisation) proposed a classification system for viscosity in cSt (centistoke = mm²/s) measured at 40°C. The system encompasses a total of 18 viscosity grades from ISO VG 2 to ISO VG 1500 and is scientifically accurate, in contrast to Engler degrees, Redwood seconds, etc. As it is desirable for the viscosity range not to deviate by more than 10% from the average viscosity within each of the 18 groups, the system is not continuous but has established intervals between the grades.

However, it is necessary to pay attention to the fact that the lubrication instructions for some machines still specify viscosity with other units and at other working temperatures. This can cause difficulties when comparing with the ISO grades. If in doubt, contact Statoil Lubricants.

(See table on ISO VG on page 68.)

INDUSTRIAL LUBRICANTS

Spindle oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40°C	100°C			
SpinWay XA 2	2	2	-	-	-45	90
SpinWay XA 5	5	5,2	1,8	-	<-60	114
SpinWay XA 10	10	10	2,5	53	<-60	147
SpinWay XA is recommended for fast-moving spindle bearings, for example in machine tools and textile machines. The oil can also be used in hydraulic systems where oil of a low viscosity is recommended.						
Hydraulic oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40°C	100°C			
HydraWay HMA 15	15	15	3,3	87	-45	178
HydraWay HMA 22	22	22	4,3	101	-33	206
HydraWay HMA 32	32	31	5,3	104	-27	218
HydraWay HMA 46	46	46	6,9	103	-30	228
HydraWay HMA 68	68	67	8,7	100	-27	244
HydraWay HMA 100	100	99	11,1	97	-24	266
Mineral oil-based hydraulic oil with extremely high performance. Zinc-free. Recommended for indoor hydraulics and bearing lubrication in machine tools. Classified as ISO-L-HM in accordance with SS 155454 and ISO 6743-4. Tested and approved in accordance with IP 281/80. DIN 51524-HL / DIN 51524-HLP FZG > 12 (CEC-L-07-A-75)						
HydraWay HVXA 32	32	32	6,3	158	-46	190
HydraWay HVXA 46	46	42	8,0	165	-49	188
HydraWay HVXA 68	68	69	11	156	-45	202
Mineral oil-based hydraulic oil with a high VI. Zinc-free. Used for mobile hydraulics that operate outdoors all year round. Copes with high operating temperatures and has good shear stability. SS 155434, DIN 51524 part III HVLP, Vickers 35VQ-25A, Vickers V-104C						

INDUSTRIAL LUBRICANTS

Hydraulic oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
HydraWay HVXA 15 LT	15	14	5,2	356	-60	108
High-quality hydraulic oil with high viscosity index for advanced hydraulics that work under widely varying temperatures or in extreme cold.						
Hydraulic Oil 131	-	28	9,7	368	-60	105
Mineral oil-based hydraulic oil specially developed for the Scandinavian climate. Zinc-free. Copes with working conditions from -45 °C to +65 °C. Vickers 104 C IP 281/80, FSD 8401.						
HydraWay SE 46 HP	46	45	8,0	148	-60	244
HydraWay Bio SE 46 is an environmentally adapted hydraulic fluid, designed for demanding hydraulic systems, indoors as well as outdoors. This product combines superior oxidation- and hydrolytic stability, providing properties for long life time. SIS 155434 AV 46 Environmentally friendly / 155454, ISO 15380 HEES 46 DIN 51524 part III HVLP Vickers 104 C						
HydraWay Bio SE 32-68	-	36	7,4	190	-45	310
Ester-based hydraulic oil for hydraulic systems that work within a broad temperature range (-30 — +85 °C). The oil comprises more than 80% renewable raw materials, is easily degradable, has low toxicity for aquatic organisms at the same time as delivering very high technical performance. Extremely shear stable. SS 155434 BV 32 Environmentally friendly, Vickers V-104C, Vickers 35VQ25A, Shearing test CEC-L-45-A-98, 20h: 1.3%, tapered roller bearing (KRL). Approved by Partek Forest (Valmet).						
HydraWay Bio SE 46	46	47	9,5	190	-39	280
Synthetic ester-based hydraulic oil that is easily biodegradable. Working range -25 °C to +70 °C. Vickers 104C IP 281/80, SS 155434 BV 46 Environmentally friendly.						
HydraWay Bio SE 68	68	62,7	11,5	181	-39	280
Oil based on synthetic esters. Recommended for hydraulic systems in warm applications, e.g. asphalt machines. Comprises more than 80% renewable raw materials. Extremely shear stable. SS 15 54 34 BV 68 Environmentally friendly, Vickers I 286 S, V 104 C						
HydraWay SE XLV	-	12	3,2	139	-66	169
HydraWay SE XLV is an environmentally adapted hydraulic fluid, primarily for use in cold climate. This product is specially useful in applications where full function at low temperatures is a demand.						

Hydraulic oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
HydraWay Bio Pa 22	22	20,1	4,8	171	-47	178
HydraWay Bio Pa 32	32	30,1	6,6	182	-42	200
HydraWay Bio Pa 46	46	44,8	8,7	184	-45	219
<p>Polyalphaolefin-based hydraulic oil developed for hydraulic systems that are in operation all year round under varying conditions. (-40 °C to + 85 °C). The product is easily biodegradable. Certain ground rules have to be followed with regard to miscibility with other similar hydraulic oils.</p> <p>DIN 51524 part 2, SS 155434 BV Environmentally friendly (ISO VG32, 46), VDMA HEES 46, Vickers I 286 S/V 104 C, Norba 94*12*12, FZG 12.</p>						
HydraWay White 22	22	22	4,2	80	-48	>170
HydraWay White 32	32	32	5,1	82	-42	>180
HydraWay White 46	46	46	6,4	84	-42	>190
HydraWay White 68	68	68	8,2	86	-36	>220
<p>White oil-based hydraulic oil for hydraulic systems and mist lubrication. Recommended when stringent demands are placed on the working environment.</p>						
Hydrocor CC 44 MF	46	46	-	210	<-42	none
<p>Glycol-based hydraulic fluid that is fire resistant. Used for hydraulic systems working in hot surroundings. Recommended temperature range: -25 °C to +60 °C. Is not miscible with mineral oil-based products.</p> <p>IP 281/80, Refractive index n_{25D} 1,399 in accordance with DIN 51423, Classified as ISO-L-HFC in accordance with ISO 6743-4. Meets the requirements of the 6th Luxembourg report.</p>						
Thermac SB 68	68	69	11	144	-33	285
<p>Fully synthetic, hydraulic oil that is difficult to ignite, based on stable esters with additives that counteract wear, oxidation, corrosion and foaming.</p> <p>Classified as ISO-L-HFDU in accordance with SS 155454 and ISO 6743-4. Tested and approved in accordance with IP 281/80.</p>						
HydraWay NS 32	32	30	5,3	112	-27	210
HydraWay NS 68	68	68	8,9	105	-9	212
<p>Recommended for machinery where electromagnetic couplings are included, for example gearboxes in NC milling machines. The oils are also recommended for hydraulic systems.</p> <p>Tested and approved according to IP 281/80 and by Oertlinghaus for electromagnetic couplings. FZG A/8-3/9 > 12 according to DIN 51534.</p>						

INDUSTRIAL LUBRICANTS

Turbine oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C Pm
		40 °C	100 °C			
TurbWay 32	32	33	5,6	102	-30	216
TurbWay 46	46	46	6,9	102	-27	241
TurbWay 68	68	69	8,8	98	-24	218
TurbWay 100	100	101	11	95	-24	265
<p>Mineral oil-based turbine oil specially intended for hydroelectric power and combined heating and power stations. Also recommended for support bearings as well as regulating and control systems, as well as for pumps, compressors, basic hydraulic systems and as a circulation oil.</p> <p>Classified as DIN 51515-D and DIN 51524-HL and as ISO-L-TSA, TSE, TGA, TGB and TGE in accordance with ISO 6743-5. ABB STAL 812102, 812107 and 812109 (ISO VG 46). Siemens TLV 9013 04 and Solar Turbines ES 9-224 (ISO VG 32 and 46). General Electric GEK-32568B (ISO VG 32). AEG - Kanis (ISO VG 46).</p>						
TurbWay GT 32	32	33	6,0	130	-30	239
TurbWay GT 46	46	45	7,4	129	-30	253
<p>TurbWay GT is recommended for modern turbines with very high working temperatures, e.g. ABB GT 10. The product is based on synthetic base oil with additives to extend its lifetime. TurbWay GT has rapid air separation, which counteracts cavitation and hence wear on the turbine. TurbWay GT 32 has an extremely long lifetime in hot conditions.</p> <p>Alstom Power 812102/812107/812109, DIN 51515 (part 1) TD 46, DIN 51524 - (part 1) HL 46, Siemens TLV 901304, AEG-KANIS, Solar Turbines ES 9-224, ISO 6743-5: ISO-L-TSA/ISO-L-TSE/ISO-L-TGA/ISO-L-TGB/ISO-L-TGE</p>						
TurbWay SE	-	45	8,0	149	-60	233
TurbWay SE LV	-	32	6,2	152	< -60	250
<p>High-tech turbine oil for turbines and control systems within hydroelectric power. The product is based on synthetic esters specially developed for the applications. The product offers very high oxidation stability combined with extremely good hydrolytic stability. TurbWay SE's tribological properties entail reduced energy losses from bearing lubrication. The product is biodegradable. Due to its unique formula TurbWay SE provides the same oil film thickness as a regular mineral- or PAO-based oils. SE as ISO VG 68 and SE LV as ISO 46, in bearing lubrication. Yet with lower power loss.</p>						

Circulation oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
LubeWay XA 150	150	150	15	96	-9	276
LubeWay XA 220	220	220	19	94	-9	278
LubeWay XA 320	320	320	24	96	-9	286
LubeWay XA 460	460	451	30	96	-9	311
<p>Highly refined paraffin base oil with zinc-free additives. Developed for circulation lubrication of bearings, transmissions and other machine elements. High VI, high flash point and oxidation stable.</p> <p>Classified as DIN 51517-CLP as well as ISO-L-CKB and ISO-L-CKS in accordance with ISO 6743-6.</p>						
PaperWay 150	150	150	14	82	-27	250
PaperWay 220	220	228	18	83	-21	252
PaperWay 320	320	320	21	83	-21	256
<p>Circulation oil specially intended for the drying section in paper machines. Satisfies SKF's proposed requirements for paper machine oil for the drying section.</p> <p>Tested and approved in the SKF Oil Film Ageing Test (120 °C). Tested and approved in the SKF Emscor Distilled Water Test in accordance with DIN 51802. Tested and approved in the SKF Roller Test (120 °C).</p>						
PaperWay PA 220	220	220	26	140	-57	261
<p>Synthetic circulation oil specially intended for the drying section in paper machines. Satisfies the most stringent requirements from the pulp and paper industry placed on a circulation oil for this application.</p> <p>Tested and approved in the SKF Oil Film Ageing Test (120 °C). Tested and approved in the SKF Emscor Distilled Water Test in accordance with DIN 51802. Tested and approved in the SKF Roller Test (140 °C).</p>						
TD 100	100	110	8,5	-	-24	205
<p>A naphthene-based mineral oil without additives. Recommended for circulation-lubricated roller bearings, sliding bearings and vacuum pumps.</p>						

