High-tech safety for gearboxes

Gear oils for passenger cars and commercial vehicles
For problem-free operation over the entire life of the vehicle, passenger car gearboxes today need high-performance lubricants which protect against wear and significantly increase shifting comfort. In addition, extending oil change intervals up to the life of the vehicle make considerable demands on the quality of the oils.

As the long-term development partner of the world’s leading gearbox manufacturers, we operate at the leading edge of technology.

For quality and reliability. Use FUCHS.
The information contained in this product information is based on the experience and know-how of FUCHS EUROPE SCHMIERSTOFFE GMBH in the development and manufacturing of lubricants and represents the current state-of-the-art. The performance of our products can be influenced by a series of factors, especially the specific use, the method of application, the operational environment, component pre-treatment, possible external contamination, etc. For this reason, universally valid statements about the function of our products are not possible. The information given in this product information represents general, non-binding guidelines. No warranty expressed or implied is given concerning the properties of the product or its suitability for any given application.

We therefore recommend that you consult a FUCHS application engineer to discuss application conditions and the performance criteria of the products before the product is used. It is the responsibility of the user to test the functional suitability of the product and to use it with the corresponding care.

Our products undergo continuous improvement. We therefore retain the right to change our product program, the products, and their manufacturing processes as well as all details of our product information sheets at any time and without warning. With the publication of this product information, all previous editions cease to be valid.

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SINTOFLUID FE
SAE 75W

Premium, low viscosity, gear oil offering increased gearbox efficiency. Reduces fuel consumption and offers excellent low temperature performance. Suitable as “fill for life” fluid according to manufacturer recommendations.

Specifications*:
API GL-4

Approvals*:
–

FUCHS recommendations:
VW TL 521 71
(G 052 171 A1/A2)
VW TL 521 78 (G 052 178 A2),
VW TL 525 12 (G 052 512 A2),
VW TL 525 27 (G 052 527 A2),
VW TL 726
(G 052 726 A2/ G 055 726 A2/
G 060 726 A2/ G 070 726 A2)

SINTOFLUID
SAE 75W-80

Premium gear oil for passenger cars offering good gearbox efficiency. Good cold start behaviour. Suitable as fill-for-life fluid according to manufacturer.

Specifications*:
API GL-5

Approvals*:
–

FUCHS recommendations:
MIL-L-2105 D
ALFA ROMEO
BMW 83 22 0 309 031
BMW 83 22 0 403 247
BMW 83 22 7 533 818
BMW 2300 1434 404
BMW 2300 7533 513
BMW 2300 7533 818
CITROËN
FIAT
FORD M2C200-C/ C2/ C3
LANCIA
OPEL 19 40 182,
19 40 757, 19 40 768, 19 40 776
PEUGEOT
RENAULT
VOLVO 97308
VW 501 50
(G 005 000 05/ G 005 000/
G 005 000 20/ G 052 911 A1/A2)
SINTOPOID FE
SAE 75W-85

Premium, low viscosity, gear oil offering increased gearbox efficiency formulated from fully-synthetic base oils. Reduces fuel consumption and offers excellent low temperature performance. Suitable as “fill for life“ fluid according to manufacturer recommendations.

Specifications*:
API GL-5

Approvals*:
MB-APPROVAL 235.7
ZF TE-ML 18

FUCHS recommendations:
ALFA ROMEO
BMW
FIAT
LANCIA
VW TL 521 45-X (G 052 145 A1)
VW TL 521 90 (G 052 190 A2/ G 055 190 A2)

SINTOPOID SAE 75W-90

Premium gear oil for passenger cars offering good gearbox efficiency. Suitable for high-offset hypoid drives. Suitable as fill-for-life fluid according to manufacturer.

Specifications*:
API GL-5

Approvals*:
–

FUCHS recommendations:
MB-APPROVAL 235.7
ZF TE-ML 18

Premium gear oils for axles, transfer boxes, formulated from fully synthetic base oils. Both offer excellent low temperature performance. Suitable for differentials with or without limited slip. SINTOPOID LS 75W-90 can be used as a rationalisation grade due to its wide specification profile.

