



Marine transmissions

List of lubricants TE-ML 04

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1. Approved lubricant classes

Product groups	Lubricant classes for service fills ⁽¹⁾
ZF 4 to ZF 115 with all derived variants M, A, IV, C, TS, ATS, IVTS	04D
ZF 220 to ZF 60500 with all derived variants A, V, IV, C, U, D, NR, NR2, NR2H, NR2B, TS, ATS, VTS, IVTS	04A / 04B / 04C
ZF 23560 to ZF 23860 with all derived variants NR, C, D	04B / 04C
ZF W220 to ZF W93100 with all derived variants C, NR, NC, DS, NR2H	04A / 04B / 04C
ZF W93300 and ZF W103100 with all derived variants	04E / 04F
BW 5 to BW 5300 with all derived variants	04A / 04B / 04C
BW 2356 to BW 2386	04B / 04C
HBW 35 to HBW 630 HSW 90 to HSW 110 HSW 125 to HSW 800 with all derived variants	04D
IRM 40 to IRM 50	04D
IRM 220 to IRM 350	04A / 04B / 04C
ZF SD 10, SD 12	04P
SeaRex 120s, 140s, 160s	Drive oil: 04A / 04B / 04C Hydraulic oil: 04K / 04R
ZF AT 400, 2000 to 8000 with all derived variants WM, RT, DM, SM ZF TT 400, 1000 to 8000 ZF SDT 2000 to 6000	Gearbox: 04H / 04M ⁽⁴⁾ Wet operating clutch: 04Q Power pack: 04K ⁽⁶⁾ / 04R ⁽⁷⁾ Planetary gearset ⁽⁵⁾ : 04H _{(2), (3)}
ZF TT 4000 CP, 5000 CP	Gearbox and Power pack: 04H _{(2), (3), (8)}
PPD, PPS	04G

The list of lubricants TE-ML 04, **edition 01.01.2019** 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.

ZF Friedrichshafen AG
D-88038 Friedrichshafen
www.zf.com/contact

2. Oil level check and change intervals

Please refer to ZF operating instructions for information on oil level check and oil filter change.
Please refer to ZF operating instructions and / or transmission type plate for information on oil change intervals.

3. Explanation of footnotes and comments

- (1) **Refer to the following pages for approved commercial products.**
- (2) For further information (approved greases, oil volumes) see "Lubricants equivalents list P0166 ZF Krimpen".
- (3) Oil condition monitoring
 - Oil condition must be checked on regular intervals by specialized laboratories. Intervals described in maintenance schedules.
 - When water contamination in the oil is reported to be above 0,5% it is recommended to change the oil as soon as possible, at latest within 2 months, and check the water contamination increase on a weekly basis.
 - When water contamination in the oil is reported to be above 3%, the oil must be changed immediately. It is highly advised to stop operation of the unit immediately, and contact service organization for remediate action.
 - The advice / report of the laboratory on both water as other contamination is leading!
 - ZF Marine Krimpen BV is in any case not responsible for damages caused by incorrect follow up of the interval checks and advices regarding water in oil or other contamination.
- (4) Oil change from standard oil to biodegradable oil
The following points must be taken into account:
 - Biodegradable oils are miscible with standard oils. Advice for applying biodegradable oils is that the system should be drained and flushed to ensure that the remaining standard oil content of the refilled system is less than 5 %. Mixture less than 5 % has to be confirmed by laboratory oil analysis.
 - All seals, especially propeller and steering pipe seals, in the thruster unit need to be replaced by new ones.
 - Replace lubricant filter.
 - Recommendation: install water separators on the thruster unit.
 - Take oil samples after 50 up to 100 running hours with the new oil.
- (5) Planetary gearsets valid for ambient temperatures of +5°C to +40°C when not connected to the main lubrication oil system.
- (6) Power pack - for units placed in machinery room or on deck running at standard ambient temperatures use lubricants according to lubricant class 04K.
- (7) Power pack - for units placed on deck running at ice-cold ambient temperatures use lubricants according to lubricant class 04R.
- (8) For CP tunnel thrusters the power pack, lower gearbox and header tank is one oil compartment, this means that the total system is working with ISO VG 100 lubricating oil.
Use of biodegradable oil in CP tunnel thrusters will be only possible if the power pack is specially prepared to be suitable for using biodegradable oil.

A Multipurpose grease classified KP2K-20 acc. to DIN 51825 or ISO-L-XBCHB2 acc. to ISO 6743-9 must be used on greasing points (base oil API Group 1, 2, 3 or 4, EP additives, lithium saponified, temperature use limits min. between -20 and +120° C, NLGI-Class 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 04A

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 grade: SAE 30, also SAE 40 in hot countries or when oil sump temperatures are above +80°C

Base oil API Group 1 / 2 / 3 / 4

Note:

1. All trade products which satisfy the above specifications may be used. There will be no product listing.
2. For transmissions which are classified according to DNV, fluids of the class 04A may not be used. Instead of this fluids according to classes 04B or 04C may be used.

