Product catalog
Neste lubricants and chemicals
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The world’s most Finnish lubricant

From the heat of a sauna directly to ice-cold water in a hole in the ice. From the light of white nights in summer to the darkness of arctic nights in winter. From scorching heat to freezing temperatures, slush and slippery conditions.

We know extreme conditions only too well. We were born to overcome them. Our world-class expertise promises you more power, less loading on the environment and performance for the toughest challenges.

Our products are developed in Finland and designed to overcome the demanding and varied conditions of the north. Because they withstand these conditions, they withstand anything. Everywhere.

We are providing our customers with the latest high technology using our decades-long research and development experience. Our high quality lubricants are based on the unique NEXBASE™ base oil refined in Finland. Together with the world’s best additives, NEXBASE™ makes our lubricants world-beaters.

Actions speak louder than words. The quality and reliability of Neste products is proven in extreme conditions. Every day, in all continents.

When you want the best, when you expect pure professionalism and demand OEM-approved performance, Neste lubricants are your choice.

You will find the solutions to your needs in our extensive product range

Neste lubricants have been granted quality certificates complying with ISO 9001, 14001, and OHSAS 18001 standards.

Our product range has the exact solutions to your needs, from professional traffic to heavy industry. To make finding the right products easier, the products listed in this catalog are divided according to the most typical uses. In addition, our product range includes special products for the most demanding uses.

We are constantly developing our products in order to respond to our customers’ ever-changing needs. That is why product names, specifications and classifications may change. There is a list of old and new product codes at the end of the product catalogue.
Basic concepts related to lubricants

Density
Density refers to the bulk density of the substance. For oils, it is usually expressed at the temperature of +15 °C or +20 °C, and the unit is kg/m³. The densities of lubricant oils vary between approx. 700–950 kg/m³ depending on the base oil's quality, viscosity and additives used.

Viscosity
The thicker the liquid the higher its viscosity. The viscosity of lubricant oils is usually declared in cSt (centistoke)=mm²/s (SI system) or cP (centipoise) = mPas (SI system).

Temperature must always be mentioned when describing viscosity regardless of what unit is used. All oils thin strongly when the temperature rises. Typical viscosity of SAE 10W engine oil in -20 °C temperature may be 2,000 cP, but if it heats up to +100 °C, the viscosity will be as low as 5.2 cSt.

Viscosity index
The Viscosity index (VI) refers to the propensity of liquids to thin as temperature rises. The more the liquid in question thins, the lower its viscosity index. VI of single grade engine oils is approx. 95–110, while that of multigrade oils may exceed 200.

Flash point
Flash point refers to the flammability of fluids. Flash point is the temperature at which the fluid emits so much flammable gas measured with a certain method that they flare up when lit with open fire while the fluid itself does not remain burning.

Ignition temperature
Ignition temperature is the temperature at which the gases evaporate when a fluid is heated in an open fire pot burn for at least five seconds when lit with open fire. The ignition temperature is typically 10–50 °C higher than the flash point.

Pour point
Oil thickens when the temperature drops. At a certain temperature, it no longer flows at its own weight. This temperature is referred to as the pour point. The pour point depends, among other things, on the viscosity of the oil and its chemical structure. In paraffinic oils, thickening is caused by the wax in the oil, which can be distinguished as crystals. The more the oil cools down the larger the crystals grow, eventually forming a network obstructing the flow within the oil.

Alkali charge
When the engine is running, acidic compounds caused by the combustion of fuel enter the fuel and these must be neutralized in order to prevent corrosion of metal parts. For this reason, engine oils contain additives to create an alkali charge. Its amount is expressed in terms of total base number (TBN).

Storage and handling of lubricants

The storage location and conditions must be chosen so that water and impurities cannot contaminate the lubricant. The storage location must be sheltered from rain and as little subject to changes in temperature as possible. Changes in temperature may cause condensation in containers that are not tightly shut. It is best to store barrels on their sides so that the fill hole is below the oil level.

Products sensitive to freezing, such as metal working emulsions and detergents must be transported and stored safe from freezing.

