

**ADDINOL**<sup>®</sup>  
THE ART OF OIL • SINCE 1936

Lubricants for Mining

# ADDINOL Xtreme



[www.addinol.de](http://www.addinol.de)





## Solutions for all lubrication-related challenges

ADDINOL is one of the few companies in the German mineral oil industry acting independently of any large business group and has distributor partners on all continents and in more than 120 countries. Our high-performance lubricants are designed

elements reflecting the highest level of modern technology. In symbiosis with engines, drives, chains, bearings and hydraulic systems they reveal their full performance.



Development and production at the company site in Leuna, one of the most modern lubricant factories in Europe



More than 650 different products, filled, packed, stored and dispatched in line with highest standards



Decades of experience and close cooperation with internationally leading OEM and institutes. State-of-the-art instrumental analytics and selected machine test benches in our own laboratory



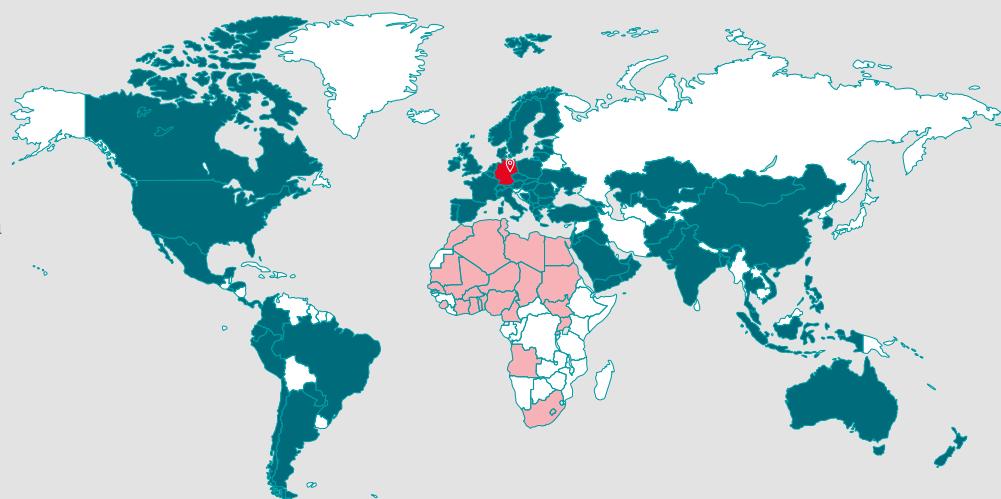
Extended operating lives, increased energy efficiency, reliable protection of components, extended lifetime and resource-conserving – added value in the long run

## ADDINOL worldwide – More than 120 countries on all continents

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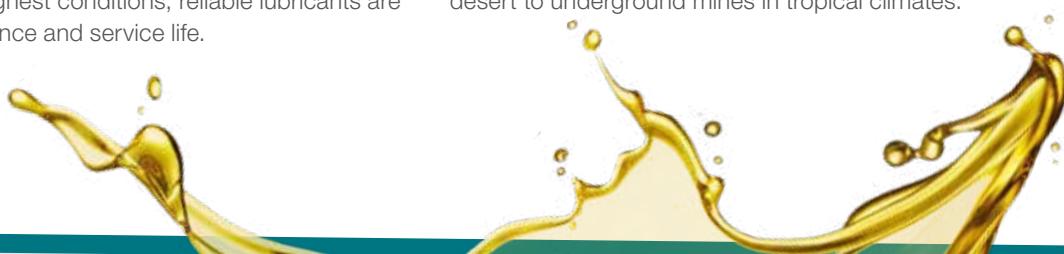


# ADDINOL Xtreme

## Designed for the biggest challenges

The mining of ores and precious metals is central to Africa's economic development. Dusty pits, high humidity, extreme heat, strong vibrations and heavy loads put people and technology to the test every day. Wherever machines operate under the toughest conditions, reliable lubricants are crucial for performance and service life.

ADDINOL understands the unique challenges of African mining operations. As an experienced lubricant partner, we offer tailor-made solutions that are designed for the demanding conditions of mining – from ore deposits in the desert to underground mines in tropical climates.



### Harshest requirements for mining lubes



- Extreme machine dimensions
- Inconsistent material standards
- Enormous loads
- High and varying ambient temperatures



- Non-stop operations
- Longest operating intervals
- Mixed fleets



### Engineered to go beyond limits



- Extreme durability
- Extended drain intervals
- Guaranteed machine availability
- Approved by leading OEM
- Fleet-wide compatibility

# ADDINOL Gear Oils for all requirements

ADDINOL offers a **whole range of gear oils** tailored to various applications and requirements in both mobile and stationary equipment:

- ✓ Suited for closed gears with splash or circular lubrication
- ✓ Standard mineral oil based gear oils for normal requirements
- ✓ Eco Gear range for demanding applications where standard lubricants fail
- ✓ Biodegradable gear oils for ecologically sensitive areas

## Your benefits with ADDINOL gear oils



**Reliable lubrication even under extreme operating conditions**



**Maximum wear protection**



**Reliable micro-pitting protection**



**Highest scuffing load capacity**



**Reduction of gear power loss**



**High temperature resistance**

We recommend our ADDINOL Analyses Service for the regular monitoring of the oil condition to support the reliable and economical operation of units. Possible malfunctions or disruptions can be detected early on to prevent breakdowns and standstills.