Lubricant class 04B

Engine oil

Viscosity grade: SAE 30, also SAE 40 in hot countries or when oil sump temperatures are above +80°C

Manufacturer (04B)

ADDINOL LUBE OIL GMBH, LEUNA/DE
 ADDINOL LUBE OIL GMBH, LEUNA/DE
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 GULF OIL INTERNATIONAL, MUMBAI/IN
 INA MAZIVA LTD., ZAGREB/HR
 INA MAZIVA LTD., ZAGREB/HR
 IPIRANGA PRODUTOS DE PETRÓLEO SA, RIO DE JANEIRO/BR
 IPIRANGA PRODUTOS DE PETRÓLEO SA, RIO DE JANEIRO/BR
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 OOO "PROIZVODSTVO ZAVOD IMENI SHAUMYANA", SAINT-PETERSBURG/RU
 PANOLIN AG, MADETSWIL/CH
 PETROBRAS DISTRIBUIDORA S.A., DUQUE DE CAXIAS/BR
 PETROBRAS DISTRIBUIDORA S.A., DUQUE DE CAXIAS/BR
 PETROBRAS DISTRIBUIDORA S.A., DUQUE DE CAXIAS/BR
 PETROBRAS DISTRIBUIDORA S.A., DUQUE DE CAXIAS/BR
 PETROBRAS DISTRIBUIDORA S.A., DUQUE DE CAXIAS/BR
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR

Trade name (04B)

ADDINOL TURBO DIESEL MD 305 SAE 30
 ADDINOL TURBO DIESEL MD 405 SAE 40
 URSA TRANS SAE 40
 MOBIL DELVAC 1630 SAE30
 MOBIL DELVAC 1640 SAE40
 FUCHS TITAN UNIVERSAL HD SAE 30 ZF
 FUCHS TITAN UNIVERSAL HD SAE 30
 FUCHS TITAN UNIVERSAL HD SAE 40
 GULF SUPER DUTY LE 30
 INA GORGONELA S 30
 INA SUPER 3 30
 IPIRANGA ULTRAGEAR 40
 IPIRANGA ULTRAGEAR ZF 40
 Q8 MOZART DP SAE 30
 Q8 MOZART DP SAE 40
 M-14D2CE (SAE 40)
 PANOLIN EXTRA DIESEL 30
 LUBRAX TURBO SAE 30
 LUBRAX TURBO SAE 40
 LUBRAX TRM 5 HD SAE 30
 LUBRAX TRM 5 HD SAE 40
 LUBRAX TRM 40
 SHELL RIMULA R3+ 30
 SHELL GADINIA S3 40
 SHELL GADINIA S3 30
 TOTAL CAPRANO TD 30
 TOTAL CAPRANO TD 40

ZF approval number

ZF000624
 ZF000625
 ZF000821
 ZF000036
 ZF000037
 ZF000719
 ZF001189
 ZF001190
 ZF001147
 ZF001173
 ZF001468
 ZF001340
 ZF002264
 ZF000095
 ZF000096
 ZF001095
 ZF000393
 ZF000581
 ZF000582
 ZF001174
 ZF001175
 ZF001742
 ZF001618
 ZF002201
 ZF002202
 ZF000533
 ZF000534

Lubricant class 04C

Engine oil

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

Manufacturer (04C)

CHEVRON LUBRICANTS, SAN RAMON, CA/US
CHEVRON LUBRICANTS, SAN RAMON, CA/US
CHEVRON LUBRICANTS, SAN RAMON, CA/US
CHEVRON LUBRICANTS, SAN RAMON, CA/US
CHEVRON LUBRICANTS, SAN RAMON, CA/US
CHEVRON LUBRICANTS, SAN RAMON, CA/US
CHEVRON LUBRICANTS, SAN RAMON, CA/US
EXXONMOBIL CORPORATION, HOUSTON, TX/US
EXXONMOBIL CORPORATION, HOUSTON, TX/US
EXXONMOBIL CORPORATION, HOUSTON, TX/US
EXXONMOBIL CORPORATION, HOUSTON, TX/US
MTU FRIEDRICHSHAFEN GMBH, FRIEDRICHSHAFEN/DE
OOO "LLK-INTERNATIONAL", MOSCOW/RU
OOO "LLK-INTERNATIONAL", MOSCOW/RU
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
TOTAL LUBRIFIANTS S.A., NANTERRE/FR
TOTAL LUBRIFIANTS S.A., NANTERRE/FR
TOTAL LUBRIFIANTS S.A., NANTERRE/FR

Trade name (04C)

DELO 400 LE SAE 15W-40
DELO 400 XLE SYNBLEND SAE 15W-40
DELO 400 MGX SAE 15W-40
DELO 400 MGX SAE 15W-40
URSA ULTRA LE SAE 15W-40
DELO 400 MGX SAE 15W-40
MOBIL DELVAC XHP EXTRA 10W-40
MOBIL DELVAC MX F2 15W-40
MOBIL DELVAC MX F2 15W-40
MOBIL DELVAC XHP LE 10W-40
DIESEL ENGINE OIL SAE 15W-40
LUKOIL AVANTGARDE PROFESSIONAL LS 10W-40
LUKOIL AVANTGARDE PROFESSIONAL LS SAE 10W-40
SHELL SIRIUS 15W-40
SHELL RIMULA R3X 15W-40
SHELL RIMULA R4 X 15W-40 (CI-4/E7/DH-1)
SHELL SIRIUS 15W-40
SHELL RIMULA R6 M 10W-40
SHELL RIMULA R6 M 10W-40
SHELL RIMULA R4 L 15W- 40
SHELL ROTELLA T3 15W-40
SHELL RIMULA R4 L 15W- 40
ROTELLA T3 FLEET 15W- 40
ROTELLA T4 TRIPLE PROTECTION 15W- 40 (CK-4)
TOTAL CAPRANO TDI 15W-40
TOTAL CAPRANO TDH 15W-40
TOTAL CAPRANO TDI 15W-40