Specifications*:
SINTOPOID LS
SAE 75W-90:
API GL-4/-5/-5 incl. LS

FUCHS recommendations:
SINTOPOID LS
SAE 75W-90:

Approvals*:
–

SPECIFICATIONS:
SINTOPOID LS
SAE 75W-140:
API GL-5

FUCHS recommendations:
SINTOPOID LS
SAE 75W-140:

Approvals*:
–

FUCHS recommendations:
BMW 83 22 2 282 583, 83 22 9 407 870
CHRYSLER MS-8985
FORD M2C192-A, GM 12346140
JOHN DEERE JDM J 11 G
SCANIA STO 1:0

ALFA ROMEO
BMW
FIAT
LANCIA
VW TL 521 45-X (G 052 145 A1)
VW TL 521 90 (G 052 190 A2/ G 055 190 A2)

FUCHS recommendations:
MB-APPROVAL 235.7
ZF TE-ML 18

VW TL 521 45-Y (G 052 145 A2)
FUCHS has developed special gear oils for use in cars, vans and trucks. Reduces the chance of incorrect filling. Reduces stock levels and complexity. Ultimately reduces operating costs. Choose FUCHS rationalisation products.
Reduce your operating costs: By using mixed fleet products.
**SUPERGEAR MC SAE 80W-90**

Super high-performance gear oil based on MC-synthesis technology for extended oil change intervals.

**Specifications***:  
API GL-4/GL-5  
SCANIA STO 1:0

**Approvals***:  
MAN 341 TYPE E2  
MAN 341 TYPE Z2  
MAN 341 TYPE M2  
MB-APPROVAL 235.0  
ZF TE-ML 02B, 05A, 12L, 12M, 16B, 17B, 19B, 21A

**FUCHS recommendations***:  
CASE MS 1316  
FORD M2C197-A  
JOHN DEERE JDM J 11 E  
MAN M3343 TYPE M  
NH 520 A  
SDFG OP 1705  
STEFYR B-101  
VOLVO 97310  
ZF TE-ML 07, 08

**SUPERGEAR MC SAE 80W-140**

Super high-performance gear oil based on MC-synthesis technology for extended oil change intervals.

**Specifications***:  
API GL-4/GL-5  
SCANIA STO 1:0

**Approvals***:  
–

**FUCHS recommendations***:  
JOHN DEERE JDM J 11 E  
OPEL 19 42 386  
RENAULT VI  
VOLVO 97310  
ZF TE-ML 08

**GEAR LS SAE 90**

High-performance LS (Limited Slip) hypoid gear oil for axles in commercial vehicles and passenger cars with or without limited slip differentials.

**Specifications***:  
API GL-5

**Approvals***:  
ZF TE-ML 05C, 12C, 16E, 21C

**FUCHS recommendations***:  
MIL-L-2105 D  
FORD M2C104-A  
JOHN DEERE JDM J 11 F  
LIEBHERR  
NH 520 B  
VOLVO 97310
GEAR MP
SAE 80

High-performance gear oil for synchronized and non-synchronized manual gearboxes as well as auxiliary drives, axles and differentials in certain commercial vehicles and passenger cars.

Specifications*:
API GL-4

Approvals*:
MAN 341 TYPE E1
MAN 341 TYPE Z2
MB-APPROVAL 235.1
ZF TE-ML 17A

FUCHS recommendations:

BMW 81 22 9 407 052
BMW 81 22 9 407 053

EATON

MAN 341 TYPE E1

MB-APPROVAL 235.1

ZF TE-ML 08

GEAR MP
SAE 90

High-performance gear oil for synchronized and non-synchronized manual gearboxes as well as auxiliary drives, axles and differentials in certain commercial vehicles and passenger cars.

