



**Marine transmissions**

**List of lubricants TE-ML 04**

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**1. Approved lubricant classes**

<b>Product groups</b>	<b>Lubricant classes for service fills <sup>(1)</sup></b>
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, 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 <sup>(4)</sup> Wet operating clutch: see footnote <sup>(9)</sup> Power pack: 04K <sup>(6)</sup> / 04R <sup>(7)</sup> Planetary gearset <sup>(5)</sup> : 04H <sub>(2), (3)</sub>
ZF TT 4000 CP, 5000 CP	Gearbox and Power pack: 04H <sub>(2), (3), (8)</sub>
PPD, PPS	04G

The list of lubricants TE-ML 04, **edition 01.07.2020** 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](http://www.aftermarket.zf.com/lubricants).

**ZF Friedrichshafen AG**  
D-88038 Friedrichshafen  
[www.zf.com/contact](http://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.
- (9) Information regarding the approved lubricants for the wet operating clutch can be found in the operating manual of the respective clutch variant.  
Lubricants according to lubricant class 04Q are only to be used for the clutches integrated into the upper gearbox.

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 at least KP2K-20  
and / or ISO 6743-9 classification at least ISO-L-XBCHB2
- Consistency class: NLGI 2
- Base oil: API Group 1 / 2 / 3 / 4
- Thickener type: lithium, lithium complex
- EP additives
- Temperature operation limits: min. -20°C to +120°C

## 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  
 FUCHS PETROLUB SE, MANNHEIM/DE  
 FUCHS PETROLUB SE, MANNHEIM/DE  
 FUCHS PETROLUB SE, MANNHEIM/DE  
 GULF OIL INTERNATIONAL, MUMBAI/IN  
 ICONIC LUBRIFICANTES SA, RIO DE JANEIRO/BR  
 ICONIC LUBRIFICANTES SA, RIO DE JANEIRO/BR  
 INA MAZIVA LTD., ZAGREB/HR  
 INA MAZIVA LTD., ZAGREB/HR  
 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  
 MOBILGARD ADL 30  
 MOBILGARD ADL 40  
 FUCHS TITAN UNIVERSAL HD SAE 30 ZF  
 FUCHS TITAN UNIVERSAL HD SAE 30  
 FUCHS TITAN UNIVERSAL HD SAE 40  
 GULF SUPER DUTY LE 30  
 IPIRANGA ULTRAGEAR ZF 40  
 IPIRANGA ULTRAGEAR ZF 40  
 INA GORGONELA S 30  
 INA SUPER 3 30  
 M-14D2CE (SAE 40)  
 PANOLIN EXTRA DIESEL 30  
 LUBRAX TRM 5 HD SAE 30  
 LUBRAX TRM 5 HD SAE 40  
 LUBRAX TRM 40  
 LUBRAX TURBO ME SAE 30  
 LUBRAX TURBO ME SAE 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  
 ZF004805  
 ZF004806  
 ZF000719  
 ZF001189  
 ZF001190  
 ZF001147  
 ZF004859  
 ZF004924  
 ZF001173  
 ZF001468  
 ZF001095  
 ZF000393  
 ZF001174  
 ZF001175  
 ZF001742  
 ZF004758  
 ZF004759  
 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  
 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  
 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  
 PETROMIN CORPORATION, JEDDAH/SA  
 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  
 SHELL INTERNATIONAL PETROLEUM COMP. LTD, LONDON/GB

**Trade name (04C)**

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 1300 SUPER 15W-40  
 MOBIL DELVAC 1300 SUPER 15W-40  
 MOBIL DELVAC 1300 SUPER 15W-40  
 MOBILGARD HSD+ 15W-40  
 MOBILGARD HSD+ 15W-40  
 MOBILGARD HSD+ 15W-40  
 MOBIL DELVAC XHP LE 10W-40  
 DIESEL ENGINE OIL SAE 15W-40  
 TURBOMASTER XD 15W-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)

**ZF approval number**

ZF002023  
 ZF002252  
 ZF002253  
 ZF003349  
 ZF003355  
 ZF000770  
 ZF003359  
 ZF003360  
 ZF003519  
 ZF003520  
 ZF003521  
 ZF003522  
 ZF003603  
 ZF003604  
 ZF003628  
 ZF002002  
 ZF003724  
 ZF000436  
 ZF000437  
 ZF001482  
 ZF001484  
 ZF001796  
 ZF001799  
 ZF002250  
 ZF002251  
 ZF002262  
 ZF002266  
 ZF003486





**Manufacturer (04D)**

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  
 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  
 S.I.R.A.L., 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  
 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  
 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  
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR  
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR  
 TOTAL LUBRIFIANTS S.A., NANTERRE/FR  
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 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  
 VALVOLINE, LEXINGTON/US  
 YORK LUBRICANTS - GINOUVES SAS, LA GARDE/FR  
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE  
 ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE

**Trade name (04D)**

REPSOL MATIC ATF  
 REPSOL MATIC ATF  
 REPSOL MATIC ATF  
 REPSOL MATIC III  
 REPSOL MATIC LD ATF  
 REPSOL MATIC SINTETICO  
 ROSNEFT KINETIC ATF IID  
 ROSNEFT KINETIC ATF III  
 ROLF ATF IID  
 ROLF ATF IIIG  
 ROWE HIGHTEC ATF 9000  
 ROWE HIGHTEC ATF 8000  
 SIROIL ATF MAXIMUM  
 SYN TRANSMISSION OIL VI  
 SHELL SPIRAX S2 ATF AX  
 SHELL SPIRAX S6 ATF VM PLUS  
 SHELL SPIRAX S6 ATF VM  
 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  
 MONTANA DYNAMIC ATF 2  
 LINGXIAN 6+ AUTOMATIC TRANSMISSION FLUID  
 LINGXIAN 10+ AUTOMATIC TRANSMISSION FLUID  
 ELF ELFMATIC G3  
 GULF ATF HIGH TECH  
 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  
 FLUIDE AT 42  
 TOTAL FLUIDE XLD FE  
 FLUIDMATIC D3  
 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  
 SYN GARD™ ATF ES  
 YORK 787  
 ZF LIFEGUARDFLUID 5  
 ZF ECOFLUID A LIFE

**ZF approval number**

ZF000022  
 ZF000222  
 ZF000224  
 ZF000318  
 ZF001751  
 ZF003586  
 ZF003440  
 ZF003671  
 ZF003371  
 ZF003372  
 ZF001937  
 ZF001938  
 ZF003709  
 ZF001091  
 ZF000374  
 ZF001371  
 ZF001463  
 ZF001483  
 ZF001812  
 ZF001360  
 ZF003345  
 ZF003346  
 ZF003347  
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 ZF003354  
 ZF000438  
 ZF000439  
 ZF002061  
 ZF001279  
 ZF001350  
 ZF002043  
 ZF002213  
 ZF001207  
 ZF003664  
 ZF003377  
 ZF003378  
 ZF001152  
 ZF001257  
 ZF001569  
 ZF001582  
 ZF001663  
 ZF001668  
 ZF001699  
 ZF001723  
 ZF001724  
 ZF001725  
 ZF002100  
 ZF003729  
 ZF004886  
 ZF001010  
 ZF001071  
 ZF003562  
 ZF002192  
 ZF003488  
 ZF001871  
 ZF001872  
 ZF001873  
 ZF003710  
 ZF000597  
 ZF001363  
 ZF001671



**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

**Trade name (04F)**

CASTROL ALPHASYN HG 220  
MEROPA 220  
MOBILGEAR 600 XP 220

**ZF approval number**

ZF001508  
ZF000811  
ZF000852

**Lubricant class 04G**

Gear 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  
 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  
 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  
 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 XL 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  
 GULFSEA GEAR OIL 100  
 GULFSEA GEAR OIL 150  
 AVIA SYNTOGEAR PE 100  
 AVIA SYNTOGEAR PE 150  
 PARTHAN EP 100  
 PARTHAN EP 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  
 ZF003560  
 ZF003568  
 ZF003569  
 ZF003570  
 ZF003571  
 ZF003572  
 ZF003423  
 ZF003424  
 ZF003532  
 ZF003533  
 ZF003534  
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 ZF003536  
 ZF003502  
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 ZF003517  
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 ZF003493  
 ZF003494  
 ZF003706  
 ZF003708  
 ZF003474  
 ZF003481  
 ZF003482  
 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  
 HINDUSTAN PETROLEUM 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  
 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  
 ENKLO HLP 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  
 ZF003573  
 ZF003574  
 ZF003577  
 ZF003578  
 ZF003425  
 ZF003426  
 ZF003541  
 ZF003542  
 ZF003707  
 ZF003484  
 ZF003485  
 ZF003580  
 ZF003581  
 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  
 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  
 KLÜBERBIO EG 2-100  
 KLÜBERBIO EG 2-150  
 PANOLIN EP GEAR SYNTH 100  
 PANOLIN EP GEAR SYNTH 150  
 567M VGP EAL MARINE ECOSHIELD EP  
 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  
 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 (product groups in accordance with page 1):

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

**Note:**

Information regarding the approved lubricants for the wet operating clutch can be found in the operating manual of the respective clutch variant.

Lubricants according to lubricant class 04Q are only to be used for the clutches integrated into the upper gearbox.

**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  
 GULF OIL MARINE LTD., SINGAPORE/SG  
 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  
 GULFSEA HYDRAULIC HVI PLUS 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  
 ZF003576  
 ZF003427  
 ZF003428  
 ZF003541  
 ZF003542  
 ZF003506  
 ZF003508  
 ZF003514  
 ZF003515  
 ZF003516  
 ZF003543  
 ZF003544  
 ZF003460  
 ZF003461