ZF approval number

ZF001847
ZF002023
ZF002252
ZF002253
ZF003349
ZF003355
ZF000770
ZF003359
ZF003360
ZF003628
ZF002002
ZF001968
ZF002114
ZF000436
ZF000437
ZF001482
ZF001484
ZF001796
ZF001799
ZF002250
ZF002251
ZF002262
ZF002266
ZF003486
ZF001256
ZF001535
ZF001791

Lubricant class 04D

Automatic Transmission Fluid (ATF)

Manufacturer (04D)	Trade name (04D)	ZF approval number
ADDINOL LUBE OIL GMBH, LEUNA/DE	ADDINOL ATF D II E	ZF000697
ADDINOL LUBE OIL GMBH, LEUNA/DE	ADDINOL ATF D II D	ZF000698
ADDINOL LUBE OIL GMBH, LEUNA/DE	ADDINOL ATF D III	ZF000699
ALEXANDRIA MINERAL OILS COMPANY, ALEXANDRIA/EG	AMOC POWER	ZF001702
ALEXANDRIA MINERAL OILS COMPANY, ALEXANDRIA/EG	AMOC POWER PLUS	ZF001703
ALLEGHENY PETROLEUM, WILMERDING, PA/US	ALTRA SHL EXTENDED DRAIN ZF 20C	ZF001756
AMALIE PETROQUIMICA, MADRID/ES	ATF DEXRON II	ZF001128
AMSOIL, INC., SUPERIOR, WI/US	TORQUE-DRIVE SYNTHETIC ATF	ZF001841
ARAL AG, BOCHUM/DE	ARAL GETRIEBEÖL ATF LD	ZF000144
ARAL AG, BOCHUM/DE	ARAL GETRIEBEÖL ATF 55	ZF000146
ARAL AG, BOCHUM/DE	ARAL GETRIEBEÖL ATF 22	ZF000147
ASTRIS SA, GIORNICO/CH	ASTRIS ATF GLOBAL	ZF002187
AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE	AVISTA SUPER FLUID TYP P/CN	ZF002128
AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE	AVISTA SUPER FLUID ATF 3000	ZF002129
AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE	PENNASOL SUPER FLUID ATF 3000	ZF002296
AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE	PENNASOL SUPER FLUID TYP P/CN	ZF002297
AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE	MOTOR GOLD FLUIDTEC TYP P/CN	ZF002311
AVISTA OIL DEUTSCHLAND GMBH, UETZE/DE	MOTOR GOLD FLUIDTEC ATF 3000	ZF002312
BARDAHL ASIA PACIFIC PTE LTD, SINGAPORE/SG	SYNMAXTRAN-HD	ZF002246
BASF SE, LUDWIGSHAFEN/DE	EMGARD 2805	ZF003370
BAYWA AG MÜNCHEN, MÜNCHEN/DE	TECTROL ATF 4000	ZF001907
BAYWA AG MÜNCHEN, MÜNCHEN/DE	TECTROL ATF 3000	ZF001908
BELGIN MADENI YAGLAR TIC. VE SAN. A.S., KOCAELI/TR	LUBEX ATF-II	ZF001031
BELGIN MADENI YAGLAR TIC. VE SAN. A.S., KOCAELI/TR	LUBEX ATF-III KYS	ZF002255
BELGIN MADENI YAGLAR TIC. VE SAN. A.S., KOCAELI/TR	LUBEX ATF-III KYS	ZF002293
BP PLC., LONDON/GB	BP AUTRAN DX III	ZF000194
BP PLC., LONDON/GB	BP AUTRAN LTF	ZF000195
BP PLC., LONDON/GB	BP AUTRAN MBX	ZF000196
BP PLC., LONDON/GB	BP AUTRAN SYN 295	ZF000197
BUCHER AG LANGENTHAL, LANGENTHAL/CH	ATF SUPER	ZF000593
BUCHER AG LANGENTHAL, LANGENTHAL/CH	ATF VZ	ZF003369
BUCHER AG LANGENTHAL, LANGENTHAL/CH	ATF TP	ZF003609
CASTROL LTD, LONDON/GB	CASTROL TRANSMAX DEX III MULTIVEHICLE	ZF000220
CASTROL LTD, LONDON/GB	CASTROL TRANSMAX Z	ZF000221
CASTROL LTD, LONDON/GB	CASTROL ATF DEX II MULTIVEHICLE	ZF000223
CASTROL LTD, LONDON/GB	CASTROL TRANSYND	ZF000226
CASTROL LTD, LONDON/GB	CASTROL TRANSMAX ATF Z	ZF002158
CASTROL LTD, LONDON/GB	TES-295 SYN TRANSMISSION FLUID	ZF002298
CASTROL LTD, LONDON/GB	CASTROL TRANSMAX ATF DX II MULTIVEHICLE	ZF003358