INDUSTRIAL LUBRICANTS

Transmission oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
LoadWay EP 68	68	68	9,1	99	-27	225
LoadWay EP 100	100	100	11	96	-24	230
LoadWay EP 150	150	150	15	95	-21	235
LoadWay EP 220	220	220	19	96	-18	238
LoadWay EP 320	320	320	24	95	-12	243
LoadWay EP 460	460	460	32	95	-12	245
LoadWay EP 680	680	680	39	92	-12	248
<p>Mineral oil-based toothed gear oil for heavily loaded toothed and worm gears. Lead-free.</p> <p>Classified as DIN 51517-CLP and ISO-L-CKC in accordance with ISO 6743-6. Tested and approved in FZG A/16 - 6/90 > 12 in accordance with DIN 51534.</p> <p>Satisfies the requirements for AGMA 9005, David Brown S1.53.101 and US Steel 224.</p> <p>Satisfies the requirements for micropitting in accordance with Flender-Himmelwerk GmbH (ISO 220 and 320).</p>						
LoadWay PG 150	150	133	21	184	<-30	>232
LoadWay PG 220	220	240	37	200	-36	280
LoadWay PG 460	460	480	73	235	-36	280
LoadWay PG 680	680	680	111	236	-36	270
<p>Synthetic high-pressure oils for industrial transmissions based on polyalkylene glycol. Copes with continuous operation at 150 °C and temperature peaks up to 200 °C. The oils are not miscible with other types of oil.</p> <p>FZG > 12</p>						
LoadWay Bio SE 220	220	220	29	167	-39	255
<p>LoadWay Bio SE 220 is an environmentally-friendly industrial transmission oil that is based on renewable synthetic esters. The product is easily biodegradable and has a low toxicity.</p> <p>LoadWay Bio SE 220 is characterised by good oxidation stability, good low temperature properties and little change in viscosity at varying temperatures.</p> <p>Satisfies the requirements for AGMA 9005 (5 EP), US Steel 224, DIN 51517</p> <p>Satisfies the environmental requirements in accordance with SIS 155434</p>						
Mereta 32	32	32	6	134	<-60	>235
Mereta 46	46	45	7,6	135	<-60	>240
Mereta 68	68	68	11	137	-57	>245
Mereta 100	100	100	14	144	-57	>250
Mereta 150	150	150	19	144	-57	>250
Mereta 220	220	220	25	146	-48	>250
Mereta 320	320	320	34	150	-42	>250
Mereta 460	460	460	45	154	-39	>260

Transmission oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
Mereta 680	680	680	62	161	-36	>260
Mereta 1000	1000	1000	87	171	-36	>270
<p>Polyalphaolefin-based lubricating oil intended for gears and circulation systems. Can also be used as hydraulic and compressor oil. Copes with operating temperatures of 130 °C and temperature peaks of up to 200 °C.</p> <p>Classified as DIN 51517-CLP as well as ISO-L-CKD, ISO-L-CKE and ISO-L-PAD in accordance with ISO 6743.</p> <p>FZG A/16 - 6/90 > 12 in accordance with DIN 51534.</p> <p>Filterability factor > 100 in accordance with Cetop.</p> <p>Seal Compatibility Index 5-6% in accordance with IP 278.</p> <p>Satisfies the requirements for micropitting in accordance with Flender-Himmelwerk GmbH (ISO 220 and 320).</p>						
Moly GL 1000	1000	1000	46	80	<-9	>220
<p>Moly GL are molybdenum disulphide-reinforced oils with extreme load-bearing properties.</p> <p>They satisfy AGMA's specification for R&O and EP oils.</p>						
TransWay VG	32	32	5,4	100	-24	224
<p>Oil for hydrodynamic transmissions.</p> <p>Approved by Voith Getriebe KG, Heidenheim and MTU Friedrichshafen.</p>						
Compressor oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
CompWay 32	32	32	5	75	-36	198
CompWay 46	46	45	5,9	60	-39	206
CompWay 68	68	62	7,1	58	-33	222
<p>Highly refined mineral oil with additives against oxidation, corrosion and foaming.</p> <p>CompWay 32a and CompWay 46 is recommended for screw compressors.</p> <p>CompWay 68 is recommended for stationary piston compressors.</p> <p>Classified as DIN 51506 VDL and CompWay 46. Approved in accordance with Pneurop Oxidation Test (POT).</p>						

INDUSTRIAL LUBRICANTS

Compressor oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
CompWay 100	100	100	9,8	69	-33	234
CompWay SX 32	32	31	5,9	139	-60	230
CompWay SX 46	46	46	7,8	139	-60	240
CompWay SX 68	68	68	11	144	-60	250
<p>Polyalphaolefin-based oil for heavily loaded compressors or compressors with a large temperature variation. The oil can cope with long change intervals and is miscible with our mineral oil-based compressor oils.</p> <p>Classified as DIN 51506-VCL and DIN 51506-VDL as well as ISO-L-DAB and ISO-L-DAC in accordance with ISO 6743-3A. FZG A/8 - 3/90 >12 Approved by Atlas Copco.</p>						
Refrigeration compressor oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
FridgeWay 46	46	48	5,5	-	-33	192
FridgeWay 68	68	66	6,7	-	-30	198
<p>Mineral oil-based cooling compressor oil based on naphthenic base oils with good chemical stability. Low solidification point and good solubility in the refrigerant. Used for all types of cooling compressor that use freon, ammonia, carbon dioxide or nitrogen as the refrigerant.</p> <p>DIN 51503, BS 2626: 1975</p>						
FridgeWay S 46	46	46	5	-	-36	180
FridgeWay S 68	68	68	6	-	-36	190
FridgeWay S 100	100	105	7	-	-36	200
<p>Synthetic (heavy alkyl-benzene) cooling compressor oil with good lubrication capacity, low solidification point and unusually good solubility in the refrigerant. S 68 is recommended e.g. for Sabroe cooling compressors S 100 is recommended e.g. for certain cooling systems with STAL's cooling compressors, primarily using ammonia as the refrigerant. ISO 6743-3B L-DRA/L-DRB, DIN 51503 KA/KC, DIN 51506 VDL, (DIN 51593 - Philipp).</p>						
FridgeWay Pa 68	68	64	8,8	110	-46	241
<p>Synthetic (PAO)-based refrigerant (cooling) compressor oil. Recommended for refrigerant (cooling) compressors using ammonia as lubricant.</p>						

Refrigeration compressor oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
Solest is a series of cooling compressor oils developed for use where refrigerant R 134 and R-404 A is used. Suitable for use in centrifugal, screw and spiral compressors in industrial air-conditioning and cooling systems. The product has an extremely good wear-inhibiting capability, which provides long lifetime of the equipment..						
Solest 31-HE	32	33	5,7	115	<-51	240
Suitable for use in piston, centrifugal and rotary compressors in air-conditioning systems and industrial cooling systems.						
Solest 68	68	66	8,9	108	-43	262
Suitable for use in all types of compressor in industrial air-conditioning and cooling systems, as well as in rotary compressors in smaller air conditioning systems.						
Solest 120	-	128	13	90	-33	262
Solest 170	-	175	17	93	-27	271
Solest 220	220	233	18	86	-27	271
Solest 370	-	385	29	105	-21	302
Solest 68-370 is suitable for use in centrifugal, screw and spiral compressors in industrial air-conditioning and cooling systems.						
Hydrocarbon compressor oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
CP 15 Series is a polyalkylene glycol (PAG) based lubricant for compression of Hydrocarbons in various forms and applications. The products are formulated to give negligible solubility or dilution in contact with hydrocarbon liquids or vapours. They provide very good heat and oxidation stability.						
CP-1505-100	100	103	19	200	-48	232
Is specially developed for rotary and piston compressor which compresses Hydrocarbons without any water or oxygen present. Cooling compressors that work with hydrocarbon based cooling media or where good miscibility in ammoniac media is other suitable applications.						
CP-1507-68	68	62	11	168	-42	218
CP-1507-100	100	89	12	125	-37	260
Intended for centrifugal or rotary compressors or liquid ring vacuum pumps handling high concentration of hydrocarbons.						
CP-1515-100	100	103	19	200	-48	210
Developed for compression of so called "sour" hydrocarbon gases or with very heavy hydrocarbon chains where severe dilution or condensations is possible with more conventional lubricants.						

INDUSTRIAL LUBRICANTS

Process oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI		Flash point °C
		40 °C	100 °C			
FlexWay RP 20	-	20	4,0	97	-18	207
FlexWay RP 30	-	31	5,3	102	-9	212
FlexWay RP 110	-	112	12	95	-9	256
FlexWay RP 440	-	488	32	95	-9	256
Solvent-refined, paraffin-based mineral oil for chemical/technical industry. Used for example as a plasticiser and filler in the manufacture of rubber and plastic. Also used as a process aid for e.g. binding dust or acting as a wetting agent in the roofing felt industry.						
Transformer oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
VoltWay N 7 X	-	7,6	-	-	-60	144
Inhibited, naphthenic, highly refined mineral oil with extremely good electrical properties. The oil is used for all types of oil-filled transformer. Good cooling properties and a long lifetime, as well as good low temperature and oxidation properties. Satisfies the requirements in accordance with SS 04 03 00 Class IIA, IEC 296 Class IIA and ABB Transformers 11 71 30 11-104.						
VoltWay N 3	-	7,5			-57	144
Solvent-refined naphthenic base oil without additives. The oil naturally has good oxidation stability and contains no corrosive sulphur. It is used for all types of oil-filled switch with surrounding temperatures ranging from -45 °C to +45 °C. Satisfies the requirements in accordance with SS 404 03 26, IEC 296 Class III (1982), IEC 474 and ASEA 7 1301-102.						

White Oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
MedicWay 15	15	15	3,7	-	-12	182
MedicWay 32	32	29	5,3	-	-9	222
MedicWay 68	68	68	8,9	-	-18	254
MedicWay is clear medicinal whiteoil. The product is based on severely refined paraffinic base oils. MedicWay 15 fulfills the European Pharmacopoeia (EP) requirements for medicinal white oils. NSF H1						
WhiteWay 15	15	15	3,4	-	-6	170
WhiteWay 15 is a technical white oil refined from paraffinic base oil. Used in cosmetic, pharmaceutical and food industry as well as dustbinders and plasticizers for example for polystyrene manufacturing.						
Heat transfer oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
Therm Oil 30		30	5,7	129	-33	237
ThermOil 30 is a semi synthetic heat transfer oil. Its low pour point provides satisfactory pumpability even at low temperature conditions. Is specially developed for use on platforms within the offshore oil industry.						
ThermWay X	-	52	7,5	103	-24	200
Based on mineral oil with low vapour pressure. The oil is thermally stable and offers good oxidation resistance, as well as counteracting corrosion and coke deposits on tube walls. It is intended for closed systems with operating temperatures of up to 300 °C.						
Form oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
Formlen	10	9	2,3	-	-57	150
White oil-based form oil that, due to its purity, is particularly suitable where stringent demands are stipulated as regards the working environment. Contains additives that contribute towards good rust-proofing, little pore formation, good mould release and minimal cleaning after casting. Recommended for casting against steel, wood and plastic-coated moulds.						
FormWay 5	5	5,5	-	-	-60	126
FormWay 10	10	12,0	3,0	-	-36	106
Universal mould release agent for concrete casting in steel, wood and plastic-coated casting moulds. Can be used all year round.						
FormWay Bio	7	7,5	2,6	-	-12	175
Environmentally-friendly mould release oil that is based on biodegradable and renewable rape raw material. The oil can be used in all types of casting moulds and offers very good mould release capability.						

INDUSTRIAL LUBRICANTS

Form oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
Släppolja 8 Emulgerande	-	8	-	-	-	90
<p>Mould release agent based on solvent-refined base oil. Recommended for spraying on vehicles and tools before use, making them easier to clean. Contains a low-aromatic solvent, i.e. a product that is advantageous from a professional hygiene point of view. Free of unpleasant odours.</p>						
Rust preventive oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Melting point °C	Flash point °C
		40 °C	100 °C			
ProtectWay XB 32	32	28	5		-39	178
<p>ProtectWay 32 is an oil-type rust preventive, generally used when hotdip or solvent cut-back types are difficult to apply or unsuitable for some other reason. Typical applications are hydraulic systems, gear-boxes, lubricated bearings, combustion engines and turbines.</p>						
CoatWay P 2	-	2 (at 20 °C)	-	-	-	80
<p>CoatWay P 2 is for rust protection of machined parts of steel as well as semi-finished and finished products. CoatWay P 2 provides a thin, almost invisible rust protecting layer that protects against corrosion for about 6 months of indoor storage. CoatWay P 2 is a solvent-based rust preventive. MIL-C-16173-D Grade 3</p>						
CoatWay P 68		70				80
<p>CoatWay P 68 is for rust protection in most areas of industry, contracting, farming and shipping. It provides protection goods stored outdoors. Applied by spraying, dipping or brushing. CoatWay P 68 is a solvent-based rust preventive. It provides excellent protection for one year or more. CoatWay P 68 is dry and leaves a strongly adherent, tough, plastic-looking layer, yellow-brownish in colour. MIL-C-16173D-Grade 4</p>						
ACL 480	-	5	-	-	-	72
<p>ACL 480 is intended mainly to provide shipping and storage protection for items that are not subject to severe corrosive forces, such as machinery, spare parts and other iron or steel items stored indoors. ACL 480 can be applied by dipping, brushing or spraying. ACL 480 is an elastic waxy rust-proofing liquid that produces a light brown film on application.</p>						

Air tool oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
RockWay EP 32	32	34	6,2	130	<-30	204
RockWay EP 46	46	46	7,5	127	-30	208
RockWay EP 68	68	70	9,6	117	-27	210
RockWay EP 100	100	100	12	111	-21	232
Highly refined paraffin base oil with additives that counteract wear and corrosion, as well as good adhesion. The oil has been developed in collaboration with the Swedish mining industry and is recommended for all types of percussive pneumatic machines that work at an even temperature. The oil has been developed with a view to producing the minimum possible oil smoke during use.						
RockWay U	46	46	11	238	-57	152
Based on naphthenic base oil and used as a lubricant for rock drill machines and other pneumatic tools. Used for above ground operation at very low temperatures or in operating conditions where there is a risk of ice formation. (The greatest risk of ice formation is between +5 °C and -5 °C). Recommended for use within the temperature range -30 °C to +30 °C.						
RockWay Anti Ice	46	46	-	210	-42	none
Glycol-based pneumatic tool oil with additives that counteract wear and corrosion. Eliminates ice formation at temperatures around 0 °C. Not miscible with mineral oil products.						
Way oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
GlideWay 32	32	32	5,5	108	-24	195
GlideWay 68	68	64	8,8	110	-15	222
GlideWay 150	150	155	15,1	97	-12	240
GlideWay 220	220	210	17,5	89	-12	245
Guide oil based on light, highly refined paraffin base oil reinforced with additives. Used for machine tools and other machines where sliding movements occur. The oil can also be used for circulation lubrication of bearings and gears. GlideWay 32 and 68 are also recommended where the hydraulic system is combined with other machine lubrication. The oil separates easily from water-based cutting fluids. Contains additives that prevent Stick-slip. GlideWay 220 is also available in a spray package.						

INDUSTRIAL LUBRICANTS

Cylinder oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
CylWay FZ 460	460	460	31	96	-9	304
Cylinder oil that comprises highly refined paraffin base oil. FZ 460 is added to fatty oil and emulsifies with water. Recommended for some worm and screw gears, oil-lubricated propeller shafts.						
CylWay 460	460	464	31	97	-12	304
CylWay 1000	1000	1000	45	83	<-3	>298
CylWay 1500	1500	1525	59	86	<-3	>305
Cylinder oil that comprises highly refined paraffin base oil, with high oxidation stability that effectively counteracts the formation of coke. Recommended for oil-lubricated bearings, guides and steam cylinders (machines).						
Chain oil						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
Chain Saw Oil	-	90	-	-	<-21	>150
Mineral oil-based chain saw oil for all-year-round use. Good lubrication and adhesion properties. Recommended for felling and crosscut saws in forestry machines, as well as normal chain saws. The oil may be mixed with other mineral and rape oil-based chain saw oils.						
ChainWay Bio	-	64	15	242	-39	250
Rape oil-based chain saw oil with extremely good adhesion and good temperature properties. The oil degrades rapidly in the environment and is therefore kind to the forest and the ground, at the same time as providing a better working environment for the user. The oil is suitable for year-round use, and is recommended for felling and crosscut saws in forestry machines as well as normal chain saws. Can be mixed with all types of chain saw oil, both mineral oil-based and vegetable. The oil is stable for storage. Lowest storage temperature is -20 °C.						
ChainWay	-	76	10	114	-31	237
Mineral oil based chain saw oil for use through out the year. Recommended for lubrication of swords and chains on motor saws as well as forestry machines and chains within the industry.						
ChainWay HT	150	143	13	83	-33	280
ChainWay HT is an ester-based chain oil for use at high temperatures. The product delivers low evaporation, high film strength and high thermal stability. ChainWay HT is recommended for the lubrication of chains and conveyors at temperatures up to 200 °C. Recommended sealing materials for problem-free operation are fluorocarbon polymers, fluorosilicone, nitrile rubber (>30% acryl nitrile), polyacrylate, polyurethane or silicone rubber.						

Saw band oils						
	ISO VG	Viscosity mm ² /s		Refractometer index		
		40 °C				
Saw Band Fluid XHL	-	36				1,0
Water-miscible cooling emulsion for saw bands and saw blades. Product delivering extremely good lubrication, which increases the lifetime of saw bands. Recommended concentration 3-5%. The product should be stored at room temperature.						
Sågbandolja HSL	-	24				1,0
Water-miscible cooling emulsion for saw blades within the sawmill industry. The product should be stored at room temperature. Recommended concentration 2-5%.						
Sågbandolja Bio	-	47				2,5
Vegetable, water-miscible cooling emulsion for bands and saw blades in the sawmill industry. Prevents the accumulation of resin. Should be stored at room temperature. Recommended concentration 2-5%.						
Various industrial oils						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
WireWay 467	-	7,4	2,3	-	-27	92
Wire cable lubricating oil made up of thin mineral oil with a surface tension-reducing additive that increases the oil's ability to penetrate into the wire cable and provide good lubrication and rustproofing.						
ChainWay Spray	-	-	-	-	-	-
Synthetic lubricant based on polyalphaolefin - PAO. For the lubrication of all types of chain, including O-ring chains. The product provides effective protection against wear and rust at both high and low temperatures.						
Rust-aWay Spray	-	-	-	-	-	-
Rust-penetrating and lubricating spray.						
Moist-aWay Spray	-	-	-	-	-	-
Expels moisture, protects against rust and lubricates.						
MedicWay Spray	-	-	-	-	-	-

FOOD INDUSTRY

Hydraulic oil for the food industry						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40°C	100°C			
CP-4608-46-F	46	47	8	139	-60	268
<p>A polyalphaolefin-based hydraulic oil with extremely good lubricating properties. As a result of the base oil's high viscosity index and low pour point, it can be used for all hydraulics in the temperature range -15°C — +90°C. Colourless, odourless and tasteless. FDA 21CFR 178. 3570. NSF HI.</p>						
Transmission oil for the food industry						
	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40°C	100°C			
CP-4617-220-F	220	217	24	141	-43	279
CP-4617-320-F	320	320	33	145	-39	282
<p>EP type oils adapted for use in heavily loaded gears. The products are based on polyalphaolefin and can be used within a broad temperature range. The high oxidation stability gives the oils a long lifetime. The products are colourless, odourless and tasteless. FDA 21 CFR 178. 35 70. NSF H1.</p>						

Compressor oil for the food industry

	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
CP-4608-100-F	100	100	14	138	-52	271
For rotary and piston compressors. The oil is based on polyalphaolefin and gives a long lifetime thanks to its good oxidation stability. Colourless, odourless and tasteless. FDA 21 CFR 178. 3570, NSF HI						
CP-4600-46-F	46	47	8	139	-60	246
Recommended for screw compressors. This oil is also based on poly-alphaolefin. The product is characterised by its broad temperature range, long lifetime and good low temperature properties. FDA 21 CFR 178. 3570, NSF HI.						