### Benefits

#### Clear

Traffic light system for recommended oil change intervals

#### Clearly structured

Individual oil application time in focus

#### Concise

Analytical values at a glance and highlighted in case of irregularities

#### Individual

Comments tailored to the respective unit

### ADDINOL lab report

ADDINOL lab report			
ADDINOL Lube Oil GmbH + Am Haupttor 1 D-06237 Leuna	Engine identification: Gearbox 1	page 1 of 2	
ADDINOL Lube Oil GmbH	Number of current sample: ADD270125		
Am Haupttor 1	Machine type: Ex AM 1		
Leuna	Machine manufacturer: Example Company		
Responsible person:	Product name: Eco Gear 320 S		
Mobile: -	Oil volume: 100 liters		
E-Mail: -			
Diagnosis	Recommendation		
Please send the next sample after 12 M.	+12 M	Extension	
		Information	
		Oil change	
Analysis results	Current sample	previous Analysis	
Lab. rep. number	ADD270125	ADD130824	ADD200624
Date of analysis	27.01.2025	13.08.2024	26.06.2024
Sampling date	25.01.2025	02.08.2024	18.04.2024
Last oil change	02.08.2024	02.08.2024	16.04.2018
Op. h since oil change	0h/m	5	2
Operating hours complete	0h/m	97.073	62.119
Oil change	No	Yes	No
Oil condition			
Viscosity at 40°C	mm <sup>2</sup> /s	310.55	310.01
Viscosity at 100°C	mm <sup>2</sup> /s	30.84	31.21
Viscosity index		137	139
Neutralization number	mgKOH/g	1.84	2.31
Acid number	Acn	0.0	0.0
Wear elements			
Aluminum (Al)	mg/kg	0	0
Lead (Pb)	mg/kg	0	0
Chrome (Cr)	mg/kg	0	0
Tin (Sn)	mg/kg	6	145
Copper (Cu)	mg/kg	0	1
Hnickel (Ni)	mg/kg	0	0
Manganese	mg/kg	0	1
Tin (Sn)	mg/kg	0	0
Impurities			
Water K. F.	ppm	73	301
Potassium (K)	mg/kg	0	0
Sodium (Na)	mg/kg	12	8
Silicon (Si)	mg/kg	1	6
Lithium (Li)	mg/kg	0	0
Titanium (Ti)	mg/kg	0	3
Tungsten	mg/kg	0	0
PQ index		25	25
Previous ADDINOL recommendation	+12 M	Oil change	+24 M

ADDINOL	DIN	ISO	Application temp. (min./max.) (°C)	Approvals, specifications and recommendations	Product description
<b>Eco Gear GLS 68 ... 680</b>	51517/3 (CLP)	ISO 12925-1 (E) (CKE) ISO 6743-6 (E) (CKE) DIN ISO 3448	-30 / +120 (short-term up to +150)	ANSI/AGMA 9005-F16, SEB 181 226, SAE J 306 Viscosity classes, Winch gears of ZF Industrial drives, Planeta in Leitner- Prinoth, Kässbohrer, Industrial lifting and conveyor systems	Synthetic base oils with EP/AW additivation for maximum load bearing capacity (in line with API GL-5) and highest corrosion and ageing protection in industrial applications with extreme loads or frequent severe loads, suited for closed gears of different construction types, spur gears, planetary and axle gears, long-term efficiency
<b>Eco Gear 68 S-T 100 S ... 680 S</b>	51517/3 (CLP)	ISO 12925-1 (E) (CKE, CKSMP) ISO 6743-6 (E) (CKE, CKSMP) DIN ISO 3448	68 S-T: -40 / +120 100...680 S: -30 / +120 (short-term +150)	ANSI/AGMA 9005-F16 AS Drives, Brückner Maschinenbau, David Brown, Koellmann Gear, Renk, Flender, Sumitomo- Hansen, ZF Industrie, Zeilfelder Pumpen, further 68 S-T: Siemens NT7300 A-c ISO-VG 68, Pekrun Standard 8053	Silicone-free, synthetic high-performance gear oils with Surftec®-technology, for closed gearboxes of different construction types, also suitable for roller and sliding bearings, ideal for high mechanical and thermal loads, prevention of micro-pitting and pittings, noticeable prolongation of the operating life of machines and lubricant, saving of energy, re-smoothing of damaged friction surfaces, suitable for wide temperature range, Eco Gear 68 S-T possesses outstanding low temperature properties
<b>Eco Gear 100 M ... 680 M</b>	51517/3 (CLP)	ISO 12925-1(E) (CKC, CKD, CKE, CKSMP) ISO 6743-6 (E) (CKC, CKD, CKE, CKSMP) DIN ISO 3448	-10 / +100	ANSI/AGMA 9005-F16 AS Drives, Brückner Maschinenbau, Coperion- Pfleiderer, Koellmann Gear, Pekrun, PIV-Brevini, Renk, Rossi, Flender, SKET Verselmaschinen, Sumitomo-Hansen, further	Silicone-free, mineral oil based high- performance gear oils with Surftec®-technology for closed industrial gears, roller and sliding bearings at high loads, prevention of micro-pitting and pittings, improvement of the running-in behaviour, re-smoothing of damaged friction surfaces, recommended for mild climates and constant temperature conditions
<b>Gear Oil CKT 68 ... 1000</b>	51517/3 (CLP) CKT 68 ...150: 51524/3 (HVLP)	ISO 11158 / EN ISO 6743-4: HV ISO 12925-1 (E) (CKE) ISO 6743-6 (E) (CKE) DIN ISO 3448	-30 / +120	PIV Drives, Schlosser Pfeiffer, Staeubli	Fully synthetic gear oils based on PAO for closed gears with dip feed and circulation lubrication, long-term usage, for increased demands on high and low temperature behaviour
<b>Poly Gear PG 100 ... PG 680</b>	51517/3 (CLP)	ISO 12925-1 (E) (CSPG, CTPG) ISO 6743-6 (E) (CSPG, CTPG) DIN ISO 3448	up to +180	Brückner Maschinenbau, C.H. Schäfer Getriebe GmbH, Koellmann Gear, Lingl, Pekrun Standard 8053, Pulsgetriebe, Schlosser Pfeiffer	Fully synthetic bearing and gear oils of PAG-type (on polyalkylene glycol basis) especially for roller and sliding bearings and high loads, ideal for worm gears
<b>Gear oil 100 ... 680 F</b>	51517/3 (CLP)	ISO 12925-1 (E) (CKC, CKD) ISO 6743-6 (E) (CKC, CKD) DIN ISO 3448	up to +100	ANSI/AGMA 9005-E02, Brückner Maschinenbau, David Brown, Pekrun Standard 8053, Pulsgetriebe, ISO VG 150...680: Flender Getriebe, Reintjes: BV 1597/4, BV 1917/4	Mineral oil based gear oils for nearly all types of closed industrial gears with spur or bevel gearing, sliding and roller bearings, also for splash or circular lubrication, for high loads and applications with the impact of foreign material
<b>Gear Oil CLP 68 ... CLP 680</b>	51517/3 (CLP) CLP 68, 100: 51524/2 (HLP)	ISO 12925-1 (E) (CKC) ISO 6743-6 (E) (CKC) DIN ISO 3448 CLP 68, 100: ISO 11158 / EN ISO 6743-4: HM	up to +100	PIV-Brevini, Reifenhäuser, SKET Verselmaschinen	Mineral oil based lubricating oils for the lubrication of closed industrial gear systems with spur, bevel or worm gearing, roller and sliding bearings exposed to normal loads, dip feed and circulation lubrication
<b>NatureProof Gear 68 ... 460</b>	51517-3 (CLP)	ISO 12925-1 / ISO 6743-6 (E) (CKES)	-30/+120 (short-term up to +150)	OECD 301 B > 60 % (in 28 days)	Biodegradable industrial gear oils based on saturated esters, very resistant to ageing, excellent air and water separation capacity, low foaming tendency, for closed gears with circulation or splash lubrication, suitable for long-term use



# ADDINOL Eco Gear

## where standard lubricants fail

**ADDINOL Eco Gear M and S** contain the unique Surftec®-technology designed to meet the challenges of heavy-duty applications:

### INCREASED LOAD CARRYING CAPACITY

Surftec® adapts to changing load conditions in the toothings and increases its load carrying capacity significantly. Therefore, load carrying tooth flanks of the gear pairs are optimally protected against wear, material removal, pitting and fatigue even at increased loads.