CASTROL LTD, LONDON/GB	CASTROL TRANSMAX ATF DX III MULTIVEHICLE	ZF003368
CEPSA COMERCIAL PETRÓLEO S.A.U., MADRID/ES	CEPSA ATF 3000 S	ZF000386
CEPSA COMERCIAL PETRÓLEO S.A.U., MADRID/ES	CEPSA ATF 70	ZF001939
CEPSA COMERCIAL PETRÓLEO S.A.U., MADRID/ES	CEPSA ATF 2000S	ZF002040
CHEVRON LUBRICANTS, SAN RAMON, CA/US	HAVOLINE ATF MERCON V	ZF000101
CHEVRON LUBRICANTS, SAN RAMON, CA/US	TEXAMATIC B	ZF001202
CHEVRON LUBRICANTS, SAN RAMON, CA/US	SYNTHETIC AUTOMATIC TRANSMISSION FLUID HEAVY DUTY	ZF001219
CHEVRON LUBRICANTS, SAN RAMON, CA/US	TEXAMATIC 4291	ZF001574
CHEVRON LUBRICANTS, SAN RAMON, CA/US	DELO SYN ATF HD	ZF001664
CHEVRON LUBRICANTS, SAN RAMON, CA/US	HAVOLINE MULTI-VEHICLE ATF	ZF001714
COMERCIAL ROSHFRANS, S.A. DE C.V., MEXICO, D.F./MX	ATF ALLPOWER MULTIVEHICULOS	ZF000385
ENI S.P.A., ROME/IT	AGIP ATF II D	ZF000925
ENI S.P.A., ROME/IT	ENI ROTRA ATF II E	ZF000951
ENI S.P.A., ROME/IT	ENI ROTRA ATF MULTI	ZF003452
EUROL B.V., NJIVERDAL/NL	EUROL ATF IIIIF	ZF000387
EXOL LUBRICANTS LTD, WEDNESBURY/GB	AUTOTRANS ELC	ZF001685
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL ATF 220	ZF000033
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL ATF D 21065	ZF000038
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL ATF SHC	ZF000039
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL ATF 320	ZF000043
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL ATF LT 71141	ZF000044
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL DELVAC SYNTHETIC ATF	ZF001234
EXXONMOBIL CORPORATION, HOUSTON, TX/US	MOBIL DELVAC 1 ATF	ZF001827
FABRIKA MAZIVA FAM AD, KRUSÉVAC/RS	ATF DII	ZF001187
FUCHS PETROLUB SE, MANNHEIM/DE	STATOIL TRANSWAY PS DX III	ZF000487
FUCHS PETROLUB SE, MANNHEIM/DE	FUCHS TITAN ATF 5005	ZF000717
FUCHS PETROLUB SE, MANNHEIM/DE	FUCHS TITAN ATF 3000	ZF000720
FUCHS PETROLUB SE, MANNHEIM/DE	FUCHS TITAN ATF 4000	ZF000728
FUCHS PETROLUB SE, MANNHEIM/DE	PENTOSIN ATF 1	ZF000734
FUCHS PETROLUB SE, MANNHEIM/DE	PENTOSIN ATF IIIH	ZF000783
FUCHS PETROLUB SE, MANNHEIM/DE	TRANSWAY ATF ULTRA	ZF001330
FUCHS PETROLUB SE, MANNHEIM/DE	TRANSWAY ATF EXTRA	ZF001332
FUCHS PETROLUB SE, MANNHEIM/DE	FUCHS TITAN ATF 5500	ZF001797
GAZPROMNEFT-LUBRICANTS, MOSCOW/RU	G-BOX ATF DXII	ZF001955
GAZPROMNEFT-LUBRICANTS, MOSCOW/RU	G-BOX ATF DX III	ZF001956
GAZPROMNEFT-LUBRICANTS, MOSCOW/RU	G-BOX ATF DX III	ZF002221
GRUPA LOTOS S.A., GDANSK/PL	LOTOS ATF II D	ZF000362
GRUPA LOTOS S.A., GDANSK/PL	LOTOS ATF SUPER III G	ZF000620
GRUPA LOTOS S.A., GDANSK/PL	LOTOS ATF II D	ZF001043
GRUPA LOTOS S.A., GDANSK/PL	LOTOS ATF IIIIG	ZF001093
GULF OIL INTERNATIONAL, MUMBAI/IN	GULF ATF DX III H	ZF000078
GULF OIL INTERNATIONAL, MUMBAI/IN	GULF ATF DX II	ZF001099
GULF OIL INTERNATIONAL, MUMBAI/IN	GULF ATF PC	ZF001349
H. BANTLEON GMBH / GESELLS. D. AVIA, ULM/DE	AVILUB FLUID ATZ 295	ZF002288
HI-TEC OILS, SMITHFIELD/AU	MULTITRANS PLUS ATF	ZF001669
HILL CORPORATION, SHYMKENT/KZ	FASTROIL ATF 3	ZF003429

Manufacturer (04D)

