



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 83700 with all derived variants A, V, IV, C, U, D, NC, 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 |
| ZF SD 15 | 04D |
| SeaRex 120s, 140s, 160s | Drive oil: 04A / 04B / 04C Hydraulic oil: 04K / 04R |

The list of lubricants TE-ML 04, **edition 01.07.2025** replaces all previous editions. The current list can be requested from any ZF after-sales service center or accessed on the Internet under www.aftermarket.zf.com/lubricants.

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

| Product groups | Lubricant classes for service fills ⁽¹⁾ |
|---|---|
| ZF AT 010 to 090 ZF AT 400, 2000 to 8000 with all derived variants WM, RT, DM, SM ZF TT 010 to 090 ZF TT 400, 1000 to 8000 ZF SDT 2000 to 6000 | Gearbox: 04H / 04M ⁽⁴⁾ Wet operating clutch: see footnote ⁽⁹⁾ Power pack: 04K ⁽⁶⁾ / 04R ⁽⁷⁾ Planetary gearset ⁽⁵⁾ : 04H Propeller shaft sealing monitoring: 04S For further information on approved greases and oil volumes see ⁽²⁾ For information on oil condition monitoring see ⁽³⁾ |
| ZF TT 4000 CP, 5000 CP | Gearbox and Power pack: 04H For further information on approved greases and oil volumes see ⁽²⁾ For information on oil condition monitoring see ⁽³⁾ For information on approved viscosity grade and use of biodegradable oils in CP tunnel thrusters see ⁽⁸⁾ |
| PPD, PPS | 04G |

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 Marine Krimpen BV".
- (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.
- (9) Information regarding the approved lubricants for the wet operating clutch can be found in the operating manual of the respective clutch variant.
For the wet operating clutch mounted to the upper gearbox of the ZF AT 4000, 5000, 6000 lubricants according to lubricant class 04Q must be used.

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. Greasing points

Multi-purpose grease according to the specification / requirement:

- DIN 51825 classification KP2K-30 and/or
- ISO 6743-9 classification ISO-L-XCCEB2 or
- ISO 6743-9 classification ISO-L-XCCHB2
- Base oil: mineral or synthetic hydrocarbons (no ester)
- Thickener type: Ca, Li (simple, mixed, complex soap)
- Consistency class: NLGI 2
- EP additives
- Temperature operation limits: min. -30°C to +120°C

Note:

All commercial products that meet the above specifications/requirements may be used.

There will be no product listing.

At outside temperatures above -20°C, greases with the following classification may also be used:

- DIN 51825 classification KP2K-20 and/or
- ISO 6743-9 classification ISO-L-XBCEB2 or
- ISO 6743-9 classification ISO-L-XBCHB2

5. Lubricant classes and approved trade products

Lubricant class 04A

Engine oil according to the specification / requirement:

- API CD/CE/CF-4/CF/CG-4/CH-4/CI-4/CI-4 Plus/CJ-4/CK-4
and / or API SF/SG/SH/SJ/SL/SM/SN
and / or ACEA categories A/B/E
- Viscosity grade: SAE 30 (also SAE 40 in hot-weather countries or at oil sump temperatures over +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-weather countries or at oil sump temperatures over +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
 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
 GULF OIL INTERNATIONAL, MUMBAI/IN
 GULF OIL MARINE LTD., SINGAPORE/SG
 GULF OIL MARINE LTD., SINGAPORE/SG
 ICONIC LUBRIFICANTES SA, RIO DE JANEIRO/BR
 ICONIC LUBRIFICANTES SA, RIO DE JANEIRO/BR
 INA MAZIVA LTD., ZAGREB/HR
 INA MAZIVA LTD., ZAGREB/HR
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 VIBRA ENERGIA S.A., DUQUE DE CAXIAS/BR
 VIBRA ENERGIA S.A., DUQUE DE CAXIAS/BR
 VIBRA ENERGIA S.A., DUQUE DE CAXIAS/BR
 VIBRA ENERGIA S.A., DUQUE DE CAXIAS/BR