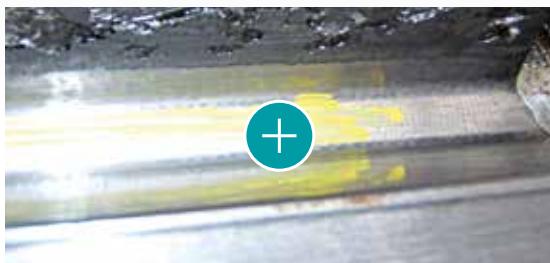
### PD-EFFECT STOPS PROGRESSIVE ABRASION

ADDINOL Eco Gear M and S are perfectly fit for hardened and ground gear teeth prone to micropitting under extreme loads as well as tempered surfaces. Even surfaces pre-damaged by micropitting and pitting are smoothed thanks to the PD-effect (Plastic Deformation); progressive metal abrasions are transformed into regressive ones.

#### View into a gear box before and after 5 months



Sharp edges and pittings: the applied gearbox oil was not up to the typically prevailing loads.



Evident smoothing of the tooth flanks after changing to Eco Gear after 5 months.

**ADDINOL Eco Gear GLS\*** combines the best of two different requirement profiles: exceptional load carrying capacity typical of automotive transmission oils on API GL-5 level and longest service intervals required of industrial gear oils. It has been designed for gears in heavy-duty applications in off-highway and mining trucks.

- Highest load-carrying capacity
- Long-term wear protection
- Significant reduction of friction coefficient and power loss
- Reliable corrosion protection
- High shear stability for stable lubricating film over long intervals

#### TYPICAL INDUSTRIAL APPLICATIONS

- EP performance **moderate**
- Oil life **10,000 to 50,000 oh**
- VI improver **no or low percentage**
- Zinc or calcium **low**

#### EP PERFORMANCE

#### DURATION

- EP performance **high**
- Oil life **3,000 to 5,000 oh**
- VI improver **moderate to high percentage**
- Zinc or calcium **high**

#### TYPICAL AUTOMOTIVE APPLICATIONS

\* There are two variants of Eco Gear GLS available: Eco Gear GLS 68 ... 680 and Eco Gear GLS 75 W 90/75 W 110. They have to be selected according to application and OEM requirements.

## STABILISATION OF PRE-DAMAGED GEARS

Production of cement clinker from limestone and clay

**Location**  
Cement plant, Germany

**Application**  
Cement mill

**Gearbox in use**  
Symetro gear unit type TS 1700B  
from F. L. Smidth & Co. A/S

**Operating hours**  
7,000 / year

**Lubricant used**  
ADDINOL Eco Gear 320 M

**Challenge**  
Progressive pitting caused by conventional CLP gear oil of competitor after 10 years, rough and cracked gear flanks, millimetre-thick layer of metal chips on floor of gear unit, looming total breakdown of gear

**Results**  
With changeover to Eco Gear 320 M a significant improvement of the gear flank condition could be achieved. Sharp edges were rounded and visibly smoothed, oil analysis showed a clear reduction of wear elements. The load bearing capacity of the gear was regained. With this, the replacement investment for a new gear of approximately EUR 700,000 could be avoided.

## SIGNIFICANT REDUCTION OF TEMPERATURE LOADS

Production of various raw materials

**Location**  
Open-cast mining and cement plant, Germany

**Application**  
Discharge conveyor of a crusher in the open-cast limestone mine

**Lubricant used**  
ADDINOL Eco Gear 220 M

**Challenge**  
Monitoring of oil sump temperature in two drives before and after changeover to ADDINOL Eco Gear 220 M.

**Results**  
The temperature could be reduced by 8 to 9 °C under comparable operating conditions in both drives thanks to the additive package Surftec® and the extremely low friction coefficient. As a rule of thumb: oil ageing doubles per 10 °C increase in temperature. With

lowering the oil temperature, the ageing process of the gear oil is considerably delayed, temperature loads on the machine components are reduced.

	Drive 8	Drive 9
Competitor gear oil ISO-VG 220	69.8 °C	69.4 °C
ADDINOL Eco Gear 220 M	60.1 °C	60.7 °C

# Hydraulic fluids for power and precision

**ADDINOL Hydraulic oils** transfer and control forces and movements of machinery in mining and drilling reliably and precisely. ADDINOL offers the optimally adjusted product for each hydraulic system at most difficult operating conditions:

- ✓ Fluids for mobile and stationary machinery
- ✓ Standard fluids for common requirements
- ✓ High-performance fluids tailored to demanding conditions
- ✓ Biodegradable fluids for ecologically sensitive areas
- ✓ Flame resistant hydraulic fluids

## Your benefits with ADDINOL hydraulic fluids

-  Meet highest quality standards
-  Reliable wear and corrosion protection
-  Excellent thermal-oxidative stability for long oil change intervals
-  Clean systems in spite of heat and dust

-  Efficient water separation
-  Excellent VT-behaviour for wide temperature range
-  Good compatibility with sealings