HUILES BERLIET S.A., SAINT-PIREST/FR
 HUILES BERLIET S.A., SAINT-PIREST/FR
 IGOL FRANCE, AMIENS/FR
 IGOL FRANCE, AMIENS/FR
 INA MAZIVA LTD., ZAGREB/HR
 INA MAZIVA LTD., ZAGREB/HR
 INA MAZIVA LTD., ZAGREB/HR
 INA MAZIVA LTD., ZAGREB/HR
 INA MAZIVA LTD., ZAGREB/HR
 INGRAX INDUSTRIA E COMERCIO DE GRAXA S/A, DUQUE DE CAXIAS/BR
 IPIRANGA PRODUTOS DE PETRÓLEO SA, RIO DE JANEIRO/BR
 KOCAK PETROL URUNLERI SAN.VE TIC.LTD.STI, KOCAELI/TR
 KOCAK PETROL URUNLERI SAN.VE TIC.LTD.STI, KOCAELI/TR
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 LIEBHERR HYDRAULIKBAGGER GMBH, KIRCHDORF/DE
 LIQUI MOLY GMBH, ULM/DE
 LUBRICATING SPECIALTIES COMPANY, PICO RIVERA/US
 LUBRICATION ENGINEERS, INC., FORT WORTH, TEXAS/US
 MEGUIN GMBH & CO. KG, SAARLOUIS/DE
 MOL-LUB KFT, ALMASFUZITO/HU
 MOL-LUB KFT, ALMASFUZITO/HU
 MOL-LUB KFT, ALMASFUZITO/HU
 MOL-LUB KFT, ALMASFUZITO/HU
 MORRIS LUBRICANTS, SHREWSBURY/GB
 MOTUL SA, AUBERVILLIERS/FR
 MOTUL SA, AUBERVILLIERS/FR
 MOTUL SA, AUBERVILLIERS/FR
 OILFINO MINERALÖL GMBH, PRISDORF/DE
 OILFINO MINERALÖL GMBH, PRISDORF/DE
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 OOO "LLK-INTERNATIONAL", MOSCOW/RU
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 OY TEBOIL AB, HELSINKI/FI
 OY TEBOIL AB, HELSINKI/FI
 PAKELO MOTOR OIL, SAN BONIFACIO (VR)/IT
 PAKELO MOTOR OIL, SAN BONIFACIO (VR)/IT
 PAKELO MOTOR OIL, SAN BONIFACIO (VR)/IT
 PAKELO MOTOR OIL, SAN BONIFACIO (VR)/IT
 PAKELO MOTOR OIL, SAN BONIFACIO (VR)/IT
 PANOLIN AG, MADETSWIL/CH
 PETRO-CANADA LUBRICANTS INC., MISSISSAUGA, ONTARIO/CA
 PETROBRAS DISTRIBUIDORA S.A., DUQUE DE CAXIAS/BR
 PETROGAL S.A., LISBOA/PT
 PETROGAL S.A., LISBOA/PT
 PETROGAL S.A., LISBOA/PT
 PETROL OFISI A.S., ISTANBUL/TR
 PETROMIN CORPORATION, JEDDAH/SA
 PETROMIN CORPORATION, JEDDAH/SA
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PETRONAS LUBRICANTS INTERNATIONAL SDN BH, KUALA LUMPUR/MY
 PHI OIL GMBH, ST. GEORGEN/AT
 PHI OIL GMBH, ST. GEORGEN/AT
 PRISTA OIL HOLDING EAD, RUSE/BG
 RALOY LUBRICANTES, S.A. DE C.V., SANTIAGO TIANGUISTEN/MX
 RAVENSBERGER SCHMIERSTOFFVERTRIEB GMBH, WERTHER/DE
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A. MADRID/ES
 RN-LUBRICANTS, LLC, MOSCOW/RU
 ROLF LUBRICANTS GMBH, LEVERKUSEN/DE
 ROLF LUBRICANTS GMBH, LEVERKUSEN/DE
 ROWE MINERALÖLWERK GMBH, WORMS/DE
 ROWE MINERALÖLWERK GMBH, WORMS/DE
 SASOL OIL, RANDBURG/ZA
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB

Trade name (04D)