Chain oil for the food industry

	ISO VG	Viscosity mm ² /s		Viscosity index VI	Minimum Pour Point °C	Flash point °C
		40 °C	100 °C			
CP-4678-68-F	68	66	10	132	-54	274
Recommended for chain lubrication, primarily within the food industry. The product is suitable when stringent demands are stipulated for a good working environment and is based on polyalphaolefin, with a broader temperature range than mineral oils. The product delivers good adhesion to prevent dripping. Satisfies the requirements in accordance with FDA 21 CFR 178.3570 and is approved in accordance with USDA H1 and NSF.						



LUBRICATING GREASE

Photo: Husmo photo



LUBRICATING GREASE

The choice of lubricant is of direct relevance to a bearing's function and lifetime. In order for a bearing to work optimally, the lubricating grease must e.g. be chosen with consideration to:

- working temperature
- load
- bearing type (roller or sliding bearing)
- RPM
- lubrication method (lubrication spray, central lubrication system, spray, etc.)
- environmental conditions (water, acids, food, etc.)

Characterisation of lubricating grease

To characterise a lubricating grease, the NLGI number, oil type, base oil viscosity and the thickener on which the grease is based are often specified.

The consistency of the lubricating grease is specified using the NLGI system.

Lubricating grease in the consistency classes 1, 2 and 3 are used in roller bearings. In most cases, grease in consistency class 2 is used. In central lubrication systems, a softer grease is often used, from NLGI 2 to NLGI 000.

The oil type can be mineral, synthetic or vegetable. Synthetic base oils have the best low and high temperature properties.

The viscosity of the base oil is decisive for the thickness of the lubricating film. A rule of thumb states that lubricating grease with a high base oil viscosity is used in bearings for low RPM, while lubricating grease with a low base oil viscosity is used in bearings for high RPM See fig. 1 below.

The most common types of lubricating grease have calcium (Ca), sodium (Na) or lithium (Li) soap as their thickening agent.

There are also corresponding complex greases with the same thickening agent. Solid additives, such as molybdenum disulphide (MoS₂) or graphite are used to improve the boundary layer lubrication.

Calcium-saponified grease is insoluble in water and has good mechanical stability. Can be used at temperatures up to 100°C.

Lithium-saponified grease has a large area of application, good high pressure properties and covers a large temperature range.

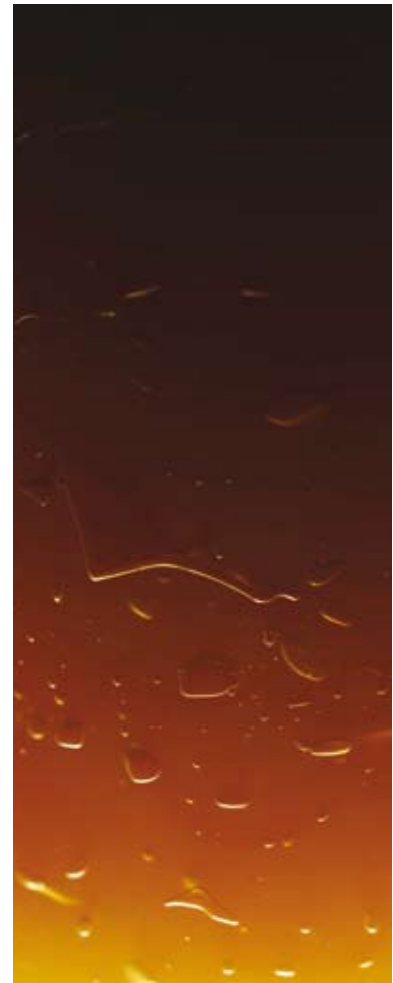
Complex greases generally withstand higher temperatures and are also mechanically more stable, more water resistant and have better high pressure properties than corresponding traditional grease types.

Choose the right grease easily

We want choosing the right lubricating grease to be easy and free of friction. We have therefore chosen to group our lubricating greases into quality groups and to clarify the product's properties and area of application on our packages. The name of the products also tells you most of what you need to know about them.

Standard, Extended and Special

We have divided our greases into three main groups: Standard, Extended and Special. The Standard group includes our universal greases with mineral base oil and lithium soap. These products complete their tasks within normal temperature ranges and conditions. If you



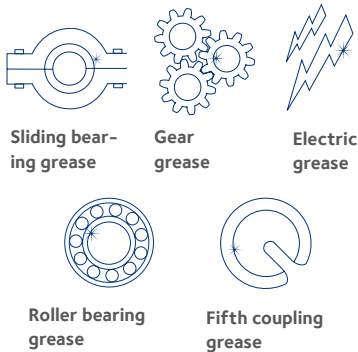
need products with extra properties and broader temperature ranges, you will find these in the Extended group. The Special range includes products developed for more specific applications. Each group has its own signal colour on the packaging: White – Standard, orange – Extended, graphite grey – Special.

Fig. 1

Base oil's viscosity				
	RPM High	Load Low	Bearing temperature Low	Water resistance Poor
Low base oil viscosity	↑	↓	↓	↓
Medium base oil viscosity	↑	↓	↓	↓
High base oil viscosity	↑	↓	↓	↓
	Low	High	High	Good

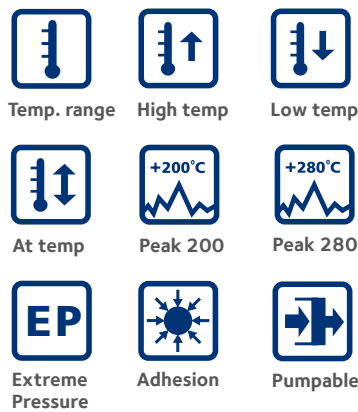
Decorative images

To make things even easier, we use decorative images on the packaging to show the products' primary areas of application.



Symbols

Using our information symbols we aim to illustrate specific properties of the product:



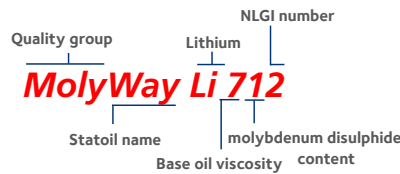
Peak refers to short-term temperature peaks.

Fig. 2

The NLGI system		
NLGI number	Consistency	Penetration
000	Liquid	445-475
00	Semi-liquid	400-430
0	Viscous	335-385
1	Semi-solid	310-340
2	Solid (normal grease)	265-295
3	Extra solid	220-250
4	Very solid	175-205
5	Semi-hard	130-160
6	Block grease	85-115

The name almost says it all

The product's name quickly provides detailed information about the lubricating grease's properties and quality. This is explained most easily with an example:



'Uni' means that it is a universal grease, 'Grease' indicates that the grease has special properties. 'Moly' indicates that the grease contains molybdenum disulphide. 'Fibre' indicates that this grease contains long fibres.

The next component in the name ('Li' in the above case) specifies the thickening agent in the product.

The first figure (7 in this instance) describes the base oil viscosity at 40 °C, see scale in fig. 1. The middle figure (1 in this instance) indicates the content of molybdenum disulphide in %, while the final figure indicates the grease's NLGI number, see scale in fig. 2.

Fig. 1

Base oil viscosity at 40 °C	
1	10 mm ² /s
2	30 mm ² /s
3	60 mm ² /s
4	100 mm ² /s
6	200 mm ² /s
7	200 mm ² /s
8	600 mm ² /s
9	900 mm ² /s

Grease for the transport market

It can occasionally be difficult to choose the right grease for the right lubricating point. Many products have names that are difficult to understand and require some knowledge to interpret. Statoil Lubricants intends to change this through a series of products aimed at the transport market.. Products that are what they are called, and that differ from each other through different colours on the labels.

The products have been developed to provide the best possible performance at each lubricating point. Four products are sufficient to lubricate most vehicles:

Wheel Bearing Grease –
Wheel bearing grease

Chassis Grease –
Chassis grease

Central Lubrication Grease – Central lubrication grease

5-Wheel Grease –
Fifth coupling grease





LUBRICATING GREASE

Standard				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40 °C
MolyWay Li 412	2	Lithium	-30--+120	110
Grease for lubrication within light industry. Contains molybdenum disulphide.				
MolyWay Li 712	2	Lithium	-30--+120	200
Universal grease for vehicles and industry. Contains 1% molybdenum disulphide.				
UniWay Li 61	1	Lithium	-30--+120	200
UniWay Li 62	2	Lithium	-30--+120	200
Universal grease for lubricating all types of lightly/heavily loaded sliding, ball and roller bearings in vehicles and industry. Good water resistance.				
Extended				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40 °C
UniWay Bio LiX 62	2	Lithium complex	-30--+120	200
Environmentally-friendly universal grease for vehicles and industry.				