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
 MOBILGARD ADL 30
 MOBILGARD ADL 40
 MOBIL DELVAC LEGEND 1640
 FUCHS TITAN UNIVERSAL HD SAE 30 ZF
 FUCHS TITAN UNIVERSAL HD SAE 40
 FUCHS TITAN UNIVERSAL HD SAE 30
 GULF SUPER DUTY LE 30
 GULFSEA POWER MDO 3015
 GULFSEA POWER MDO 4015
 IPIRANGA ULTRAGEAR ZF 40
 IPIRANGA ULTRAGEAR ZF 40
 INA GORGONELA S 30
 INA SUPER 3 30
 SHELL RIMULA R3+ 30
 SHELL GADINIA S3 40
 SHELL GADINIA S3 30
 CAPRANO MT 40
 CAPRANO MT 30
 DISOLA MT 40
 LUBRAX TRM 5 HD SAE 30
 LUBRAX TRM 5 HD SAE 40
 LUBRAX TURBO ME 30
 LUBRAX TURBO ME 40

ZF approval number

ZF000624
 ZF000625
 ZF000821
 ZF000036
 ZF000037
 ZF004805
 ZF004806
 ZF006030
 ZF000719
 ZF001190
 ZF001189
 ZF001147
 ZF005947
 ZF006022
 ZF004859
 ZF004924
 ZF001173
 ZF001468
 ZF001618
 ZF002201
 ZF002202
 ZF008308
 ZF008407
 ZF010957
 ZF001174
 ZF001175
 ZF006014
 ZF006015

Manufacturer (04D)

KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 KUWAIT PETROLEUM INTERNATIONAL LUBRICANT, ANTWERP/NL
 LAEMMLE CHEMICALS AG, MADETSWIL/CH
 LIEBHERR HYDRAULIKBAGGER GMBH, KIRCHDORF/DE
 LIQUI MOLY GMBH, ULM/DE
 LIQUI MOLY GMBH, ULM/DE
 LIQUI MOLY GMBH, ULM/DE
 LIQUI MOLY GMBH, ULM/DE
 LIQUI MOLY GMBH, ULM/DE
 LUBREX FZC, SHARJAH/AE
 LUKOIL LUBRICANTS EUROPE GMBH, VIENNA/AT
 MABANOL GMBH & CO. KG, HAMBURG/DE
 MEGUIN GMBH & CO. KG, SAARLOUIS/DE
 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
 MOL-LUB KFT, ALMASFUZITO/HU
 MORRIS LUBRICANTS, SHREWSBURY/GB
 MOTOREX AG, LANGENTHAL/CH
 MOTOREX AG, LANGENTHAL/CH
 MOTOREX AG, LANGENTHAL/CH
 MOTUL SA, AUBERVILLIERS/FR
 MOTUL SA, AUBERVILLIERS/FR
 MOTUL SA, AUBERVILLIERS/FR
 OEL-BRACK AG, HUNZENSCHWIL/CH
 OILFINO MINERALÖL GMBH, PRISDORF/DE
 OILFINO MINERALÖL GMBH, PRISDORF/DE
 OPET FUCHS MADENI YAG SAN. VE TIC. A.S., IZMIR/TR
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 ORLEN OIL SP. Z O.O., KRAKOW/PL
 ORLEN S.A., GDANSK/PL
 ORLEN S.A., GDANSK/PL
 ORLEN S.A., GDANSK/PL
 PAKELO MOTOR OIL S.P.A. A S.U., SAN BONIFACIO (VR)/IT
 PAKELO MOTOR OIL S.P.A. A S.U., SAN BONIFACIO (VR)/IT
 PAKELO MOTOR OIL S.P.A. A S.U., SAN BONIFACIO (VR)/IT
 PETRO-CANADA LUBRICANTS INC., MISSISSAUGA, ONTARIO/CA
 PETRO-CANADA LUBRICANTS INC., MISSISSAUGA, ONTARIO/CA
 PETRO-CANADA LUBRICANTS INC., MISSISSAUGA, ONTARIO/CA
 PETROGAL S.A., LISBOA/PT
 PETROGAL S.A., LISBOA/PT
 PETROGAL S.A., LISBOA/PT
 PETROL OFISI A.S., ISTANBUL/TR
 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
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A, MADRID/ES
 REPSOL LUBRICANTES Y ESPECIALIDADES, S.A, MADRID/ES
 ROLF LUBRICANTS GMBH, LEVERKUSEN/DE
 ROLF LUBRICANTS GMBH, LEVERKUSEN/DE
 ROWE MINERALÖLWERK GMBH, WORMS/DE
 ROWE MINERALÖLWERK GMBH, WORMS/DE
 S.I.R.A.L. SPA, NOLA NAPOLI/IT
 SASOL ENERGY, JOHANNESBURG/ZA
 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
 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
 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