Specifications*:
API GL-4

Approvals*:
–

FUCHS recommendations:

EATON

FULLER

MB 235.1

MAN 341 TYPE E1, Z1

ZF TE-ML 02A, 16A, 17A, 19A

GEAR HYP
SAE 90

High-performance gear oil for highly-stressed differentials in commercial vehicles and passenger cars.

Specifications*:
API GL-5

Approvals*:
MAN 342 TYPE M1
MB-APPROVAL 235.0
ZF TE-ML, 16C, 17B, 19B, 21A

FUCHS recommendations:

FORD M2C9102-A
JOHN DEERE JDM J 11 E
OPEL 19 42 387
VOLVO 97310
VW TL 727
ZF TE-ML 07, 08
Commercial vehicle gearboxes are subject to all sorts of loads. Urban driving puts different demands on the gearbox and its oil than long-distance haulage. Perfect and reliable operation is a must - downtime can be very expensive and inconvenient - the gear oil must be perfectly matched to the gearbox and axles and its performance requirements. Make no compromises. Rely on the leading OEM supplier, FUCHS.
Heavy-duty gear oils for heavy-duty applications. Never make compromises in the commercial sector.
CYTRAC SL
SAE 75W-90

Premium gear oil for highly-stressed hypoid axles in commercial vehicles formulated with fully-synthetic base oils. Developed for extended oil change intervals in commercial vehicle axle drives.

Specifications*:
API GL-5
SCANIA STO 1:0

Approvals*:
MAN 342 TYPE S1

FUCHS recommendations:
JOHN DEERE JDM J 11 E/G
VOLVO 97312
ZF TE-ML 07, 08, 05B, 12B, 16F, 17B
MB 235.8

CYTRAC MB SYNTH
SAE 75W-90

Premium gear oil for extended drain intervals in commercial vehicles, specially developed for Mercedes-Benz Actros. Formulated with fully-synthetic base oils. Reduces fuel consumption by improving gearbox efficiency. Suitable for extended oil change intervals.

Specifications*:
API GL-4

Approvals*:
MAN 341 TYPE MB
MB-APPROVAL 235.11

FUCHS recommendations:
DAF
EATON
IVECO
RENAULT
VOLVO 97307

CYTRAC MAN SYNTH
SAE 75W-80


Specifications*:
API GL-4

Approvals*:
MAN 341 TYPE Z4
ZF TE-ML 01L 02L, 16K

FUCHS recommendations:
JOHN DEERE JDM J 11 E/G
VOLVO 97312
ZF TE-ML 08
MB 235.8

Premium gear oil for extended drain intervals in commercial vehicles, specially developed for Mercedes-Benz Actros. Formulated with fully-synthetic base oils. Reduces fuel consumption by improving gearbox efficiency. Suitable for extended oil change intervals.
CYTRAC LD
SAE 75W-80

Ultra high-performance gear oil for extended oil change intervals in commercial vehicles fitted with integral intarders or supplementary retarders.

Specifications*:
API GL-4

Approvals*:
EATON
MAN 341 TYPE E3

FUCHS recommendations:
DAF
MAN 341 TYPE Z3
VOLVO 97305
ZF TE-ML 02D, 08

CYTRAC HSY
SAE 75W-90

Ultra high-performance gear oil for commercial vehicle manual transmissions and axle drives formulated with fully-synthetic base oils.

Specifications*:
API GL-4/GL-5

Approvals*:
ZF TE-ML 05B, 12L, 12N, 16F, 17B, 19C, 21B

FUCHS recommendations:
DAF
MAN 341 TYPE Z2/E3
MAN 342 TYPE M3
MAN M 3343 TYPE S
JOHN DEERE JDM J 11 E/G
SCANIA STO 1:0
ZF TE-ML 07

GEAR HYP LD
SAE 80W-90

Super high-performance axle oil specially developed for Mercedes-Benz commercial vehicles. Offering enhanced thermal stability and fuel-economy potential.