**ADDINOL**  
**Xtreme**  
Designed for Africa's  
harshest conditions

ADDINOL	DIN	Approvals	free of zinc	Application
<b>Standard fluids protecting against corrosion and wear</b>				
<b>Hydraulic oil HLP 10 ... 100</b>	51524-2 (HLP)	ISO VG 32 ... 68: Bosch-Rexroth RD 90220		Mineral base oils, stationary and mobile equipment, suited for high pressures, good demulsibility, can also be used for bearings and gears
<b>Hydraulic oil HLPD 10 ... 68</b>	51524-2 (HLP)	ISO VG 22: F.X. Meiller	✓	Mineral base oils, ideal for mobile plants working under the impact of water, dirt and dust, detergent properties, recommended for pneumatic tools
<b>Hydraulic oil HVLP 15 ... 68</b>	51523-3 (HVLP)	ISO VG 32 ... 68: fulfils: Bosch-Rexroth RD 90220		Mineral base oils, outdoor hydraulics in all-season use and at strongly varying temperatures, high shear stability, good demulsibility
<b>Energy efficient hydraulic fluids</b>				
<b>HV Eco Fluid 32 ... 68</b>	51523-3 (HVLP)			Mineral base oils, outdoor hydraulics in all-season operation, stable viscosity-temperature behaviour over long intervals, outstanding friction behaviour, energy saving potential
<b>HV Eco Fluid AF 32 ... 68</b>	51523-3 (HVLP)		✓	Mineral base oils, outdoor hydraulics in all-season operation, stable viscosity-temperature behaviour over long intervals, outstanding friction behaviour, energy saving potential, for damp ambient conditions
<b>Fluids for the application in ecologically sensitive areas</b>				
<b>NatureProof HLP EL 32 ... 68</b>	51524-3 (HVLP) TOST-test acc. to DIN EN ISO 4263-3	Bosch Rexroth Fluid Rating List RDE 90245, EU Ecolabel DE/027/330 (ISO VG 32, 46), Swedish Standard SS 15 54 34 OECD 301 B > 60 % (in 28 days)	✓	Based on saturated esters, excellent hydrolytic and thermal-oxidative stability, for use in ecologically sensitive areas
<b>NatureProof HLP S 15 ... 68</b>	51524-3 (HVLP) TOST-test acc. to DIN EN ISO 4263-3	Bosch Rexroth RDE 90245 BR-1010-0267, meets: Eaton/Vickers 35VQ25A Pump Test OECD 301 B > 60 % (in 28 days)	✓	Based on saturated esters, excellent hydrolytic and thermal-oxidative stability, for use in ecologically sensitive areas
<b>Fluids for fire hazard plants</b>				
<b>Hydraulic Fluid HFC 32-46</b>	6743-4 (HFC) ISO 12922		✓	Based on polyglycol-water-solution, for plants in mining involving fire hazards, improved protection against corrosion and wear
<b>Hydraulic Fluid HFD U 46, 68</b>	6743-4 (HFD U) ISO 12922	OECD 301 C > 60 % (in 28 days)	✓	Based on ester, free of water, for plants in mining involving fire hazards, usage in ecologically sensitive areas
<b>EcoShield HF-FR 46, 68</b>	6743-4 (HFD U) ISO 12922	OECD 301 B > 60 % (in 28 days)	✓	Based on polyalkylene glycols (PAG), free of water, hydrolytic stability, for plants in mining involving fire hazards, usage in ecologically sensitive areas



# Transmission and engine oils for excavators, wheel loaders, dumpers & co.

Wheel loader, excavator, dumper and further machinery in mining are exposed to heavy loads and shocks, dust and dirt as well as humidity making components prone to wear and corrosion. Usually they operate in stop-and-go mode and under varying conditions. To ensure their stable and reliable performance, they require safe lubrication and maximum protection. ADDINOL engine and transmission oils master these requirements: They ensure reliable lubrication for both cold starts and high temperature operation, efficient protection against wear and corrosion, excellent ageing stability as well as safe transmission of loads and pressures.

- Wide range for manifold requirements in engines and transmissions
- Ideal for heavy loads, dust, dirt and humidity
- Low-, Mid- and High-SAPS engine oils suited for exhaust treatment technology
- Transmission oils for transfer, intermediate and auxiliary transmissions

ADDINOL	SAE	API	OEM-Approvals	Product description
<b>Transmission Oils</b>				
<b>GH 75 W 90 SL</b>	75W-90	GL-5, MT-1	MAN 341 Z2, 342 S1; ZF TE-ML 02B, 05A, 12L, 12N, 16F, 17B, 19C, 21A; DTFR 12B140 (MB 235.8); fulfills: DTFR 13B110 (MB 235.11), DTFR 12B110 (MB 235.20); BMW (Non LS); Mack GO-J; Volvo 97312; DAF/DAF Xtreme; Iveco; Renault; Bosch TE-ML 08; ZF TE-ML 05B, 07A, 21B; Kessler; Scania STO 1:0/2:0G/2:0 A FS; MIL-L-2105 D, MIL-PRF-2105 E; SAE J2360	Fuel-efficient total driveline oil with extended oil drain intervals, suited for heavy-duty vehicles
<b>GH 75 W 90</b>	75W-90	GL-5/GL-4	fulfills: VW G 050 145, G 050 150 (G 50); Volvo 97316 (GO101); MB 235.7; Bosch TE-ML 08; MIL-L-2105 D; ZF TE-ML 07A	Automotive transmission oils for transfer, intermediate and auxiliary transmissions in motor vehicles and machines, particularly for hypoid drives with large offset, for non-synchronised manual transmissions
<b>GH 80 W 90</b>	80W-90	GL-5	ZF TE-ML 07A, 16B, 17B, 19B, 21A; Voith Turbo 132.00374400; MB 235.0; Bosch TE-ML 08; MIL-L-2105 D	
<b>GH 85 W 90</b>	85W-90	GL-5	ZF TE-ML 07A, 16C, 17B, 19B, 21A; Voith 132.00374400; fulfills: DTFR 12B100 (MB 235.0); Kessler; MAN 342 M1; Bosch TE-ML 08; MIL-L-2105 D	
<b>GH 75 W 140</b>	75W-140	GL-5	fulfills: ARVIN Meritor 076-M; Mack GO-J; MIL PRF 2105 E; SAE J2360; Scania STO 1:0/2:0 A; ZF TE-ML 05A, 07A, 12N, 16F, 21A; JCB 4000/4800; MS 8985; Volvo Penta DP-G/DPR/DPH-C, 97312 (FEC); Bosch TE-ML 08; MIL-L-2105 D	
<b>GH 80 W 140</b>	80W-140	GL-5	fulfills: Volvo 97310; ZF TE-ML 05A, 07A, 12E, 16C, 21A; Bosch TE-ML 08; MIL-L-2105 D	
<b>Eco Gear GLS 75 W 90</b> <b>Eco Gear GLS 75 W 110</b>	75W-90 75W-110	GL-5	AS Drives; Siemens Traction Gears GmbH; VOITH Turbo 132.00374401 (SAE 75W-90); DB, ÖBB, SBB – Q1 certified	Transmission oils for bevel and swing gears as well as wheel set and axle gearboxes with exceptional load bearing and scuffing load capacity, for critical and varying conditions
<b>Fluid TO-4</b>	10W 30 50	GL-4, CF	SAE 30: ZF TE-ML 03C, 07F, fulfil Allison C4, Allison TES-439; Caterpillar TO-4, Komatsu KES 07.868.1; ZF TE-ML 03C, 07F; DANA-OHTM-TO	Universal transmission fluid for power trains, power shift clutches, wet brakes and hydraulics of construction machinery and heavy off-road vehicles, preferred use in Caterpillar construction machines of the latest generation
<b>Function Fluids</b>				
<b>Antifreeze CHB</b>			fulfills: AFNOR 15-601; ASTM D3306; BS 6580:2010; FVV R 530:2005; GB 29743:2013 (PC); JIS K2234:2018; O-Norm1; Alfa Romeo, Fiat, Lancia 9.55523; BMW LC 18, LC 87, LC 97; Chrysler MS-7170; CNH Case IH Agriculture JJC-501; Cummins 85T8-2; Deutz DQC CA-14; DTFR 29C120 (MB 325.5); Ford ESD-M97B49-A; Iveco 18-1830; MAN 324 Typ NF & Typ Si-OAT; MTU MTL 5048; Opel / Vauxhall GME L1301; Tesla; Volvo 128 6083/002; VW TL-774 C, D, F, G, J, L (G11, G12, G12+, G12++, G13, G12evo); recommended for: DTFR 29C100 (MB 325.0)	High-quality, modern radiator protection agent, can be used in all heat exchangers in combustion engines, hybrid and electric vehicles, highest chemical stability, reliable corrosion protection, frost protection individually adjustable according to mixing ratio with water, colour: green