Trade name (04D)

Q8 AUTO 15 ED
 Q8 AUTO 15
 Q8 AUTO Z3D
 ROXOR ATF SUPER VTX
 LIEBHERR HYDRAULIC-GEAR ATF
 LIQUI MOLY ATF DEXRON IID
 LIQUI MOLY MARINE ATF
 LIQUI MOLY ATF III
 LIQUI MOLY TOP TEC ATF 1100
 LUBREX DRIVEMAX III
 LUKOIL ATF SYNTH MN Z3
 MABANOL RADON GEAR ATF III MV
 MEGOL HYDRAULIKOEL ATF DEXRON II D
 MEGOL TRANSMISSION-FLUID ATF III
 MOL ATF SYNT
 MOL ATF 3G
 MOL ATF
 MOL ATF SYNT 3H
 MOL ATF SYNT
 MULTITRANS ACV
 MOTOREX YORK ATF TP
 YORK 886
 MOTOREX_YORK ATF VZ
 MOTUL DEXRON III
 MOTUL DEXRON II D
 MOTUL ATF HD
 MIDLAND OMNIMATIC
 OILFINO SPONTE ATF II
 OILFINO SPONTE ATF III
 OTOKAR SPECTRA ATF Z
 HIPOL ATF II D
 HIPOL ATF II E
 PLATINUM GEAR ATF III
 ORLEN OIL GEAR ATF III
 LOTOS ATF II D
 LOTOS ATF II D
 LOTOS ATF III
 ATF XT III FLUID PLUS
 ATF XT III FLUID
 DX FLUID II TS
 DURADRIVE HD LONG DRAIN ATF
 DURADRIVE HD SYNTHETIC BLEND ATF
 DURADRIVE HD ATF
 GALP TRANSMATIC D II
 GALP TRANSMATIC D III
 GALP TRANSMATIC Z
 ATF DX-3
 TUTELA TRANSMISSION ATF 120
 TUTELA TRANSMISSION G/IA
 TUTELA TRANSMISSION G/IE
 ARBOR MTA
 PETRONAS TUTELA ATF 700 HD
 PETRONAS TUTELA ATF 500 HD
 PETRONAS TUTELA ATF 500 HD
 TUTELA ATF 900 HD
 PETRONAS TUTELA G/IA
 ATF D3 SILVER
 ATF D3 GOLD
 PRISTA ATF
 TRANSFLUID SYNTHETIC M-5
 RAVENOL DEXRON III H
 REPSOL MATIC ATF
 REPSOL MATIC ATF
 REPSOL MATIC ATF
 REPSOL MATIC III
 REPSOL MATIC SINTETICO
 REPSOL AUTOMATOR ATF III
 REPSOL AUTOMATOR ATF 14C
 REPSOL AUTOMATOR ATF II
 REPSOL AUTOMATOR ATF II
 REPSOL AUTOMATOR ATF II
 ROLF ATF IID
 ROLF ATF IIIG
 ROWE HIGHTEC ATF 9000
 ROWE HIGHTEC ATF 8000
 SIROIL ATF MAXIMUM
 SYN TRANSMISSION OIL VI
 SHELL SPIRAX S6 ATF VM PLUS
 SPIRAX S4 ATF HDX
 SHELL SPIRAX S2 ATF AX
 SHELL SPIRAX S6 ATF ZM
 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