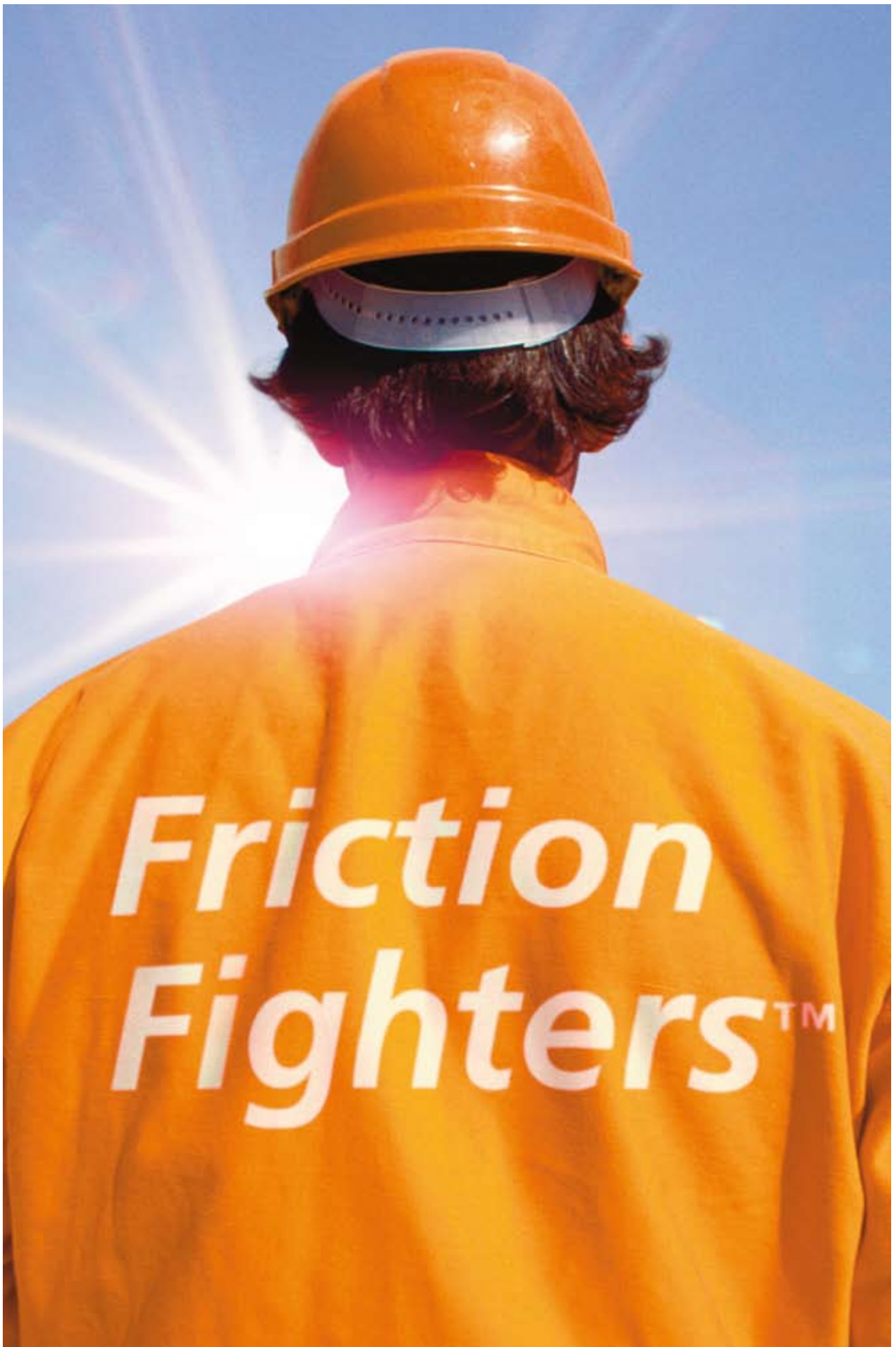
Extended				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40 °C
UniWay LiX 42	2	Lithium complex	-30--+140	110
UniWay LiX 62	2	Lithium complex	-30--+150	
UniWay LiX 625	2,5	Lithium complex	-30--+150	200
Grease for use in most areas of application. Wide temperature range.				
UniWay LiX 22 PA	2	Lithium complex	-50--+100	40
Grease with synthetic base oil. For use at low temperatures and/or high speeds.				
UniWay LiX 42 PA	2	Lithium complex	-40--+150	150
Grease with synthetic base oil. For use within a very broad temperature range.				
UniWay LiX 82 PA	2	Lithium complex	-35--+180	460
Grease with synthetic base oil suitable for lubrication at high temperatures and/or low speeds.				
Special				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40 °C
Alexol Stabox	1,5	Polytetrafluoroethene	-50--+250	150
Special grease for lubrication where the environment is very corrosive or highly oxidising. Resistant against fuel, weak and strong acids, alcohols, halogens, liquid oxygen, etc.				
GreaseWay ALX 82	2	Aluminium complex	-10--+165	550
Grease for use in the food industry. Extremely adhesive.				
GreaseWay ALX 42	2	Aluminium complex	-20--+150	150
Grease for general lubrication within the food industry.				

LUBRICATING GREASE

Special				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40 °C
GreaseWay Bio LiX 400	00	Lithium complex	-40--+110	100
Environmentally-friendly grease for vehicle-mounted or stationary central lubrication systems.				
GreaseWay CaH 92	2	Calcium	-30--+110	790
Special grease for slow-moving sliding bearings. Good adhesion and water resistance.				
GreaseWay Electric	1	Lithium	-50--+100	50
Special grease for use as oxidation protection on isolators and electrical switches. Also recommended for lightly loaded bearings, apparatus and instruments, as well as screw gears, etc.				
GreaseWay HT 2	2	Lithium complex	-40--+250	160
Special grease for use at high temperatures. Typical applications include bearings in warm surroundings, e.g. ovens.				
GreaseWay Li 11 Pa	1	Lithium	-50--+100	20
Special grease with synthetic base oil for lightly loaded bearings, apparatus and instruments, as well as screw gears, etc. Very good low temperature properties.				
GreaseWay Li 12	2	Lithium	-50--+90	7,5
Special grease for bearings exposed to low temperatures.				
GreaseWay LiCa 80	0	Lithium calcium	-20--+120	585
Soft grease for highly loaded slow moving operations. For example top cone bearing in stone mills, gearboxes or large sliding and rolling bearings at low speeds. Very adhesive and water resistant.				
GreaseWay LiCa 91	1	Lithium calcium	-30--+130	900
Pliable grease for highly loaded, slow-moving bearings. Very adhesive and water resistant.				

Special				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40 °C
GreaseWay LiCa 92	1	Lithium calcium	-30--+130	950
Special grease for highly loaded, slow-moving bearings. Very adhesive and water resistant.				
GreaseWay LiCaX 90	0,5	Lithium calcium complex	-30--+100	800
Special grease for chains and open toothed gears.				
GreaseWay LiX 81	1	Lithium complex	-30--+180	550
Special grease with pliable consistency for lubricating heavily loaded sliding and roller bearings at high temperatures.				
GreaseWay LiX 82	2	Lithium complex	-30--+180	550
Grease for lubricating heavily loaded sliding and roller bearings at high temperatures.				
GreaseWay LiX 81 P	1	Lithium complex	-0--+100	660
Special grease for clutch assemblies and high peripheral speeds.				
GreaseWay LiX 400	00	Lithium complex	-35--+100	115
Special grease for central lubrication of sliding and roller bearings, both mobile and stationary. Also recommended for grease-filled gears.				
GreaseWay LiX G 1000	000	Lithium complex	-50--+100	14
Special grease for automatic rail lubrication apparatus. Contains graphite.				
GreaseWay O 2	2	PTFE	-30--+260	500
Special grease for lubrication where the environment is very corrosive or highly oxidising. Resistant against fuel, weak and strong acids, alcohols, halogens, liquid oxygen, etc.				
GreaseWay SG 32W	2	Silica gel	-30--+100	67
Grease based on medical white oil. For use in the food industry.				
MolyWay Li 732	2	Lithium	-30--+120	200
Special grease for lubricating sliding and roller bearings within heavier industry and vehicles. Contains 3% molybdenum disulphide.				
MolyWay LiCa 932	2	Lithium	-20--+120	950
Special grease for highly loaded, slow-moving bearings. Very adhesive and water resistant. 3% molybdenum sulphide.				

Special				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40°C
White Vaseline	4,5	Wax	-	11 at 70°C
Mineral oil product. Recommended as impregnating agent for cardboard sheaths for electrical cables and for lubricating plastic and rubber components. After distillation, the product has been refined to medical quality.				
Wire Grease	0	Calcium	-30--+100	70
Special grease for wire lubrication.				
Auto				
	NLGI	Thickening agent	Working temp. °C	Base oil viscosity mm ² /s 40°C
Central Lubrication Grease	00	Lithium complex	-35--+100	110
Special grease for vehicle-mounted central lubrication systems.				
5-Wheel Grease	0,5	Organic	-10--+120	2080
Fifth coupling grease. Extra adhesive special grease for fifth couplings on tractor units.				
Chassis Grease	2	Calcium	-20--+110	850
Special grease for chassis lubrication. Adhesive and water resistant.				
Chassis Grease Winter	2	Calcium	-30--+110	180
Special grease for low temperatures. Adhesive and water resistant				
Wheel Bearing Grease	2,5	Lithium complex	-30--+150	
Special grease for lubricating wheel bearings. Good high temperature properties.				



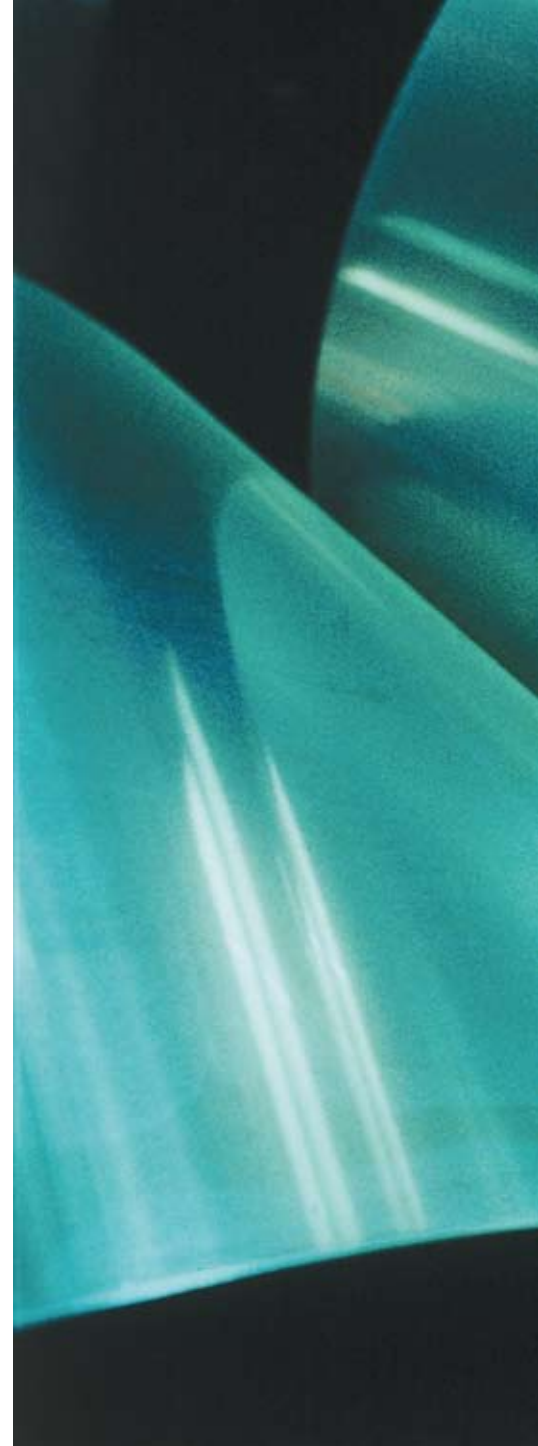
METALWORKING FLUID



Statoil Lubricants has a complete range of products for metalworking. Metalworking is divided into two main groups according to the type of processing: machining and forming. Machining covers e.g. grinding, turning, milling and drilling. Examples of forming include rolling, bending, forging, drawing and pressing.