ADDINOL	SAE	ACEA	API	TBN (mg KOH/g)	OEM-Approvals	Product description
<b>Engine Oils</b>						
<b>Professional 0530 E8/E11</b>	5W-30	E8, E11 (incl. E6, E7, E9)	CK-4/SN	10.3	Deutz DQC IV-18 LA; DTFR 15C110/ 120 (MB 228.51/52); Mack EOS-4.5; MAN M 3677/3691/3775/3275-1; Renault VI RLD-3; Scania LDF-4; Volvo VDS-4 (incl. VDS-3); DAF PSQL 2.1 E LD; fulfils: Caterpillar ECF-3; Cummins CES 20086/20081; DDC 93K218/222; DTFR 15C100 (MB 228.31); Ford WSS-M2C- 213-A1; Iveco 18-1804 TLS E9; Mack EO-M Plus/EO-N Premium Plus; MTU 3.1; Scania Low Ash; Renault RGD/RXD/RLD/RLD-2; Volvo CNG; JASO DH-2	Synthetic base oils, Low SAPS character, meets strict Euro V and VI emission standards, especially recommended for modern commercial vehicle engines, ideal for low temperatures
<b>Professional 1040 E8/E11</b>	10W-40	E8, E11	E8, E11	10.3	Volvo VDS 4.5; Mack EOS-4.5; Renault VI RLD-3; DTFR 15C110 (MB 228.51); MAN M 3775; Deutz DQC IV-18 LA; Caterpillar ECF-3; MTU 3.1; fulfils: Caterpillar ECF-2/1a; CNH MAT 3571/3521; Cummins CES 20086/20081; DAF; DDC 93K222; Iveco; MAN 3575/3275-1/3477; Scania Low Ash; JASO DH-2	Semi-synthetic base oils, Mid SAPS character, suited for Euro V standards (at low sulphur content in the fuel) as well as Euro VI standards in Iveco and Volvo diesel engines, suitable for DPF, SCR and EGR
<b>Super Truck MD 1049</b>	10W-40	E4/E7	CI-4	15.5	Scania LDF-3; Volvo VDS-3; MAN M 3277; DTFR 15B120 (MB 228.5); MTU 3; Renault VI RLD-2; Deutz DQC IV-18; Mack EO-N; fulfils: Cummins CES 20077/78; DAF	Synthetic base oils, High SAPS character, suited for Euro IV and V standards (Euro VI only for Scania diesel engines)
<b>Super Longlife MD 1047</b>	10W-40	E7,A3/B4	CI-4/SL	11.3	Caterpillar ECF-2; Deutz DQC III-18; DTFR 15B110 (MB 228.3); Mack EO-N; MAN M 3275-1; MTU 2; Renault VI RLD-3; Volvo VDS-3; fulfils: Cummins CES 20076/77/78; DAF; DDC 93K215; DTFR 13D110 (MB 235.28); Fiat-Iveco; MB 229.1; Voith Retarder B; JASO DHD-1; Global DHD-1	Mineral base oils, High SAPS character, supports extended oil change intervals, for all-season operation in highly charged engines at heavy operating conditions, fulfils Euro III emission standards
<b>Professional 1540 E8/11</b>	15W-40	E8, E11 (incl. E6, E7, E9)	CK-4	10.3	Caterpillar ECF-3; Deutz DQC III-18 LA; Mack EOS-4.5; DTFR 15C100 (MB 228.31); Renault VI RLD-3; Volvo VDS 4.5; fulfils: CNH MAT 3571/3521; Cummins CES 20086/20081; DAF; DDC 93K222; Iveco; John Deere JDQ 78x/78A; MAN 3775/3575/3275-1; MTU 2.1; JASO DH-2	Mineral base oils, High SAPS character, supports extended oil change intervals, for all-season operation in highly charged engines at heavy operating conditions, fulfils Euro III emission standards
<b>Diesel Longlife MD 1548</b>	15W-40	E7	CI-4 Plus/SL	11.2	Deutz DQC III-18; DTFR 15B110 (MB 228.3); Mack EO-N; MTU 2; Renault VI RLD-2; Volvo VDS-3; fulfils: Caterpillar ECF-2; Cummins CES 20076/77/78; DAF; DDC 93K215; Fiat-Iveco; Mack EO-M Plus; MAN M 3275-1; Global DHD-1	Mineral base oils, High SAPS character, meets the Euro III emission requirements

## Why the TBN is important

The alkaline reserve defines the capacity of the engine oil to neutralise acid components. Acid components in the oil accelerate oil oxidation, increase viscosity and cause corrosive wear. A reliable operation and long service lives can only be achieved with an efficient control of acid components. With a good alkaline reserve, also variations in fuel quality can be compensated. For fuels with high sulphur content ADDINOL offers the specially tailored engine oil ADDINOL Diesel Power 1548 M. With a TBN of 17 mg KOH/g it provides increased neutralising capacity.



# Greases for highest loads

ADDINOL greases and pastes are tailored to difficult conditions, such as extreme temperatures, strong dust exposure or humidity. They ensure both trouble-free run and



operational safety. They protect against contaminants and corrosion, absorb impact loads and secure long component lifetimes.

