



**Hydrostatic-mechanical
and electric drive systems**

List of lubricants TE-ML 07

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1. Approved lubricant classes

Product groups	Lubricant classes for service fills ⁽¹⁾	Alternative lubricant classes for service fills ⁽¹⁾
Powershift transmissions HL AVG ⁽²⁾	07B / 07D / 07E / 07F	---
Continuously variable hydrostatic drives HC	Mechanical section: 07D Hydraulic section: 07D / 07H ⁽³⁾	---
Mobile mixer drives CML	Mechanical section: Gear oil ZF Ecofluid X (ZF No. 0681 000 412) Hydraulic section: 07D / 07H ⁽³⁾	---
Mobile mixer drives P3301, P4300, P5300, P6300, P7300 PK5300, PK6500, PK7500	07A / 07C / 07E	07D
Mobile mixer drives PLM P3200	07C / 07E	07D
Swing drives DR	07D / 07E / 07G / 07H	---
Transmissions for lifting equipment RME RMT	07A / 07E	---

The list of lubricants TE-ML 07, **edition 01.10.2018** replaces all previous editions. The current list can be requested from any ZF after-sales service center or accessed on the Internet under www.zf.com/lubricants.

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D-88038 Friedrichshafen
www.zf.com/contact

2. Low temperature limits

Lubricant classes	Viscosity grades	Use at outside temperatures above ⁽⁴⁾	
		Hydrostatic-mechanical and electric drive - Hydraulic section	Hydrostatic-mechanical and electric drive - Mechanical section
07A (Gear oil)	SAE 75W-90, 75W-110, 75W-140	---	-40°C
	SAE 80W-85, 80W-90, 80W-110, 80W-140	---	-26°C
	SAE 85W-90, 85W-110, 85W-140, 90	---	-12°C
ZF Ecofluid X (Gear oil)	SAE 80W-90	---	-26°C
07B, 07C, 07D, 07F (STOU, engine oil, off highway lubricants)	SAE 5W-30, 5W-40	-35°C	-40°C
	SAE 10W-30, 10W-40	-30°C	-35°C
	SAE 15W-30, 15W-40	-25°C	-30°C
	SAE 20W-20	-20°C	-25°C
	SAE 20W-40	-20°C	---
	SAE 30	-5°C	-10°C
07E (Biodegradable lubricants)	SAE 75W-80	-35°C	-40°C
07G (Biodegradable lubricants)	ISO VG 46	---	-10°C
	ISO VG 68	---	-5°C
07H (hydraulic oil)	ISO VG 46	---	-10°C
	ISO VG 68	---	-5°C
	ISO VG 100	---	0°C

3. Explanation of footnotes and comments

Footnotes

- (1) **Refer to the following pages for approved commercial products.**
- (2) For AVGs directly mounted on ZF axles, use gear oils in accordance with TE-ML 05 for the common oil circuit of the transmission and axle.
- (3) Moreover, please observe the specifications provided by the vehicle manufacturer or hydraulic manufacturer.
- (4) An even warm-up phase is needed in order to reach the minimum oil temperature required for starting the drive unit (mentioned low temperature limit). At outside temperatures below -5°C, a warm-up phase of at least 10 minutes is required, irrespective of the viscosity grade used.

Comments

1. A Multipurpose grease classified KP2K-20 acc. to DIN 51825 or classified ISO-L-XBCHB2 acc. to ISO 6743-9 must be used on greasing points (basic oil API Group 1, 2, 3 or 4, EP additives, lithium saponified, temperature use limits min. between -20 and +120° C, NLGI-Class 2).
2. Additives of any kind added later to the oil change the oil in a manner that is unpredictable, and they are therefore not permitted. No liability of any kind will be accepted by ZF for any damage resulting from the use of such additives.

4. Lubricant classes and approved trade products

Lubricant class 07A

Gear oil in accordance with Specification

- API GL-5 / MIL-L-2105D
- MIL-PRF-2105E
- SAE J2360

Viscosity grades: SAE 75W-90 / 75W-110 / 75W-140 / 80W-85 / 80W-90 / 80W-110 / 80W-140 / 85W-90 / 85W-110 / 85W-140 / 90

Base oil API Group 1 / 2 / 3 / 4

Note:

All trade products which satisfy the above specifications may be used. There will be no product listing.

Lubricant class 07C

Engine oil

Viscosity grades: SAE 5W-40 / 10W-40 / 15W-40

Manufacturer (07C)

KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB

Trade name (07C)

Q8 T 750 SAE 15W-40
SHELL SIRIUS 15W-40
SHELL RIMULA R3X 15W-40

ZF approval number

ZF000125
ZF000436
ZF000437

Lubricant class 07D

Engine oil in accordance with specification

- API CD/CE/CF-4/CF/CG-4/CH-4/CI-4/CI-4 Plus/CJ-4
- API SF/SG/SH/SJ/SL/SM
- ACEA-categories A/B/E

Viscosity grades:

Product groups in accordance with page 1	Viscosity grades
<ul style="list-style-type: none"> - Powershift transmissions HL, AVG - Continuously variable hydrostatic drives HC - Mobile mixer drives CML - hydraulic section - Swing drives DR 	SAE 5W-30 / 5W-40 / 10W-30 / 10W-40 / 15W-30 / 15W-40 / 20W-20 / 30
<ul style="list-style-type: none"> - Mobile mixer drives P-series, PK-series and PLM-series 	SAE 10W-40 / 15W-40

Note:

All trade products which satisfy the above specifications may be used. There will be no product listing.