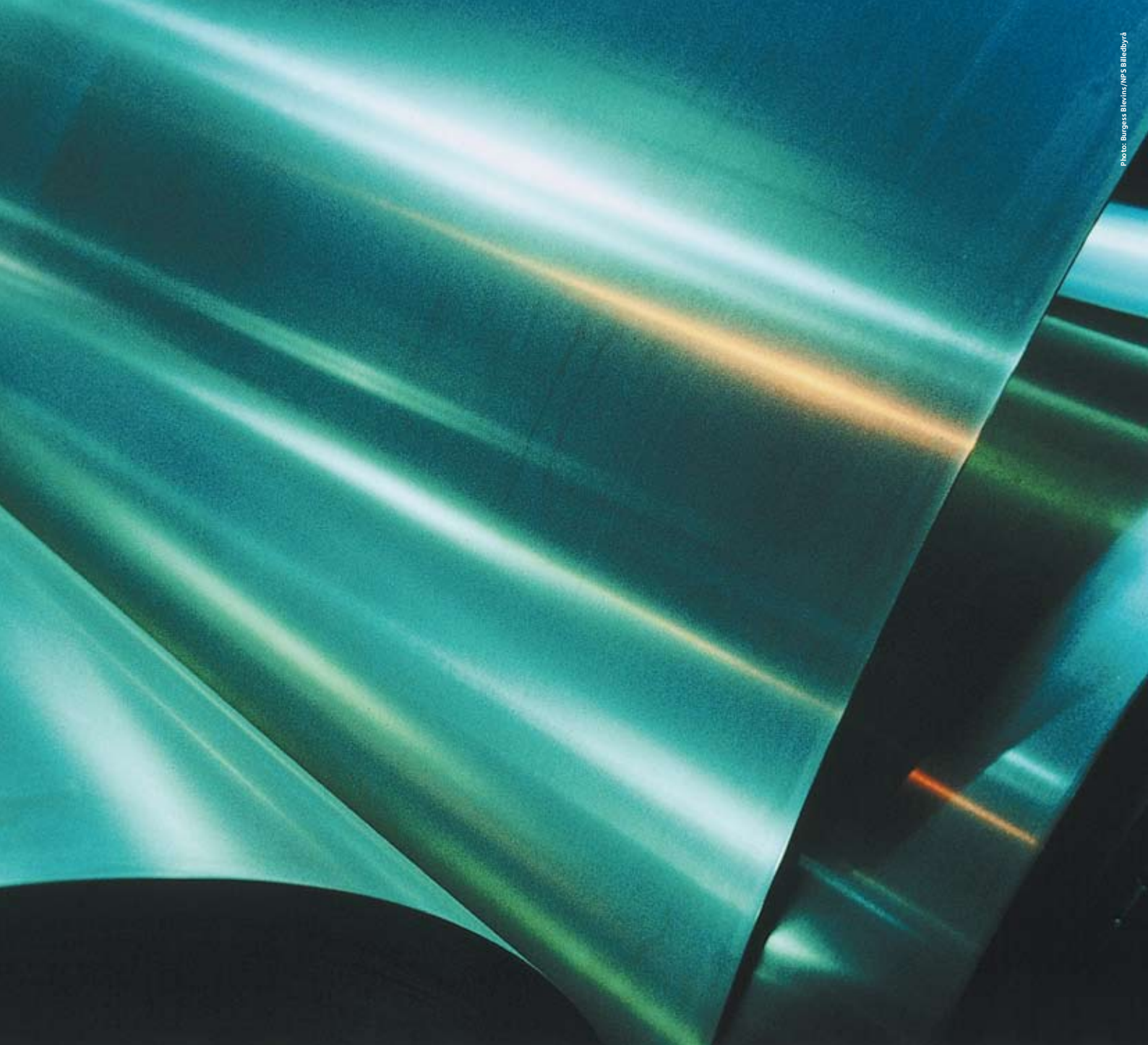
Cutting fluids for the engineering industry can be divided into three groups: cutting oils, emulsions and solutions. Cutting oils cannot be mixed with water. They can be made up of different types of base oil, such as mineral oil, white oil, natural and synthetic esters. Apart from these base oils, a cutting oil usually comprises various types of additive to reduce the friction between the tool and the workpiece. Different types of additive are used depending on the degree of difficulty. In the case of heavy-duty machining processes, EP additives are used, for example. An emulsion is a water-miscible oil with various types of additive for adjusting pH, corrosion protection and lubrication. Solutions do not contain oil, but are made up of water and additives for adjusting pH and providing good rust protection.

The function of a cutting fluid is three-fold: to reduce the friction between tool and metal, to cool and to remove any chips that is formed during machining. The choice of product depends on the machining method and the material. Correctly used fluids result in an increased lifetime of the tool, improved surface evenness, increased precision of dimensions and controlled chips management.



Water-miscible cutting fluids are the product group that is expanding the most, and there are three main reasons for this. To start with, industry is working with increasingly high machine speeds, which entails increased demands for effective cooling. In addition, the need for lubrication is decreasing through better application of the cutting fluid. Another reason is a general increase in consideration for the environment.

When it comes to the rolling segment, Statoil Lubricants is the leading player on the Swedish market. Rolling oils are developed and optimised alongside the



customer in question to provide maximum performance.

Statoil Lubricants is happy to help with individual recommendations as regards the choice of metalworking fluid. This is particularly important in the case of advanced machining, more difficult materials or when there are critical environmental and working environment issues.

The following pages show Statoil's primary products for metalworking. In addition to this product range, we also have spark erosion fluids, grinding oils, rolling oils, punching oils and rolling emulsions.

METALWORKING FLUID

Cutting emulsion					
	Viscosity mm ² /s 40° C	pH value at			Refractometer index
		2% conc.	4% conc.	5% conc.	
CoolWay E 32	40	-	-	9,2	1
Emulsifiable cutting oil that produces a stable, lubricating and rust-proofing emulsion. Recommended for most cutting and grinding operations in various materials (not magnesium). Recommended conc. 4-8% depending on operation.					
CoolWay GM	36	9,1	-	-	1
Biostable coarse emulsion with a long lifetime and good temporary rustproofing. For most types of machining in cast iron, low-alloy steel, aluminium, copper and copper alloys. Recommended conc. 1.5-5%					
CoolWay G2	88	-	-	9,4	1
Semi-transparent, biostable, emulsifiable cutting oil with wear-reducing and film-reinforcing additives. Recommended for most cutting and grinding operations in high and low-alloy steel, aluminium and copper. Recommended conc. 3-6%.					
CoolWay AL X	51	-	-	9,1	1
Extremely biostable, emulsifiable cutting oil with wear-reducing and film-reinforcing additives. Primarily intended for demanding machining in aluminium, but also in steel. Recommended conc. 5-10%					
CoolWay M	40	9,3	-	-	1,7
Biostable, transparent emulsion with low mineral oil content. The product has a long lifetime and provides good temporary rust protection. For general machining of cast iron, low-alloy steel, aluminium and copper. Very good separation of leaked oil. Recommended conc. 3-6%					

Cutting emulsion					
	Viscosity mm ² /s 40 °C	pH value at			Refractometer index
		2% conc.	4% conc.	5% conc.	
CoolWay EAL					
Biostable, emulsifiable cutting fluid based on synthetic esters and synthetic base oils. Coolway EAL reduces oil mist and skin troubles. Mainly used for demanding operations in aluminium alloys but also in steel and other metals. Recommended concentration is 5 - 10 %.					
CoolWay S	1,5	9,2	-	-	1,8
Fully synthetic solution with low foaming and good rustproofing properties. For grinding and basic machining in most materials. Recommended conc. 1.5-2.5%					
CoolWay S Co	-	9,2	-	-	2,0
Fully synthetic solution for grinding in hard metals. The product does not release cobalt. Low foaming with excellent rust protection. Recommended conc. 1.5-4%.					
Cutting oil					
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC	
		20 °C			
Stratus 022	-	2,1	73	-	
Thin, low-aromatic hydrocarbon cutting oil primarily intended for honing. Can also be used for spark erosion.					

METALWORKING FLUID

Cutting oil				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40°C		
Stratus 104 White	-	3,8	110	125
White oil-based cutting oil for machining in cast iron.				
Stratus 122	-	22	178	-
Mineral oil-based cutting oil for chip removing machining in machine steel, low-alloy steel, copper and aluminium.				
Stratus 204 White	-	4,9	110	125
White oil-based cutting oil with a viscosity adapted for a good cooling capacity and well-functioning transportation of swarf. For honing and lapping in steel as well as for general chip removing machining in steel, aluminium and copper.				
Stratus 405 White	-	5,5	122	134
Thin, white oil-based cutting oil with a viscosity adapted for a good cooling capacity and well-functioning transportation of swarf. For honing, lapping, band polishing, etc., in steel, aluminium and copper.				
Stratus 410	-	12,8	144	-
Cutting oil with high lubricating capacity and good cooling effect. For general to advanced chip removing machining in machine steel, low and high-alloy steel, aluminium and copper. Suitable areas of application are long-hole drilling, ejector drilling, tooth machining, tooth grinding, grinding and honing.				
Stratus 432	-	36,2	196	-
Combined chip removing oil/universal oil for chip removing machining and as a lubricating and hydraulic oil in machine tools. For general chip removing machining in steel, aluminium and copper.				

Cutting oil					
	Active sulphur	Viscosity mm ² /s		Flash point PM	Flash point COC
		40 °C	100 °C		
Stratus 440	-	40	6,4	210	-
Cutting oil with high lubricating capacity. Recommended for tooth machining in Gleason automatic machines and for general to advanced chip removing machining in machine steel, low and high-alloy steel and brass. Delivers a high surface quality on machined components. Does not discolour copper and its alloys.					
Stratus 710	x	10,4	2,42	150	-
Cutting oil with very high lubricating capacity with reduced tool wear, high surface quality and a low tendency to form loose edges as a consequence. Recommended for chip removing machining in all steel grades and for very demanding machining in high-alloy materials. Primarily for long-hole drilling, but also for other machining operations where a cutting oil with a high lubricating capacity and low viscosity is required, e.g. reaming and threading. The product can discolour copper and its alloys.					
Stratus 715 White	x	15,0	3,5	150	-
Stratus 720	x	24	4,1	170	-
Cutting oil with very high lubricating capacity with reduced tool wear, high surface quality and a low tendency to form loose edges as a consequence. Recommended for demanding chip removing machining in all high-alloy steel, Nimonic, Inconel etc. Also for some forming operations where an oil with a very high lubricating capacity is required, e.g. nut forming. The product can discolour copper and its alloys.					
Stratus 815 HC		15	3,8	-	180
Cutting oil with extremely high lubricity, contributing to reduced tool wear, excellent surface finish and good chip removal. The fluid is based on synthetic esters. It reduces oil mist for better working environment. Recommended for very demanding operations in highly alloyed steels. It can stain on copper and copper containing alloys.					