RTO STARMATIC 3
 RTO STARMATIC S3
 ATF 700
 IGOL ATF 430
 INA ATF SUPER
 INA ATF DX III
 INA ATF DX IID
 INA ATF EKSTRA
 INA ATF DX IIIH
 UNIMATIC D-II PLUS
 ISAMATIC V
 SPEEDOL ATF DEXRON II
 SPEEDOL ATF DEXRON S III
 Q8 AUTO 20
 Q8 AUTO 14
 Q8 AUTO 14
 Q8 AUTO 15 ED
 Q8 AUTO 15
 LIEBHERR HYDRAULIC-GEAR ATF
 LIQUI MOLY ATF DEXRON IID
 MV TYPE 20C ATF
 LE 1150
 MEGOL HYDRAULIKOEL ATF DEXRON II D
 MOL ATF SYNT
 MOL ATF 3G
 MOL ATF
 MOL ATF SYNT 3H
 MULTITRANS ACV
 MOTUL DEXRON III
 MOTUL DEXRON II D
 MOTUL ATF HD
 OILFINO SPONTE ATF II
 OILFINO SPONTE ATF III
 LUKOIL ATF SYNTH HD
 LUKOIL ATF SYNTH MULTI
 LUKOIL ATF
 LUKOIL ATF SYNTH MN Z3
 LUKOIL ATF IID
 LUKOIL ATF III
 LUKOIL ATF SYNTH MULTI
 LUKOIL ATF SYNTH
 LUKOIL ATF IIIG
 HIPOL ATF II D
 HIPOL ATF II E
 TEBOIL FLUID ES-MAX
 TEBOIL FLUID E
 AUXON II E
 DX FLUID II TS
 ATF XT III FLUID
 AUXON III PLUS
 ATF XT III FLUID PLUS
 PANOLIN ATF SUPER VTX
 HEAVY DUTY SYNTHETIC BLEND ATF
 LUBRAX ATF HD
 GALP TRANSMATIC D II
 GALP TRANSMATIC D III
 GALP TRANSMATIC Z
 ATF DX-3
 PETROMIN ATF Z20 ECO
 PETROMIN ATF Z20 LD
 TUTELA TRANSMISSION ATF 120
 TUTELA TRANSMISSION GI/A
 TUTELA TRANSMISSION STARFLUID
 TUTELA TRANSMISSION GI/E
 AKROS MATIC
 ARBOR MTA
 TUTELA TRANSMISSION STARFLUID HD-ED
 TUTELA TRANSMISSION STARFLUID PS
 TUTELA TRANSMISSION ATF 90
 PETRONAS TUTELA ATF 700 HD
 ATF D3 SILVER
 ATF D3 GOLD
 PRISTA ATF
 TRANSFLUID SYNTHETIC M-5
 RAVENOL DEXRON III H
 REPSOL MATIC ATF
 REPSOL MATIC ATF
 REPSOL MATIC III
 REPSOL MATIC LD ATF
 REPSOL MATIC SINTEGICO
 ROSNEFT KINETIC ATF IID
 ROLF ATF IID
 ROLF ATF IIIG
 ROWE HIGHTEC ATF 9000
 ROWE HIGHTEC ATF 8000
 SYN TRANSMISSION OIL VI
 SHELL SPIRAX S2 ATF AX
 SHELL SPIRAX S6 ATF VM PLUS
 SHELL SPIRAX S6 ATF VM

ZF approval number

ZF001259
 ZF001579
 ZF001833
 ZF002315
 ZF000248
 ZF000390
 ZF000392
 ZF000410
 ZF002314
 ZF000079
 ZF000896
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 ZF003372
 ZF001937
 ZF001938
 ZF001091
 ZF000374
 ZF001371
 ZF001463

Manufacturer (04D)

SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SINOPEC LUBRICANT CO., LTD., BEIJING/CN
 SINOPEC LUBRICANT CO., LTD., BEIJING/CN
 SINOPEC LUBRICANT CO., LTD., BEIJING/CN
 SINOPEC LUBRICANT CO., LTD., BEIJING/CN
 SINOPEC LUBRICANT CO., LTD., BEIJING/CN
 SPECOL SP. Z O.O., CHORZOW/PL
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 TEDEX S.A., WARSZAWA/PL
 TEDEX S.A., WARSZAWA/PL
 TEDEX S.A., WARSZAWA/PL
 TEDEX S.A., WARSZAWA/PL
 TEXSA DO BRASIL LTDA, UMUARAMA/PR/BR
 TONGYI PETROLEUM CHEMICAL CO., LTD., BEIJING/CN
 TONGYI PETROLEUM CHEMICAL CO., LTD., BEIJING/CN
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR
 UNIL OPAL, SAUMUR/FR
 UNIL OPAL, SAUMUR/FR
 UNITED OIL COMPANY PTE LTD, SINGAPORE/SG
 UNIX AUTO, BUDAPEST/HU
 VALVOLINE AUSTRALIA PTY LTD, WETHERILL PARK, NSW/AU
 VALVOLINE EUROPE, DORDRECHT/NL
 VALVOLINE EUROPE, DORDRECHT/NL
 VALVOLINE EUROPE, DORDRECHT/NL
 VALVOLINE EUROPE, DORDRECHT/NL
 YORK LUBRICANTS - GINOUVES SAS, LA GARDE/FR
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE

Trade name (04D)

SHELL SPIRAX S6 ATF ZM
 SPIRAX S4 ATF HDX
 SINOPEC GREATWALL ATF III LD
 SINOPEC GREATWALL FULLY SYNTHETIC ATF HD S
 SINOPEC GREATWALL ATF HD S
 SINOPEC GREATWALL SYNTHETIC ATF HD
 SINOPEC GREATWALL ATF HD
 HIPOSPEC ATF IID
 SRS WIOLIN ATF D
 SRS WIOLIN ATF III
 SRS WIOLIN ATF III MV
 TEDEX SYNTHETIC ATF
 TEDEX ATF III
 TEDEX ATF II D
 TEDEX ATF SYNTHETIC (S)
 TEXSA ATF SUPER
 LINGXIAN 6+ AUTOMATIC TRANSMISSION FLUID
 LINGXIAN 10+ AUTOMATIC TRANSMISSION FLUID
 ELF ELFMATIC G3
 GULF ATF HIGH TECH
 TOTAL FLUIDE XLD FE
 TOTAL FLUIDMATIC SYN
 ELF ELFMATIC G3 SYN
 TOTAL FLUIDE G3
 TOTAL FLUIDE II D
 ELF ELFMATIC G3
 TOTAL FLUIDE II D
 TOTAL FLUIDE II D
 TOTAL FLUIDE II D
 TOTAL FLUIDE II D
 FLUIDE AT 42
 MATIC DX III
 MATIC D
 UNITED MV 99
 A.Z.MEISTERTEILE AUTOMATIKGETRIEBEÖL ATF
 HEAVY DUTY ATF PRO ECO PLUS
 VALVOLINE HEAVY DUTY ATF PRO ECO
 VALVOLINE HEAVY DUTY ATF PRO LD
 VALVOLINE HEAVY DUTY ATF PRO
 YORK 787
 ZF-LIFEGUARDFLUID 5
 ZF ECOFLUID A LIFE