ZF approval number

ZF002121
 ZF002269
 ZF003726
 ZF011929
 ZF002119
 ZF002052
 ZF004927
 ZF004928
 ZF004926
 ZF006044
 ZF009451
 ZF004879
 ZF001992
 ZF004922
 ZF001155
 ZF001179
 ZF001251
 ZF001895
 ZF004917
 ZF002268
 ZF006045
 ZF004907
 ZF006107
 ZF001008
 ZF001104
 ZF003587
 ZF003682
 ZF000736
 ZF000737
 ZF004737
 ZF000081
 ZF003623
 ZF006002
 ZF011155
 ZF000362
 ZF001043
 ZF001093
 ZF001748
 ZF001177
 ZF000376
 ZF004791
 ZF004790
 ZF009442
 ZF000331
 ZF001425
 ZF001893
 ZF001667
 ZF000053
 ZF000308
 ZF000481
 ZF000486
 ZF003627
 ZF003635
 ZF004757
 ZF005936
 ZF011958
 ZF001003
 ZF003507
 ZF000355
 ZF001025
 ZF001609
 ZF000022
 ZF000222
 ZF000224
 ZF000318
 ZF003586
 ZF008281
 ZF008282
 ZF008283
 ZF008284
 ZF008285
 ZF003371
 ZF003372
 ZF001937
 ZF001938
 ZF003709
 ZF001091
 ZF001371
 ZF001812
 ZF005982
 ZF006080
 ZF001360
 ZF003345
 ZF003346
 ZF003347
 ZF003348
 ZF003354
 ZF000438
 ZF000439
 ZF002061

Manufacturer (04D)

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
 TEXSA DO BRASIL LTDA, UMUARAMA/PR/BR
 TONGYI PETROLEUM CHEMICAL CO., LTD., BEIJING/CN
 TONGYI PETROLEUM CHEMICAL CO., LTD., BEIJING/CN
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 TOTALENERGIES LUBRIFIANTS, NANTERRE/FR
 UNIL OPAL, SAUMUR/FR
 UNIL OPAL, SAUMUR/FR
 UNITED OIL COMPANY PTE LTD, SINGAPORE/SG
 UNITED OIL COMPANY PTE LTD, SINGAPORE/SG
 UNIX AUTO, BUDAPEST/HU
 VALVOLINE EUROPE, DORDRECHT/NL
 VALVOLINE EUROPE, DORDRECHT/NL
 VALVOLINE GLOBAL PRODUCTS, LEXINGTON/US
 VIBRA ENERGIA S.A., DUQUE DE CAXIAS/BR
 WOLF OIL CORPORATION N.V., HEMIKSEM/BE
 ZELLER+GMELIN GMBH&CO.KG, EISLINGEN/DE
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE

Trade name (04D)

TEDEX ATF III
 TEDEX ATF SYNTHETIC (S)
 TEDEX SYNTHETIC ATF
 TEDEX ATF II D
 TEXSA ATF SUPER
 MONTANA DYNAMIC ATF 2
 LINGXIAN 6+ AUTOMATIC TRANSMISSION FLUID
 LINGXIAN 10+ AUTOMATIC TRANSMISSION FLUID
 ELF ELFMATIC G3 SYN
 ELF ELFMATIC G3
 FLUIDMATIC D3
 FLUIDMATIC D2
 ELFMATIC D2
 FLUIDMATIC D2
 FLUIDMATIC AT 42
 FLUIDMATIC XLD FE
 ELFMATIC D2
 MATIC DX III
 MATIC D
 UNITED MV 99
 UNITED ATF MV 88
 A.Z. MEISTERTEILE GETRIEBEÖL ATF III
 VALVOLINE HEAVY DUTY ATF PRO LD
 VALVOLINE HEAVY DUTY ATF PRO
 SYN GARD™ ATF ES
 LUBRAX ATF HD
 WOLF OFFICIALTECH MULTI VEHICLE ATF HD-LD
 DIVINOL ATF SPEZIAL R
 ZF LIFEGUARDFLUID 5
 ZF ECOFLUID A LIFE
 ZF MARINE SAFEGUARD

ZF approval number

ZF001350
 ZF002213
 ZF001279
 ZF002043
 ZF001207
 ZF003664
 ZF003377
 ZF003378
 ZF001582
 ZF001699
 ZF004886
 ZF006067
 ZF006068
 ZF006069
 ZF008239
 ZF008244
 ZF010594
 ZF001010
 ZF001071
 ZF003562
 ZF010099
 ZF005996
 ZF001872
 ZF001873
 ZF003710
 ZF002120
 ZF006128
 ZF009444
 ZF001363
 ZF001671
 ZF008364

Lubricant class 04E

Engine oil according to the specification / requirement:

- API CD/CE/CF-4/CF/CG-4/CH-4/CI-4/CI-4 Plus/CJ-4/CK-4
and / or API SF/SG/SH/SJ/SL/SM/SN
and / or 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
EXXONMOBIL CORPORATION, HOUSTON, TX/US