Lubricant class 07E

Biodegradable lubricant (Special approval)

Viscosity grade: SAE 75W-80

Instructions on the use of biodegradable lubricants:

The oil manufacturer's change-over directives included in the product description are to be observed when change-over to biodegradable lubricants is effected.

Manufacturer (07E)

PANOLIN AG, MADETSWIL/CH

Trade name (07E)

PANOLIN BIOFLUID ZFH 10W/30

ZF approval number

ZF000391

Lubricant class 07F
Off highway lubricants
Viscosity grades: SAE 30

Manufacturer (07F)

ADDINOL LUBE OIL GMBH, LEUNA/DE
 ARAL AG, BOCHUM/DE
 AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE
 BAYWA AG MÜNCHEN, MÜNCHEN/DE
 BP PLC., LONDON/GB
 BP PLC., LONDON/GB
 BUCHER AG LANGENTHAL, LANGENTHAL/CH
 CASTROL LTD, LONDON/GB
 CASTROL LTD, LONDON/GB
 CATERPILLAR, INC., MOSSVILLE/US
 CHAMPION CHEMICALS N.V., HEMIKSEM/BE
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 FABRIKA MAZIVA FAM AD, KRUSĚVAC/RS
 FUCHS PETROLUB SE, MANNHEIM/DE
 GAZPROMNEFT-LUBRICANTS, MOSCOW/RU
 GS CALTEX CORPORATION, SEOUL/KR
 INA MAZIVA LTD., ZAGREB/HR
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 MOL-LUB KFT, ALMASFUZITO/HU
 NIS AD, NOVI SAD/RS
 PETROGAL S.A., LISBOA/PT
 PRISTA OIL HOLDING EAD, RUSE/BG
 RAVENSBERGER SCHMIERSTOFFVERTRIEB GMBH, WERTHER/DE
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A, MADRID/ES
 RN-LUBRICANTS, LLC, MOSCOW/RU
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SINOPEC LUBRICANT CO., LTD., BEIJING/CN
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 TEXSA DO BRASIL LTDA, UMUARAMA/PR/BR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 WOLF OIL CORPORATION N.V., HEMIKSEM/BE

Trade name (07F)

ADDINOL FLUID TO-4 SAE 30
 ARAL FLUID TO-4 30
 AVISTA SPECIAL GEAR OIL TO-4 SAE 30
 TECTROL UTTO-TO
 BP AUTRAN 4 30
 BP AUTRAN TO 430
 GEAR OIL MEGA TO-4 SAE 30
 CASTROL TRANSMAX OFFROAD 30
 CASTROL TFC 430
 CAT TDTO SAE 30
 CHAMPION U.T.T. OIL 500
 TORQUE FLUID 434
 DELO TORQFORCE SAE 30
 URSA TORQFORCE SAE 30
 MOBILTRANS HD 30
 TRANSHIDO TO-4 SAE 30
 FUCHS TITAN UTTO TO-4 SAE 30
 G-SPECIAL TO-4 30
 KIXX GEARTEC TO-4 30
 INA TRANSMATIK 30
 Q8 TO-4 FLUID SAE 30
 MOL TRANSFLUID TO-4 SAE 30
 NISOTEC TRANSFLUID TO-4 SAE 30
 GALP MULTITRANS 30
 PRISTA TO-4 30
 RAVENOL CATOEL TO-4 SAE 30
 REPSOL TRANSMISSIONS TO-4 SAE 30
 ROSNEFT KINETIC CATRAN SAE 30
 SHELL SPIRAX S4 CX 30
 SHELL SPIRAX S4 CX 30
 SHELL SPIRAX S4 CX 30
 SINOPEC PREMIUM HD 30 TRANSMISSION OIL
 SRS WIOLIN 430
 TEXSA TAC-4 30
 TOTAL DYNATRANS AC 30
 TOTAL DYNATRANS ACX 30
 WOLF TRACTOFLUID 500

ZF approval number

ZF000511
 ZF000149
 ZF002033
 ZF002194
 ZF001000
 ZF001405
 ZF001740
 ZF000267
 ZF000999
 ZF000869
 ZF003584
 ZF000798
 ZF001903
 ZF001905
 ZF000035
 ZF001108
 ZF002185
 ZF000239
 ZF002238
 ZF000401
 ZF002118
 ZF002244
 ZF000329
 ZF002015
 ZF000884
 ZF001852
 ZF003472
 ZF003343
 ZF000005
 ZF000969
 ZF001209
 ZF001088
 ZF001932
 ZF001921
 ZF001821
 ZF002217
 ZF003583

Lubricant class 07G

Biodegradable lubricant (Special approval)

Viscosity grade: ISO VG 46 / 68

Instructions on the use of biodegradable lubricants:

The oil manufacturer's change-over directives included in the product description are to be observed when change-over to biodegradable lubricants is effected.

Manufacturer (07G)BASF SE, LUDWIGSHAFEN/DE
PANOLIN AG, MADETSWIL/CH**Trade name (07G)**EMGARD® HF EAL 801-46
PANOLIN HLP SYNTH 46**ZF approval number**ZF003590
ZF000592

Lubricant class 07H

Hydraulic oil HLP/HVLP in accordance with DIN 51524-2/-3

Viscosity grades: ISO VG 46 / 68 / 100

Base oil API Group 1 / 2 / 3 / 4

Note:

All trade products which satisfy the above specifications may be used. There will be no product listing.