ZF approval number

ZF001483
 ZF001812
 ZF001360
 ZF003345
 ZF003346
 ZF003347
 ZF003348
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 ZF000438
 ZF000439
 ZF002061
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 ZF002100
 ZF001010
 ZF001071
 ZF003562
 ZF002192
 ZF003488
 ZF001871
 ZF001872
 ZF001873
 ZF000597
 ZF001363
 ZF001671

Lubricant class 04E

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 grade: SAE 50

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 04F

Lubricating oil CLP

Viscosity grade: ISO VG 220

Manufacturer (04F)

CASTROL LTD, LONDON/GB
CHEVRON LUBRICANTS, SAN RAMON, CA/US
EXXONMOBIL CORPORATION, HOUSTON, TX/US

Trade name (04F)

CASTROL ALPHASYN HG 220
MEROPA 220
MOBILGEAR 600 XP 220

ZF approval number

ZF001508
ZF000811
ZF000852

Lubricant class 04G

Gear oil in accordance with specification:

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

Viscosity grade: SAE 80W-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 04H

Lubricating oil CLP

Viscosity grade (product groups in accordance with page 1):

- ZF AT, TT, SDT - L-Drive variants - Gearbox: ISO VG 100
- ZF AT, TT, SDT - Z-Drive variants - Gearbox: ISO VG 150
- ZF AT, TT, SDT - Planetary gearset: ISO VG 100 / 150
- ZF TT 4000 CP, 5000 CP - Gearbox und Power pack: ISO VG 100

Manufacturer (04H)

AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 CASTROL LTD, LONDON/GB
 CASTROL LTD, LONDON/GB
 CASTROL LTD, LONDON/GB
 CASTROL LTD, LONDON/GB
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 ENI S.P.A., ROME/IT
 ENI S.P.A., ROME/IT
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 H. BANTLEON GMBH / GESELLS. D. AVIA, ULM/DE
 H. BANTLEON GMBH / GESELLS. D. AVIA, ULM/DE
 KLÜBER LUBRICATION, MUNICH/DE
 KLÜBER LUBRICATION, MUNICH/DE
 KLÜBER LUBRICATION, MUNICH/DE
 KLÜBER LUBRICATION, MUNICH/DE
 SCHAEFFER MFG., SAINT LOUIS MO/US
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE

Trade name (04H)

AVIA GEAR RSX 100
 AVIA GEAR RSX 150
 CASTROL ALPHASYN HG 150
 CASTROL ALPHASYN HG 100
 CASTROL ALPHA SP 100
 CASTROL ALPHA SP 150
 MEROPA 100
 MEROPA 150
 MEROPA XL 150
 MEROPA SYNTHETIC EP 150
 ENI BLASIA FMP 150
 ENI BLASIA SX 100
 MOBILGEAR 600 XP 100
 MOBILGEAR 600 XP 150
 MOBIL SHC GEAR 150
 MOBILGEAR XMP 100
 MOBILGEAR XMP 150
 FUCHS RENOLIN CLP 100
 FUCHS RENOLIN CLP 150
 FUCHS RENOLIN UNISYN CLP 100
 FUCHS RENOLIN UNISYN CLP 150
 AVIA SYNTOGEAR PE 100
 AVIA SYNTOGEAR PE 150
 KLÜBEROIL GEM 1-100 N
 KLÜBEROIL GEM 1-150 N
 KLÜBERSYNTH GEM 4-100 N
 KLÜBERSYNTH GEM 4-150 N
 209AM MARINE MOLY UNIVERSAL GEAR LUBE ISO 150
 SHELL OMALA S2 GX 100
 SHELL OMALA S2 GX 150
 SHELL OMALA S4 GXV 150
 SRS ERSOLAN 100
 SRS ERSOLAN 150

ZF approval number

ZF003431
 ZF003476
 ZF002094
 ZF003449
 ZF003559
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 ZF003483
 ZF003591
 ZF003547
 ZF003548
 ZF003549
 ZF003462
 ZF003463

Lubricant class 04K

Hydraulic oil HLP

Viscosity grade (product groups in accordance with page 1):

- SeaRex: ISO VG 32 / 46

- ZF AT, TT, SDT - Power pack: ISO VG 46

Manufacturer (04K)