<b>ADDINOL</b>	<b>Thickener type</b>	<b>Base oil type</b>	<b>NLGI grade</b>	<b>Base oil viscosity at 40°C</b>	<b>Service temp. (min./max)</b>	<b>DIN tagging / Product description</b>
<b>For roller and plain bearings</b>						
<b>Multi-Purpose Grease L 2 MO</b>	Li-soap	Mineral oil	2	155 mm <sup>2</sup> /s	-30°C / +130°C	KPF2K-30 / Multi-purpose grease containing EP-additives for lubrication of roller and plain bearings, suited for high pressure loads. Contains a combination of the solid lubricants graphite and MoS <sub>2</sub> .
<b>Hightemp EK 2</b>						
<b>Longlife Grease HP 2</b>	Li-Ca-soap	Mineral oil	2	400 mm <sup>2</sup> /s	-25°C / +140°C	KP2N-20 / Multi-purpose grease for lubrication of roller and plain bearings under high loads and/or shock loads, stable under the influence of water.
<b>Eco Grease PD 2-400 Plus</b>	Li-complex	Synthetic oil mixture	2	400 mm <sup>2</sup> /s	-40°C / +160°C	KPHC2P-40 / High-performance grease containing a PD-additive package based on ADDINOL Surftec®-technology, application where small oscillating movements cause high loads on components, prevents micro-pitting and surface damages, very low friction coefficients and optimum wear protection, suited for high pressure loads.
<b>Hightemp XFT 2 Plus</b>	Polyurea	Ester oil/PAO	1-2	460 mm <sup>2</sup> /s	-30°C / +180°C	KPHC1-2R-30 / Synthetic heavy-duty grease for high temperature conditions and the impact of water, very good corrosion protection.
<b>Hightemp HD 2 SL</b>						
<b>Wear Protect SDE 2</b>	Ca-soap	Semi-synthetic	2	800 mm <sup>2</sup> /s	-30°C / +120°C	KP2K-30 / Semi-synthetic heavy-duty grease, exceptional adhesion, very high water resistance, excellent anti-corrosion properties.
<b>For open gears</b>						
<b>Adhesive Lubricant OG 0</b>	Al-complex	Mineral oil	0	1.000 mm <sup>2</sup> /s	-20°C / +200°C	OGPF0S-20 / Graphite-containing fluid grease with high base oil viscosity and wide service temperature range. Provides high load carrying capacity, excellent water resistance and very good adhesion. Suitable for automatic spray lubrication of open gears, gear rims and toothed racks in heavy-duty applications.
<b>Combiplex OG 0-2500</b>	Al-complex	Semi-synthetic	0	2.500 mm <sup>2</sup> /s	-20°C / +200°C	OGPF0S-20 / Graphite-containing fluid grease with high base oil viscosity and wide service temperature range. Provides high load carrying capacity, excellent water resistance and very good adhesion. Suitable for automatic spray lubrication of open gears, gear rims and toothed racks in heavy-duty applications.

ADDINOL	Thickener type	Base oil type	NLGI grade	Base oil viscosity at 40°C	Service temp. (min./max)	DIN tagging / Product description
<b>For environmentally sensitive areas</b>						
<b>NatureProof BHG 0</b>	Bentonite	Ester oil	0	25 mm²/s	50°C / +100°C	GPFE0G-50 / Biodegradable bentonite grease containing EP-additives with high load carrying capacity and good anti-corrosion properties. Designed for the lubrication of buffer heads and open lubrication points. OECD 301 F > 60 % (in 28 days)
<b>NatureProof CA 2</b>	Ca-soap	Rapeseed oil	2	36 mm²/s	20°C / +80°C short-term up to +110	KE2E-20 / Readily biodegradable lubricating grease based on vegetable oil. Reliable protection against corrosion. Suitable for use at loss lubrication points, where excess and displaced grease may penetrate into the ground or waterways. OECD 301 B > 60 % (in 28 days)
<b>NatureProof Super 2 LE</b>	Li-soap	Ester oil	2	100 mm²/s	35°C / +120°C	KPE2K-30 / Readily biodegradable lubricating grease based on synthetic ester oil. Fit for heavy loads. Suitable for use at loss lubrication points, where excess and displaced grease may penetrate into the ground or waterways. Approval: Viper WRL Systems OECD 301 B > 60 % (in 28 days)
<b>NatureProof RG 1</b>	Li-Ca-soap	Ester oil	1	110 mm²/s	50°C/+110°C	KPFE1K-50 / Rapidly biodegradable special grease based on synthetic esters, contains light-coloured solid lubricants, ideal for the lubrication of rail heads and flanks in freight transport, suitable for threaded spindles and slideways. OECD 301 C > 60 % (in 28 days)



## OPTIMISED RUNNING OF DRIVE AND SUPPORT BEARING

Production of cement clinker

**Location**  
Cement tube mill, Chile

**Application**  
Open gearbox on steel ball mill

**Lubricant used**  
ADDINOL Combiplex OG 0-2500

**Challenge**  
A competitor's product resulted in uneven running, pre-damage to bearings and an increased grease consumption.

**Results**  
After switching to Combiplex OG 0-2500 a smooth running of the ball mill could be achieved after only a short time, vibrations were clearly reduced

and concentricity was improved. The grease is up to high loads and temperatures and ensures high pressure resistance as well as reliable wear protection. Even under highest loads Combiplex OG 0-2500 displays exceptional adhesive power, facilitates the sliding movement and improves force distribution. Grease consumption was being reduced.

# Service and maintenance

## Oils and sprays for trouble-free operation

### ADDINOL Compressor oils

<ul style="list-style-type: none"> <li>• High thermal-oxidative stability</li> <li>• Effective prevention of coking and residues</li> <li>• Reliable air and water separation</li> </ul>	<ul style="list-style-type: none"> <li>• High load-carrying capacity</li> <li>• Excellent wear protection</li> <li>• Low evaporation losses</li> </ul>
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<b>ADDINOL</b>	<b>DIN</b>	<b>Approvals, specifications and recommendations</b>	<b>Product description</b>
<b>Compressor oil V 100 ... V 220</b>	51506 (VB) 51517/1 (C)		Mineral oil based, no additives, V 100, V 150: for low and medium pressure piston compressors V 220: medium-pressure piston and cell compressors
<b>Compressor oil VL 150 VL 320</b>	51506 (VCL) 51506 (VBL)		Mineral oil based, ash-containing additives for higher requirements on wear protection, VL 150: compressors operating at low or medium pressure VL 320: for high-pressure piston and cell compressors, suited for high temperatures and high loads
<b>Compressor oil VDL 46 ... VDL 150</b>	51506 (VDL)	ISO 6743-3 (L-DAH) ISO VG 46, 68: ATMOS Chrast ISO VG 68, 100: Rotorcomp ISO VGL 100, 150: LMF	Mineral oil based, ash-free additives, discharge temperatures up to +220 °C VDL 46, 68: in particular for screw-type and rotary compressors VDL 100, 150: for heavy loaded piston compressors
<b>Compressor oil VDL 32 S ... VDL 100 S</b>	51506 (VDL)	ISO 6743-3 (DAJ) ISO VG 32...68: ATMOS Chrast, ISO VG 46: Rotorcomp, ISO VG 100: MSL Compressor	Fully synthetic, discharge temperatures up to +220 °C, for screw-type compressors and sliding vane compressors