METALWORKING FLUID

Cutting oil				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40 °C		
CutWay Bio 250	-	51,6	>250	-
<p>Light cutting fluid made up of esters without chlorine, sulphur or phosphorus. This produces a very high lubricating capacity and little odour.</p> <p>Recommended for demanding machining of all steel grades as well as titanium, copper and aluminium alloys.</p> <p>Also recommended for forming where a high film strength and low friction are required.</p>				
CutWay Bio 718	x	19	160	-
<p>Light cutting oil based on a mixture of natural and synthetic esters. The product has a very high lubricating capacity with reduced tool wear, high surface quality and a low tendency to form loose edges as a consequence. For advanced chip removing machining in all steel grades and titanium. Also for some forming where a high film strength and low friction are required. The product can discolour copper and its alloys.</p>				
Drawing oil				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40 °C		
Nimbus 203	-	21	154	-
<p>Thin drawing oil with film-reinforcing additives, for easy to medium advanced drawing operations, cutting and punching in steel and aluminium.</p>				

Drawing oil					
	Active sulphur	Viscosity mm ² /s	Flash point		Flash point COC
		40 °C	PM		
Nimbus 702	x	20	154		-
Thin, mineral oil-based drawing fluid with high film strength, good corrosion protection and good oxidation resistance. For moderately advanced drawing and press operations, cutting and punching in steel. Also for chip removing machining, e.g. threading and wire-drawing in alloy materials. Can discolour copper and its alloys.					
Nimbus 715	x	115	180		-
Viscous, mineral oil-based drawing fluid with additives for increased film strength resulting in reduced tool wear. Recommended for demanding drawing operations in stainless steel, high-alloy steel and aluminium. Can discolour copper and its alloys.					
Nimbus 750	x	400	186		-
Mineral oil-based drawing fluid with additives for increased film strength resulting in reduced tool wear. Recommended for demanding drawing operations in stainless steel, high-alloy steel and aluminium. Can discolour copper and its alloys.					
Nimbus Bio 760	x	600	-		170
Nimbus Bio 760 is a punching oil primarily developed for demanding hole-punching in stainless steel. The product can also be used in demanding drawing and press operations in steel plate and stainless steel, where an oil with a high viscosity and lubricating capacity is required. Nimbus Bio 760 also works excellently as a threading oil in stainless steel. The product discolours copper and its alloys.					
Service products					
	Viscosity mm ² /s 40 °C	pH value at			Refractometer index
		2% conc.	4% conc.	5% conc.	
CoolWay System Cleaner 1	7,0	9,8	-	-	-
Water-miscible system cleaner made up of a thin base oil with a high dissolving capacity, as well as effective emulsifiers. Used for cleaning and disinfecting cutting fluid systems that contain oil emulsions or synthetic solutions.					

METALWORKING FLUID

Service products				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40 °C		
Statoil Fungicide	-	-	-	-
Additive for dealing with mould in cutting emulsions.				
Statoil Bactericide				
Additive for dealing with bacteria in cutting emulsions.				
Statoil PH Booster 1				
PH-raising additive. Can be combined with Statoil Bactericide.				
Statoil PH Booster 2				
PH-raising additive with buffer capacity.				
CoolWay Booster L1				
CoolWay Booster L 1 is used as an additive for cutting fluid emulsions when the application requires additional lubricating capacity				
Stratus SD				
Stratus SD is a silicone-free foam-inhibiting agent that is used together with cutting oils. The recommended concentration is 0.02-0.04%. Overdosing can produce the opposite effect than the one intended, which is why care is advised during dosing.				
Stratus SDS				
Stratus SDS is a silicone-based foam-inhibiting agent that is used together with cutting oils. The recommended concentration is 0.02-0.04%. Overdosing can produce the opposite effect than the one intended, which is why care is advised during dosing.				
Statoil Antifoam 1				
Statoil Antifoam 1 is a silicone-type foam-inhibiting agent, which is used in combination with emulsions. The recommended concentration is 0.01-0.02%. Overdosing can produce the opposite effect than the one intended, which is why care is advised during dosing.				
Quenching oil				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40 °C		
Härdolja 145	-	34	210	-
Cold quenching oil with good oxidation stability and holding temperatures of up to 90°C.				
QuenchWay 22	-	24	170	-
Fast-cooling cold quenching oil. Good oxidation stability gives the oil a long lifetime.				

Quenching oil				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40°C		
QuenchWay 125 B	-	124	244	264
Stepped quenching oil for case-hardening with holding temperatures of up to 180°C.				
Other processing				
	Active sulphur	Viscosity mm ² /s	Flash point PM	Flash point COC
		40°C		
SparkWay 70	-	1,72	>65	-
Low-odour, low-aromatic hydrocarbon spark erosion fluid with a high flash point. The viscosity is adapted to provide good transport of the processed material. Aromatic hydrocarbon content 0.05 % by volume.				
RollWay 80	-	1,64	>70	-
Low-viscosity oil with many areas of application within industry, for example as a base in rolling oils for aluminium foil and as a spindle oil for fast-moving grinding machine spindles. The product is colourless and has a low odour.				



CHEMICAL PRODUCTS

Special Chemicals				
	Density		Octane	
	20°C	25°C	RON	MON
Asfaltrent BIO	880	8	140	
<p>Asfaltrent Bio is based on a renewable vegetable raw material (rape methyl ester) and is potentially biodegradable. Asfaltrent Bio is intended for use in asphalt plants, for cleaning asphalt surfacing machines, tools and vehicle loading platforms.</p>				

Storage advice.



LazerWay is a fully synthetic little miracle that has been developed to produce maximum performance and lubrication in modern engines. The result is less friction and an engine in harmony.

Friction Fighters™

 **STATOIL**

changing your day.

STATOIL'S SERVICES

Interested in a friction-free existence?

It is not only machines that benefit from less friction — people do too. That is why we are offering a broad range of services and solutions that make life easier for the people who are responsible for the machines.

Lubrication review

The right lubricant and the right change interval are decisive for achieving optimum operational safety, economy and simplicity for operating personnel. In order to give a complete recommendation, we carry out a detailed lubrication review. Machinery and lubricating points are checked and commented on to provide a foundation for the drawing up of suitable instructions, such as product choice and lubricating intervals.

The lubrication review also results in a recommendation as regards systems for managing change intervals etc. In its simplest form, this might be a matter of laminated lubricating lists and schedules. In its more advanced form, this can relate to handheld computers with barcode readers, log functions for completed work and synchronisation with a maintenance program. A successfully completed lubrication review is also a detailed plant register.

Maintenance and lubrication planning systems Statoil Lubricants Lab Advisor — Oil analyses

Oil analyses can be used to control preventive maintenance, optimise production and reduce maintenance costs simply and cost-effectively. In the same way as a blood test can provide a good picture of a person's health, the analyses can provide information about the state of the oil and the machines and make it possible to take action before operational disruptions arise. We can also carry out trend analyses based on the results, where the optimum interval for oil changes can be calculated.

Statoil Lab Advisor is available in different forms, depending on your needs: Alert and Advanced. Alert is available ready-packaged for most needs within industry, marine, automotive and off-shore sectors. Advanced, just as the name suggests, is a more advanced analysis. It takes a little longer, but on the other hand is a little more flexible. Advanced is particularly suitable for metalworking fluids. Advanced can relate to individual analyses, systemised analysis programs or a comprehensive investigation.

The results of the analyses are transmitted in the form of an analysis report, or are made available on the Internet if you prefer. Naturally we will assist you

with guidance and interpretation of the analysis results.

Statoil Lube Master is an expert lubrication system designed with the focus on the user. It is easy to learn and quick to get started with. The program is adapted for people who want to keep a check on their lubrication, but who already have a maintenance system or who do not need one. If the need arises for a more powerful program, you can easily upgrade to Tekla™ Maintenance.

Tekla™ Maintenance is one of the market's most advanced and yet most user-friendly maintenance systems. In addition to full function for lubrication, you also receive assistance in planning and documenting all your other maintenance, such as error notifications, work orders, stock management, drawing registers and much more.

Waste management

Most major industries are now environmentally certified. Our recycling stations help you easily to meet the environmental requirements, as they



provide a simple, integrated solution for the handling of waste oil and other environmentally hazardous waste, such as batteries, oil filters, hydraulic hoses, packaging, rags and drying cloths.

Together with you, we will go through your needs for handling your company's waste products and jointly devise a system that will work for your particular operation. The recycling station is equipped with the waste tanks and other containers that are required for you to be able to sort and temporarily store your waste products optimally. Each waste product has its own place. We ensure regular collections according to your needs. Using our system, you also receive statistics detailing the types and volumes of waste that are collected during the period.

All handling and transport of oil and chemical barrels is associated with a risk of spillage. Minimising this risk is important, not only with consideration to the environment but also for purely economic reasons — the costs for decontamination are very high and often associated with production stoppages. We therefore offer you Spilguard, a modern, safe and flexible system for barrel handling and collection of spilled oil and used chemicals.

Training

A high level of expertise is the key to safe operation. Our combined knowledge and experience in the field of lubricants extends far back in time, making us well suited to providing training in this area. We can offer training in everything from basic knowledge about lubricants and different types of oil to more complex maintenance issues.

Automatic deliveries

We aim to make your life easier. With our automatic deliveries we ensure that you always have lubricants in stock. We install a sensor in the oil tank that, at a given level, automatically sends a signal to us via modem. This means that we can assume full responsibility for ensuring that you are never left without the necessary lubricants. Both the equipment and its installation are simple and inexpensive, particularly when compared with operational stoppages or express deliveries of extra supplies.



Fluid Management

To large customers we can offer a total lubrication maintenance. We call this Fluid Management. This includes products, services and highly qualified staff stationed at your company who perform all your lubrication maintenance. Our ambition is to contribute to your company with special competence within lubricants.

We ensure that lubricants, staff and equipment are used in the most efficient way.

The first step is to perform a pre study to gather information and thereafter propose solutions and improvements. This is only the beginning of future long-term partnership. Next step is to implement the suggested solutions that we have agreed on.