ARAL AG, BOCHUM/DE
 ARAL AG, BOCHUM/DE
 AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 ENI S.P.A., ROME/IT
 ENI S.P.A., ROME/IT
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 KLÜBER LUBRICATION, MUNICH/DE
 KLÜBER LUBRICATION, MUNICH/DE
 SCHAEFFER MFG., SAINT LOUIS MO/US
 SCHAEFFER MFG., SAINT LOUIS MO/US
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE

Trade name (04K)

ARAL VITAM GF 32
 ARAL VITAM GF 46
 AVIA FLUID RSL 32
 AVIA FLUID RSL 46
 AVIA FLUID ZAD 32
 AVIA FLUID ZAD 46
 RANDO HD 32
 RANDO HD 46
 CLARITY HYDRAULIC OIL AW 32
 CLARITY HYDRAULIC OIL AW 46
 ENI OSO 32
 ENI OSO 46
 MOBIL DTE 10 EXCEL 32
 MOBIL DTE 10 EXCEL 46
 LAMORA HLP 32
 LAMORA HLP 46
 112M MARINE HTC OIL ISO 32
 112M MARINE HTC OIL ISO 46
 SHELL TELLUS S2 MX 32
 SHELL TELLUS S2 MX 46
 SRS WIOLAN HS 32
 SRS WIOLAN HS 46
 SRS WIOLAN HX 46
 SRS WIOLAN HX 32

ZF approval number

ZF003614
 ZF003615
 ZF003422
 ZF003475
 ZF003477
 ZF003478
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 ZF003577
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 ZF003580
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 ZF003537
 ZF003540
 ZF003456
 ZF003457
 ZF003458
 ZF003459

Lubricant class 04M

Biodegradable oil

Viscosity grade (product groups in accordance with page 1):

- ZF AT, TT, SDT L-Drive variants - Gearbox: ISO VG 100

- ZF AT, TT, SDT Z-Drive variants - Gearbox: ISO VG 150

Note:

For use of biodegradable oils see footnotes and comments 3 and 4 page 2.

Manufacturer (04M)

CASTROL LTD, LONDON/GB
 CASTROL LTD, LONDON/GB
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 KLÜBER LUBRICATION, MUNICH/DE
 KLÜBER LUBRICATION, MUNICH/DE
 PANOLIN AG, MADETSWIL/CH
 PANOLIN AG, MADETSWIL/CH
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 VICKERS OILS, LEEDS/GB
 VICKERS OILS, LEEDS/GB

Trade name (04M)

CASTROL BIOSTAT 100
 CASTROL BIOSTAT 150
 MOBIL SHC AWARE GEAR 100
 MOBIL SHC AWARE GEAR 150
 KLÜBERBIO EG 2-100
 KLÜBERBIO EG 2-150
 PANOLIN EP GEAR SYNTH 100
 PANOLIN EP GEAR SYNTH 150
 SHELL NATURELLE S4 GEAR FLUID 100
 SHELL NATURELLE S4 GEAR FLUID 150
 BIOGEAR XP 100
 BIOGEAR XP 150

ZF approval number

ZF002122
 ZF002203
 ZF002281
 ZF002282
 ZF001732
 ZF001733
 ZF002000
 ZF002001
 ZF001792
 ZF001793
 ZF002204
 ZF002265

Lubricant class 04P

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 grade: SAE 15W-40

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 04Q

Lubricating oil

Viscosity grade (product groups in accordance with page 1):

- ZF AT, TT, SDT - Wet operating clutch: ISO VG 150

Manufacturer (04Q)

CASTROL LTD, LONDON/GB
KLÜBER LUBRICATION, MUNICH/DE
PANOLIN AG, MADETSWIL/CH
SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB

Trade name (04Q)

CASTROL ALPHASYN HG 150
KLÜBERBIO EG 2-150
PANOLIN EP GEAR SYNTH 150
SHELL NATURELLE S4 GEAR FLUID 150

ZF approval number

ZF002094
ZF001733
ZF002001
ZF001793

Lubricant class 04R

Hydraulic oil HVLP

Viscosity grade (product groups in accordance with page 1):

- SeaRex: ISO VG 32 / 46

- ZF AT, TT, SDT - Power pack: ISO VG 46

Manufacturer (04R)

ARAL AG, BOCHUM/DE
 ARAL AG, BOCHUM/DE
 AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 ENI S.P.A., ROME/IT
 ENI S.P.A., ROME/IT
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE

Trade name (04R)

ARAL VITAM HF 32
 ARAL VITAM HF 46
 AVIA FLUID HVI 32
 AVIA FLUID HVI 46
 RANDO HDZ 32
 RANDO HDZ 46
 ENI ARNICA 32
 ENI ARNICA 46
 MOBIL DTE 10 EXCEL 32
 MOBIL DTE 10 EXCEL 46
 FUCHS RENOLIN B 32 HVI
 FUCHS RENOLIN B 46 HVI
 FUCHS RENOLIN UNISYN OL 32
 FUCHS RENOLIN UNISYN OL 46
 SHELL TELLUS S2 VX 46
 SHELL TELLUS S2 VX 32
 SRS WIOLAN HV 32
 SRS WIOLAN HV 46

ZF approval number

ZF003616
 ZF003617
 ZF003479
 ZF003480
 ZF003575
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 ZF003542
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