### ADDINOL Chain oils

<ul style="list-style-type: none"> <li>• Highly adhesive, thorough penetration</li> <li>• Low deposit tendency</li> <li>• Reliable protection against corrosion and wear</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent thermal-oxidative stability</li> <li>• Low evaporation loss</li> <li>• Long operating lives</li> </ul>
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<b>ADDINOL</b>	<b>V40 (mm<sup>2</sup>/s)</b>	<b>Application temperature (°C)</b>	<b>Approvals, specifications and recommendations</b>	<b>Product description</b>
<b>Chain Lube XHT 50 XHT 150 XHT 250 XHT 3000</b>	56 145 249 3200	up to +250	DIN 51517-2 (CL) ISO 12925-1 (E) (CKB) ISO 6743-6 (E) (CKB) XHT 150: Thyssen Krupp Elevators XHT 250: Brückner, DMT, Andritz, Cellier XHT 150, 3000, XHT 3000 Spray: Lingl	High-temperature chain oils based on synthetic esters, universal application at thermally heavy loaded conveyor and driving chains, XHT 250 and 3000 also available as spray

## ADDINOL Sprays

In mining industry, often lubricants and release agents are required that can be applied easily and evenly and provide reliable protection even at lubrication points that are difficult to access.

The ADDINOL spray range offers a wide selection of practical service products for a variety of applications which facilitate maintenance, cleaning and repair and extend the lifetime of components.

ADDINOL	Basic substance	Application temperature (°C)	Product description
ACP ADDINOL Care Protect	mixture of hydrocarbons	-54 / +150	Multi-functional spray for versatile application, ideal for lubrication and maintenance, effective protection against corrosion and wear, high penetrating capacity, preservative and cleaning agent, can be used under hot, cold and wet conditions
Anti-Corrosion Spray KO 6-F	mineral oil		Multi-functional anti-corrosion fluid containing solvents, for the temporary protection of metallic surfaces, for tools, rabbets and welds, water-displacing, good penetrating properties
Creep oil spray	mineral oil		Water displacing anti-corrosion fluid for metallic surfaces, for chinks and welds and tools, excellent penetrating capacity, easy loosening of rusted connections, rust remover
Chain Lube XHT 250 Spray XHT 3000 Spray	saturated ester	up to +250	High-temperature oils for the lubrication of conveyor and driving chains exposed to heavy thermal loads as well as sliding pairings in high-temperature applications
Anti-Seize Paste GAL Spray	semi-synthetic oil	-20 / +1200	Assembly paste, semi-synthetic basis, fit for high-temperatures and hot joints, useable as screw, assembly and separating agent, sealing and corrosion protection
Universal cleaning spray	mixture of hydrocarbons		Spray for cleaning and maintenance of metal surfaces, degreasing effect, solves residues on moving parts.



**Invincible.**

**ADDINOL Care Protect**

One spray, many applications

ADDINOL Care Protect is a fully synthetic multifunction spray providing excellent corrosion and wear protection. It is ideal for use in the maintenance and repair of units, vehicles and machinery in mining.

**Excellent corrosion protection**

**Stable lubricating film**

**Reliable wear protection**

**High penetrating ability**

**Strong cleaning effect**

## 1 TRANSMISSION

- GH 75 W 90
- GH 80 W 90
- GH 85 W 90
- GH 75 W 140
- GH 80 W 140
- Eco Gear GLS 75 W 90
- Eco Gear GLS 75 W 110
- Fluid TO-4

## 2 ENGINE CRANKCASE

- Professional 1040/1540 E8 E11
- Diesel Longlife MD 1548
- Super Longlife MD 1047
- Super Truck MD 1049

## 3 COOLANT SYSTEM

- Antifreeze CHB  
(complete change necessary)

## 4 BEARINGS & GREASE

- Multi-Purpose Grease L 2 MO
- Hightemp EK 2
- Longlife Grease HP 2
- Wear Protect SDE 2
- Adhesive Lubricant OG 0
- Combiplex OG 0-2500
- Hightemp XFT 2 Plus
- Eco Grease PD 2-400 Plus

## 5 HYDRAULIC SYSTEM

- HV Eco Fluid 32, 46
- HLP 10 ... HLP 100
- HVLP 15 ... HVLP 68
- HLPD 10 ... HLPD 68

## 6 HOIST BRAKE SYSTEM

- Fluid TO-4 SAE 10W
- Turbo Diesel MD Series

## 7 DIFFERENTIALS & GEAR DRIVES

- Eco Gear GLS 68 ... 680
- Eco Gear 68 S-T
- Eco Gear 100 S ... 680 S
- Eco Gear 100 M ... 680 M
- Gear Oil CKT 68 ... 1000
- Poly Gear PG 100 ... PG 680
- Gear oil 100 ... 680 F
- Gear Oil CLP 68 ... CLP 68





**ADDINOL Professional  
mining lubricants**

**1 SWING / GEAR DRIVES**

- GH 75 W 90 SL
- Fluid TO-4
- Eco Gear GLS 75 W 90
- Eco Gear GLS 75 W 110

**2 ENGINE CRANKCASE**

- Professional 1040/1540 E8 E11
- Diesel Longlife MD 1548
- Super Longlife MD 1047
- Super Truck MD 1049