Trade name (04F)

CASTROL ALPHASYN HG 220
MEROPA 220
MOBILGEAR 600 XP 220
MOBILGEAR 600 XP 220

ZF approval number

ZF001508
ZF000811
ZF000852
ZF010965

Lubricant class 04G

Transmission oil according to the specification / requirement

- API GL-5
 - and / or MIL-L-2105D / MIL-PRF-2105E
 - and / or 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 SUSTAINABLE MOBILITY S.P.A., ROME/IT
 ENI SUSTAINABLE MOBILITY 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
 EXXONMOBIL CORPORATION, HOUSTON, TX/US
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 GULF OIL MARINE LTD., SINGAPORE/SG
 GULF OIL MARINE LTD., SINGAPORE/SG
 H. BANTLEON GMBH / GESELLS. D. AVIA, ULM/DE
 H. BANTLEON GMBH / GESELLS. D. AVIA, ULM/DE
 HINDUSTAN PETROLEUM CORPORATION LTD., MUMBAI/IN
 HINDUSTAN PETROLEUM CORPORATION LTD., MUMBAI/IN
 INDIAN OIL CORPORATION LTD, MUMBAI/IN
 INDIAN OIL CORPORATION LTD, MUMBAI/IN
 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
 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 XL 100
 MEROPA 150
 MEROPA XL 150
 ENI BLASIA FMP 150
 ENI BLASIA SX 100
 MOBILGEAR 600 XP 100
 MOBIL SHC GEAR 150
 MOBILGEAR XMP 150
 MOBILGEAR 600 XP 150
 MOBILGEAR 600 XP 150
 FUCHS RENOLIN UNISYN CLP 100
 FUCHS RENOLIN UNISYN CLP 150
 GULFSEA GEAR OIL 100
 GULFSEA GEAR OIL 150
 AVIA SYNTOGEAR PE 100
 AVIA SYNTOGEAR PE 150
 PARTHAN EP 100
 PARTHAN EP 150
 SERVOMESH XP 150
 SERVOMESH XP 100
 KLÜBERSYNTH GEM 4-150 N
 KLÜBERSYNTH GEM 4-100 N
 209AM MARINE MOLY UNIVERSAL GEAR LUBE ISO 150
 SHELL OMALA S4 GXV 150
 SHELL OMALA S2 GX 100
 SHELL OMALA S2 GX 150
 SHELL MARINE GEAR FLUID S2 GX 150
 SRS ERSOLAN 100
 SRS ERSOLAN 150

ZF approval number

ZF003431
 ZF003476
 ZF002094
 ZF003449
 ZF011122
 ZF011123
 ZF003568
 ZF003569
 ZF003570
 ZF003571
 ZF003423
 ZF003424
 ZF003532
 ZF003534
 ZF003536
 ZF003533
 ZF010964
 ZF003504
 ZF003505
 ZF003517
 ZF003518
 ZF003493
 ZF003494
 ZF003706
 ZF003708
 ZF003723
 ZF006041
 ZF003483
 ZF003482
 ZF003591
 ZF003549
 ZF008359
 ZF008360
 ZF010066
 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)

AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 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 SUSTAINABLE MOBILITY S.P.A., ROME/IT
 ENI SUSTAINABLE MOBILITY 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
 HINDUSTAN PETROLEUM CORPORATION LTD., MUMBAI/IN
 INDIAN OIL CORPORATION LTD, MUMBAI/IN
 INDIAN OIL CORPORATION LTD, MUMBAI/IN
 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
 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)