Specifications*:
API GL-5
API MT-1
MB-APPROVAL 235.20
ZF TE ML 05A, 12L, 12M, 16B, 17B, 19B, 21A

FUCHS recommendations:
MIL-PRF-2105 E
ARVIN MERITOR AXLES
MACK GO-J
JOHN DEERE JDM J 11 E/G
SCANIA STO 1:0
ZF TE-ML 07A
How to find the right gear oil

API Classifications
The American Petroleum Institute (API) created a classification system for gear oils based on application conditions and the type of gears most commonly used. The presence of frictional systems such as clutches or synchromesh rings in gearboxes as well as sealing material compatibility or component wear are not considered. API gear oil classifications are now internationally recognised and used.

<table>
<thead>
<tr>
<th>API</th>
<th>Application conditions</th>
<th>Gearbox type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GL-4</td>
<td>high rotational speed/low torque or low rotational speed/high torque, limited sliding portion</td>
<td>highly loaded manual gearboxes, mild hypoid axle drives, moderate axle off-sets</td>
</tr>
<tr>
<td>GL-5</td>
<td>high rotational speed and shock-loading, high rotational speed/low torque or low-rotational speed/high torque</td>
<td>hypoid axle drives, highly loaded drives with large axle off-sets, very highly loaded manual transmissions</td>
</tr>
<tr>
<td>MT-1</td>
<td>spur gear, dog-engaged gearboxes</td>
<td>non-synchronesh manual transmissions</td>
</tr>
</tbody>
</table>

US Military Specifications
The US Military authorities have created their own gear oil specifications which are sometimes also used for civilian application

<table>
<thead>
<tr>
<th>MIL Specification</th>
<th>Status</th>
<th>API Performance</th>
<th>SAE Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL-L-2105 B</td>
<td>Introduced in 1962. Superseded by MIL-L-2105 C.</td>
<td>API GL-5</td>
<td>SAE 80, SAE 90, SAE 140</td>
</tr>
<tr>
<td>MIL-L-2105 D</td>
<td>Introduced in the 2nd half 1987.</td>
<td>API GL-5</td>
<td>SAE 75W, SAE 80W-90, SAE 85W-140</td>
</tr>
<tr>
<td>SAE J2360</td>
<td>Civil version of MIL-L-2105 E.</td>
<td>see above</td>
<td>see above</td>
</tr>
</tbody>
</table>

Approvals by manufacturers

**MACK**

<table>
<thead>
<tr>
<th>Application area</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO-H Axle oils, e.g. SAE 90, SAE 140, SAE 80W-90 and SAE 85W-140</td>
</tr>
<tr>
<td>GO-J Gear oil, axle oil, normal drain interval (up to 250,000 miles/3 years on highway operation)</td>
</tr>
<tr>
<td>GO-J Plus Gear oil, axle oil, extended drain interval (up to 500,000 miles/3 years on highway operation)</td>
</tr>
<tr>
<td>TO-A Plus Manual transmission fluid (MTF), e.g. SAE 50, extended drain interval (up to 500,000 miles/3 years on highway operation)</td>
</tr>
</tbody>
</table>
## Approvals by manufacturers

### MAN Application area

<table>
<thead>
<tr>
<th>MAN</th>
<th>Application area</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 3343 M</td>
<td>Multifunctional oil, mineral oil-based, extended drain intervals</td>
</tr>
<tr>
<td>M 3343 S</td>
<td>Multifunctional oil, synthetic, extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 Z1</td>
<td>MTF, mineral oil-based, normal drain intervals</td>
</tr>
<tr>
<td>MAN 341 Z2</td>
<td>MTF, mineral oil-based, extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 Z3</td>
<td>MTF, semi-synthetic, extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 Z4</td>
<td>MTF, synthetic, more extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 Z5</td>
<td>MTF, synthetic, maximum drain intervals</td>
</tr>
<tr>
<td>MAN 341 E1</td>
<td>MTF, mineral oil-based, normal drain intervals</td>
</tr>
<tr>
<td>MAN 341 E2</td>
<td>MTF, mineral oil-based, extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 E3</td>
<td>MTF, semi-synthetic, extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 E4</td>
<td>MTF, synthetic, more extended drain intervals</td>
</tr>
<tr>
<td>MAN 341 ZE</td>
<td>MTF for ZF Ecomid/Ecosplit</td>
</tr>
<tr>
<td>MAN 341 VR</td>
<td>MTF for VOITH retarders</td>
</tr>
<tr>
<td>MAN 342 M1</td>
<td>Axle oil, mineral oil or semi-synthetic, normal drain intervals</td>
</tr>
<tr>
<td>MAN 342 M2</td>
<td>Axle oil, mineral oil or semi-synthetic, extended drain intervals</td>
</tr>
<tr>
<td>MAN 342 M3</td>
<td>Axle oil, mineral oil or semi-synthetic, more extended drain intervals</td>
</tr>
<tr>
<td>MAN 342 S1</td>
<td>Axle oil, synthetic, maximum drain intervals</td>
</tr>
</tbody>
</table>