VISCOSITY TABLES

In 1975, the ISO (International Standardisation Organisation) developed a classification system for viscosity in cSt (centiStoke = mm²/s) measured at 40°C. The system covers 18 viscosity grades (see table). As it is desirable for the viscosity range not to deviate by more than 10% from the average viscosity in each of the 18 groups, the system is not continuous but has established intervals between the grades. ISO simplifies the co-operation and understanding between lubricating oil suppliers, users and machine manufacturers.

ISO viscosity grading of lubricants				
ISO viscosity grade		Average viscosity mm ² /s at 40°C	Limits for viscosity range	
			Min.	Max.
ISO VG	2	2,2	1,98	2,42
ISO VG	3	3,2	2,88	3,52
ISO VG	5	4,6	4,14	5,06
ISO VG	7	6,8	6,12	7,48
ISO VG	10	10	9,0	11,0
ISO VG	15	15	13,5	16,5
ISO VG	22	22	19,8	24,2
ISO VG	32	32	28,8	35,2
ISO VG	46	46	41,4	50,6
ISO VG	68	68	61,2	74,8
ISO VG	100	100	90	110
ISO VG	150	150	135	165
ISO VG	220	220	198	242
ISO VG	320	320	288	352
ISO VG	460	460	414	506
ISO VG	680	680	612	748
ISO VG	1000	1000	900	1100
ISO VG	1500	1500	1350	1650

Translation table between °E (Engler degrees) and ISO-VG classes 10-460. The table assumes a viscosity index (VI) of 90.

Conversion table for viscosities			
Viscosity at 50°C		Corresponding viscosity mm ² /s at 40°C Vi = 90	ISO-VG
°E	mm ² /s		
1,5	6	8,2	10
2,0	12	16	15
2,5	16	23	22
3,0	21	32	32
3,5	25	39	-
4,0	29	44	46
4,5	33	50	46
5,0	37	55	-
5,5	41	65	68
6,0	45	73	68
6,5	49	80	-
7,0	53	85	-
7,5	57	90	100
8,0	61	98	100
8,5	65	105	100
9,0	68	110	100
10	76	128	-
11	84	140	150
12	91	155	150
13	99	162	150
14	106	180	-
16	122	200	220
18	136	238	220
20	152	270	-
24	182	330	320
30	229	414	460

Additive:

Substances that are added to lubricants, fuel and fuel oil.

Additive

Substance that improves the oil's natural properties.

API

American Petroleum Institute. Specifies quality grading of engine oils and transmission oils.

Ash content

The residue of ash that remains after an oil has been completely combusted. The ash content is specified as a percentage of mass, and the ash comprises inorganic salts, oxides and minerals.

ASTM

American Society for Testing and Materials.

Bentonite

Clay, used as a thickening agent for high-temperature grease.

CCMC/ACEA

Alliance of European car manufacturers within the EU.

Colloids

Extremely small particles that are added to lubricants.

Corrosion protection

Additive against rust and corrosion.

CP

centiPoise, measurement unit for dynamic viscosity; mPa.s.

cSt

centiStoke, measurement unit for kinetic viscosity.

(1cSt = mPa.s/density = mm²/s)

Cracking

Molecule crushing, heavy oil molecules are crushed to make light molecules.

Detergent

Dissolving additive.

Dispersant

Additive that keeps impurities finely distributed in the oil.

DIN

Deutsche Industrie-Normen

Dropping point

The temperature at which the oil can no longer be poured.

Emulsifiable oil

Oil that mixes with water.

Engler (°E)

Previous measurement unit for viscosity.

EP

Extreme Pressure, high pressure additive to oil and grease.

Fatty oils

Animal and vegetable oils. Used as film-reinforcing additive (compounded oil).

Flash point

The temperature of the oil when the emitted gases are ignited by an open flame. Measured according to the COC method (Cleveland Open Cup) or the PMCC method (Pensky-Martens Closed Cup).

Foaming

Occurs when air bubbles are whipped into the oil. Reduced with foam-inhibiting additives. The bubbles impair the lubricating properties and increase oxidation.

Friction

Resistance to movement.

Friction Fighter

An employee at Statoil Lubricants who does everything to minimise friction for the benefit of man, machine and the environment.

Glycol

A type of alcohol that is widely used within lubrication technology.

Graphite

A solid lubricant that is used as an additive to oil and grease.

HD oil

Heavy Duty — older designation for engine oils with cleaning additives.

IR

Infrared spectrophotometer for analysis of lubricants.

Lithium complex grease

Lubricating grease thickened with complex lithium soap, so that it can be used at higher working temperatures.

MIL-L xxx

American military specifications.
(MIL-L-2105C = API GL-5)
(MIL-L-46152D = API SG)

Molybdenum disulphide (MoS₂)

A solid additive to oils and grease.

MVMA

Motor Vehicle Manufacturers Association.

Naphthene base oil

Mineral oil with good flow properties at low temperatures.

NMMA

National Marine Manufacturers Association, heir to the BIA - Boating Industry Association.

NLGI

Classification system for lubricating grease according to consistency.

OEM

Original Equipment Manufacturers, manufacturers of technical equipment (using components from subcontractors).

Oxidation protection

Additive intended to prevent the oil from oxidising and so give it a longer lifetime.

PAO

Polyalphaolefins, i.e. a type of synthetic base oil that can be mixed with mineral oil.

Paraffin base oil

Mineral oil that is the most widely used type of base oil in lubricants.

Polymers

Long molecule chains. Synthetic additive for improving the oil's fluidity.

Pour Point

The lowest temperature at which an oil is still liquid (during cooling).

PPM

Parts Per Million, i.e. a concentration of 1/1,000,000 of a substance in a mixture.

Process oil

Oil that is included or consumed in a production.

Pumpability

The lowest temperature at which it is possible to pump the oil.

SAE

Society of Automotive Engineers. The SAE system is used for grading engine and transmission oils according to their viscosity.

Silicones

Water-resistant and strongly water-repellent polymers.

Sludge

Deposits of impurities, particularly in engines. Linked to the additives in the oil.

Synthetic oil

Lubricating oils where the base oil is produced through a chemical process. The starting material is usually crude oil or gas.

TBN

Total Base Number. Indicates an oil's ability to neutralise acids.

Tribology

The study of lubrication, friction and wear.

VI

Viscosity index, an expression of the oil's resistance to changing viscosity in the event of temperature variations.

Viscosity

Designates a fluid's thickness and/or fluidity.

Waste oil

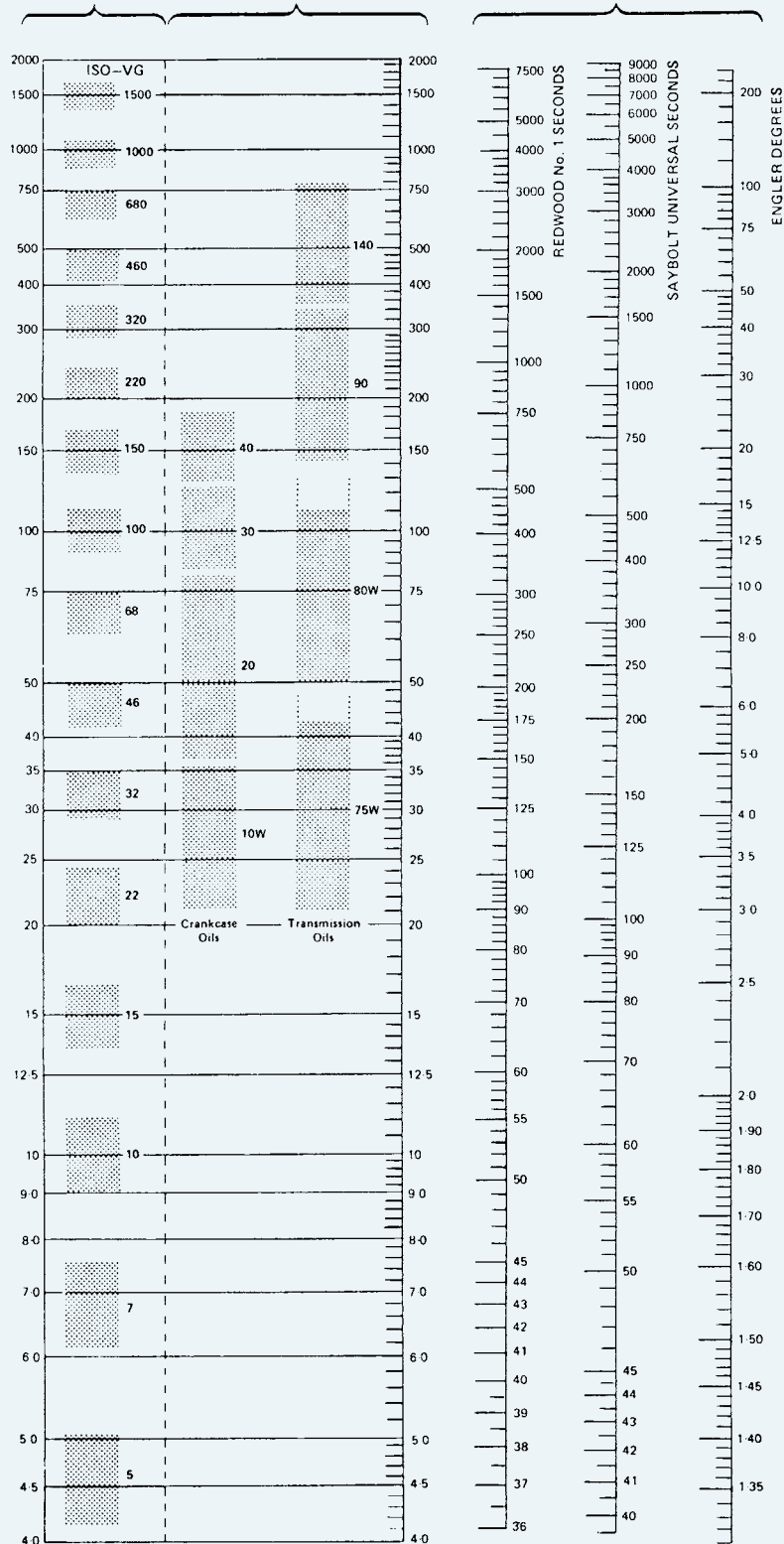
Used lubricating oil that must be destroyed in an appropriate manner.

Comparison table between ISO classes, SAE numbers and the most common viscosity designations

ISO viscosity classes mm²/s at 40 °C. Note! ISO-VG2 and VG3 are not displayed.

SAE grades. Approximate viscosities at 40 °C, assumed VI = 90.

Scales for comparison of Redwood 1 seconds, Saybolt Universal seconds and Engler degrees with ISO viscosity grades at 40 °C.



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