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

ZF approval number

ZF003477
 ZF003478
 ZF003422
 ZF003475
 ZF004933
 ZF005933
 ZF010858
 ZF010859
 ZF003573
 ZF003574
 ZF003578
 ZF003577
 ZF003425
 ZF003426
 ZF006130
 ZF006131
 ZF006132
 ZF006133
 ZF003707
 ZF003721
 ZF003722
 ZF003485
 ZF003484
 ZF003580
 ZF003581
 ZF003537
 ZF003540
 ZF010033
 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
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 KLÜBER LUBRICATION, MUNICH/DE
 KLÜBER LUBRICATION, MUNICH/DE
 PANOLIN DISTRIBUTION AG, STEINHAUSEN/CH
 PANOLIN DISTRIBUTION AG, STEINHAUSEN/CH
 PANOLIN DISTRIBUTION AG, STEINHAUSEN/CH
 PANOLIN DISTRIBUTION AG, STEINHAUSEN/CH
 SCHAEFFER MFG., SAINT LOUIS MO/US
 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
 PLANTOGEAR 150 S
 PLANTOGEAR 100 S
 KLÜBERBIO EG 2-100
 KLÜBERBIO EG 2-150
 SHELL PANOLIN S4 GEAR EAL 100
 SHELL PANOLIN S4 GEAR EAL 150
 SHELL PANOLIN S4 GEAR 100
 SHELL PANOLIN S4 GEAR 150
 567M VGP EAL MARINE ECOSHIELD EP 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
 ZF008358
 ZF008348
 ZF001732
 ZF001733
 ZF012037
 ZF012038
 ZF012030
 ZF012031
 ZF004920
 ZF001792
 ZF001793
 ZF002204
 ZF002265

Lubricant class 04P

Engine oil according to the specification / requirement:

- API CD/CE/CF-4/CF/CG-4/CH-4/CI-4/CI-4 Plus/CJ-4/CK-4
and / or API SF/SG/SH/SJ/SL/SM/SN
and / or 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: ISO VG 150

Manufacturer (04Q)

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

Trade name (04Q)

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

ZF approval number

ZF002094
ZF001733
ZF012031
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)

AVIA AG, MÜNCHEN/DE
 AVIA AG, MÜNCHEN/DE
 CASTROL LTD, LONDON/GB
 CASTROL LTD, LONDON/GB
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 CHEVRON LUBRICANTS, SAN RAMON, CA/US
 ENI SUSTAINABLE MOBILITY S.P.A., ROME/IT
 ENI SUSTAINABLE MOBILITY 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
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 FUCHS PETROLUB SE, MANNHEIM/DE
 GULF OIL MARINE LTD., SINGAPORE/SG
 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
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE
 SRS SCHMIERSTOFF VERTRIEB GMBH, SALZBERGEN/DE

Trade name (04R)

AVIA FLUID HVI 32
 AVIA FLUID HVI 46
 HYSPI AWH-M 32
 HYSPI AWH-M 46
 RANDO HDZ 32
 RANDO HDZ 46
 ENI ARNICA 32
 ENI ARNICA 46
 MOBIL DTE 10 EXCEL 32
 MOBIL DTE 10 EXCEL 32
 MOBIL DTE 10 EXCEL 46
 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
 GULFSEA HYDRAULIC HVI PLUS 46
 SHELL TELLUS S2 VX 46
 SHELL TELLUS S2 VX 32
 SHELL MARINE HYDRAULIC FLUID S2 VX 32
 SHELL MARINE HYDRAULIC FLUID S2 VX 46
 SRS WIOLAN HV 32
 SRS WIOLAN HV 46

ZF approval number

ZF003479
 ZF003480
 ZF005934
 ZF005935
 ZF003575
 ZF003576
 ZF003427
 ZF003428
 ZF006130
 ZF006131
 ZF006132
 ZF006133
 ZF003506
 ZF003508
 ZF003514
 ZF003515
 ZF003516
 ZF003543
 ZF003544
 ZF010034
 ZF010035
 ZF003460
 ZF003461

Lubricant class 04S

Biodegradable oil

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

- ZF AT, TT - Propeller shaft sealing monitoring: ISO VG 46 / 68

Manufacturer (04S)

CASTROL LTD, LONDON/GB
CASTROL LTD, LONDON/GB
KLÜBER LUBRICATION, MUNICH/DE
KLÜBER LUBRICATION, MUNICH/DE
PANOLIN DISTRIBUTION AG, STEINHAUSEN/CH
PANOLIN DISTRIBUTION AG, STEINHAUSEN/CH

Trade name (04S)

CASTROL BIOBAR 46
CASTROL BIOBAR 68
KLÜBERBIO LM 2-46
KLÜBERBIO EG 2-68
SHELL PANOLIN S4 HLP SYNTH EAL 46
SHELL PANOLIN S4 HLP SYNTH EAL 68

ZF approval number

ZF009429
ZF009430
ZF010980
ZF010979
ZF012035
ZF012036