### MB-sheet Application area

| MB 235.0 | Hypoid gear oils SAE 85W-90, SAE 90 |
| MB 235.1 | Gear oils SAE 80, 80W/85W |
| MB 235.4 | Synthetic gear oils SAE 75W/85W |
| MB 235.5 | Gear oils SAE 80, 80W/85W |
| MB 235.6 | Hypoid gear oils SAE 80W-90, SAE 90 |
| MB 235.7 | FE-hypoid gear oils SAE 85W-90 |
| MB 235.8 | Hypoid gear oils SAE 75W-90 |
| MB 235.10 | MTF |
| MB 235.11 | FE-MTFs for extended drain intervals |
| MB 235.12 | Manual gearbox oils SAE 30, 40 |
| MB 235.13 | Fully-synthetic manual gearbox oils |
| MB 235.15 | Hypoid gear oils SAE 75W-85 |
| MB 235.20 | Mineral axle oils, LD, SAE 80W-90 |
| MB 235.27 | Retarder oils NFZ, category voith A |
| MB 235.28 | Retarder oils NFZ, category voith B |
| MB 235.29 | Retarder oils NFZ, category voith C |
| MB 235.61 | Hypoid gear oils, AMG |

### SCANIA Application area

| STO 1:0 | Axle Oil acc. to GL-5 for use in SCANIA manual transmissions, transfer cases and rear axles. |
| STO 2:0A | Axle Oil acc. to SAE J 2360 for use in SCANIA manual transmissions, transfer cases and rear axles. Improved shear and oxidation stability and fuel efficiency potential. Increased drain interval up to 540,000 km (proven in field test). |

### VOLVO Application area

| 97303 | Multifunctional oil for wet brake systems, WB 101, UTTO |
| 97305 | Manual transmission oil, transfer case oil, GL-4, SAE 80W-90 |
| 97307 | Manual transmission oil, extended drain intervals, GL-4 |
| 97308 | Special synthetic manual transmission oil, GL-4 |
| 97310 | Gear oil for heavy rear axles, GL-5 |
| 97312 | Gear oil for heavy rear axles, extended drain intervals, GL-5 |
| 97315 | Fully-synthetic manual transmission oil, more extended drain intervals, GL-4 |

### ZF Application area

| TE-ML 02 | Manual and automatic transmissions for commercial vehicles |
| TE-ML 03 | Converter transmissions for off-road equipment |
| TE-ML 05 | Axles for off-road vehicles |
| TE-ML 06 | Tractor transmissions and hydraulic lifts |
| TE-ML 07 | Hydrostatic-mechanical and electric drive systems |
| TE-ML 11 | Manual and automatic transmissions for cars |
| TE-ML 12 | Axles for commercial vehicles and buses |
| TE-ML 13 | ZF assemblies in special purpose vehicles |
| TE-ML 16 | Transmissions for rail vehicles |
| TE-ML 17 | Transmissions and axles for lift-trucks |
| TE-ML 18 | Axles for cars |
| TE-ML 19 | Transfer and offset transmissions for commercial vehicles |
| TE-ML 21 | Tractor axles, transmissions for harvesters and final drives |
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