**3 BEARINGS & GREASE**

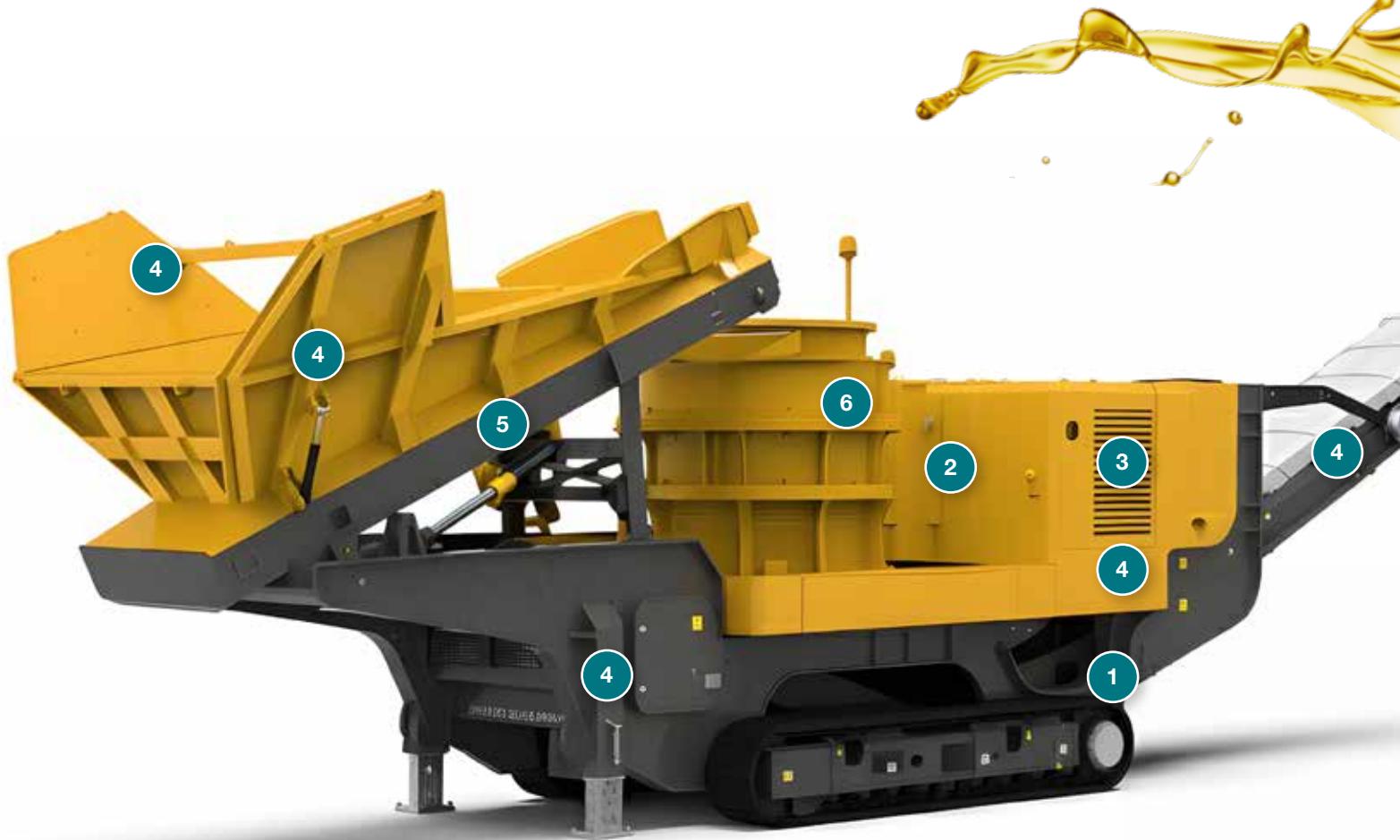
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- Longlife Grease HP 2
- Wear Protect SDE 2
- Adhesive Lubricant OG 0
- Combiplex OG 0-2500
- Hightemp XFT 2 Plus
- Eco Grease PD 2-400 Plus

**4 COOLANT SYSTEM**

- Antifreeze CHB  
(complete change necessary)

**5 HYDRAULIC SYSTEM**

- HV Eco Fluid 32, 46
- HLP 10 ... HLP 100
- HVLP 15 ... HVLP 68
- HLPD 10 ... HLPD 68



## 1 TRANSMISSION

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- GH 80 W 90
- GH 85 W 90
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- Eco Gear GLS 75 W 110
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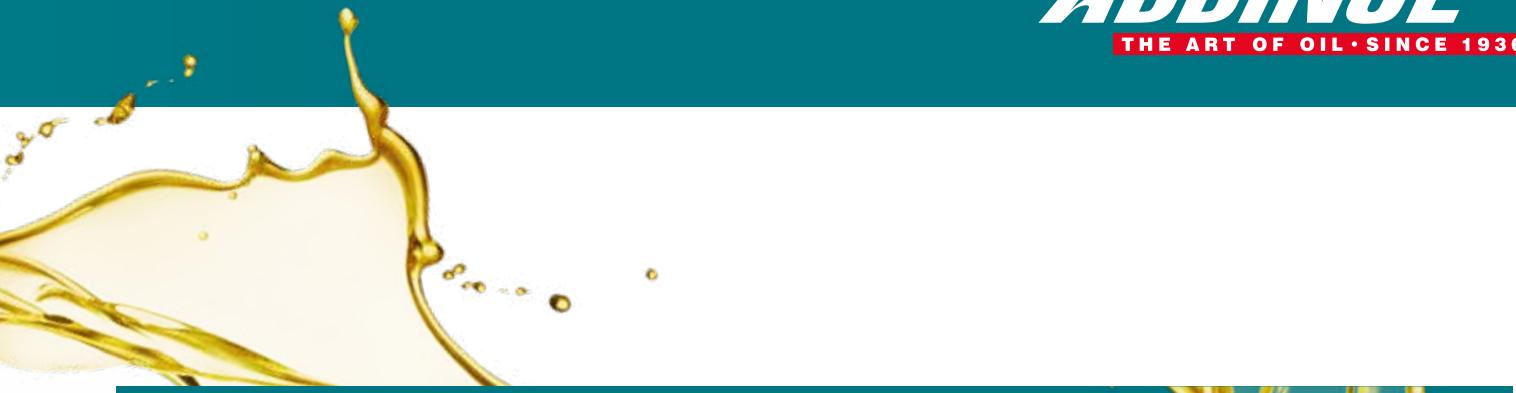
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- Eco Gear 100 M ... 680 M
- Gear Oil CKT 68 ... 1000
- Poly Gear PG 100 ... PG 680
- Gear oil 100 ... 680 F
- Gear Oil CLP 68 ... CLP 68



1	SWING / GEAR DRIVES	3	BEARINGS & GREASE	5	HYDRAULIC SYSTEM
• GH 75 W 90 SL		• Multi-Purpose Grease L 2 MO	• HV Eco Fluid 32, 46		
• Fluid TO-4		• Hightemp EK 2	• HLP 10 ... HLP 100		
• Eco Gear GLS 75 W 90		• Longlife Grease HP 2	• HVLP 15 ... HVLP 68		
• Eco Gear GLS 75 W 110		• Wear Protect SDE 2	• HLPD 10 ... HLPD 68		
2	ENGINE CRANKCASE		• Adhesive Lubricant OG 0		
• Professional 1040/1540 E8 E11		• Combiplex OG 0-2500			
• Diesel Longlife MD 1548		• Hightemp XFT 2 Plus			
• Super Longlife MD 1047		• Eco Grease PD 2-400 Plus			
• Super Truck MD 1049					
4	COOLANT SYSTEM				
	• Antifreeze CHB				
	(complete change necessary)				



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