Official guidelines and regulations must be followed when handling lubricants, oils and chemical. For more detailed product-specific information, see the safety data sheets.
**Color-coded products**

The visual appearance of Neste lubricants is color-coded to make it easier to choose the right product. Our top quality lubricants are based on the unique NEXBASE™ base oil refined in Finland. Together with the world’s best additives, NEXBASE™ makes these lubricants world-beaters.

**GOLD**
Top quality lubricants that meet the toughest requirements of automobile manufacturers.

**SILVER**
Very high quality lubricants suitable for most vehicles, light and heavy alike.

**BLUE**
Lubricants of high quality, also suitable for older vehicles. Excellent price-to-quality ratio.

**Icons and symbols**

In this product catalogue and product labels, the icons and symbols provide a quick indication of the product’s properties and applications.

**APPLICATION ICON**
The icon indicates the types of equipment the product is intended for. For example passenger car, motorcycle, etc.

**PRODUCT PROPERTY SYMBOL**
The product’s main properties and advantages are communicated with a symbol and explanatory text.
Engine oils

How to select the right engine oil

Correct viscosity (SAE classification)

The engine must start also in temperatures way below freezing and oil must reliably lubricate the engine also in high temperatures and under heavy burden. In winter, using an engine-block heater raises the oil temperature only by a couple of degrees, so you should select the oil according to the outside temperature unless you are using a special oil heater.

The quality of oil affects the oil change interval. The properties of high quality engine oil will last longer and enable the long oil change intervals recommended by the car manufacturer. Car manufacturers declare the minimum requirements for engine oil as well as viscosity classes in the owner’s manual of the vehicle.

Correct performance: (API and/or ACEA classifications as well as specifications by engine manufacturers)

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<table>
<thead>
<tr>
<th>SAE class</th>
<th>Viscosity cP</th>
<th>Pumpability temperature</th>
<th>Viscosity cSt/100 °C</th>
<th>HSHT viscosity 150 °C 10¹/⁰/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.</td>
<td>Max.</td>
<td>Min.</td>
<td>Max.</td>
<td></td>
</tr>
<tr>
<td>0W</td>
<td>6200 / -35 °C</td>
<td>-40 °C</td>
<td>3.8</td>
<td>-</td>
</tr>
<tr>
<td>5W</td>
<td>6600 / -30 °C</td>
<td>-35 °C</td>
<td>3.8</td>
<td>-</td>
</tr>
<tr>
<td>10W</td>
<td>7000 / -25 °C</td>
<td>-30 °C</td>
<td>4.1</td>
<td>-</td>
</tr>
<tr>
<td>15W</td>
<td>7000 / -20 °C</td>
<td>-25 °C</td>
<td>5.6</td>
<td>-</td>
</tr>
<tr>
<td>20W</td>
<td>9500 / -15 °C</td>
<td>-20 °C</td>
<td>5.6</td>
<td>-</td>
</tr>
<tr>
<td>25W</td>
<td>13000 / -10 °C</td>
<td>-15 °C</td>
<td>9.3</td>
<td>-</td>
</tr>
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</table>

20  30  40  50  60

2.9 (0W-40, 5W-40, 10W-40)
3.7 (15W-40, 20W-40, 25W-40, 40)

European ACEA classification for motor and engine oils

A/B  Gasoline and diesel engine oils for passenger cars and vans
A1/B1 Thin low friction special oils. Warning: Not suitable for all cars. Check suitability from the vehicle manual. No longer in use.
A3/B3 Top quality oils suitable for general use in high-powered engines, prolonged change intervals and demanding conditions.
A3/B4 Like class A3/B3, but better suited for some direct injection diesel engines. Can be used in cars with the requirement A3/B3.
A5/B5 Top quality thin low friction special oils for prolonged changed intervals. Warning: Not suitable for all cars. Check suitability from the vehicle manual.
C  Gasoline and diesel engine oils better suited for catalysts and exhaust particle filters of passenger cars and vans
C1 Thin low friction special oils. Prolongs the age of catalysts and diesel particle filters. Contains more sulfur and phosphorus (Low SAPS) than A1/B1 oils or C2, C3 and C4 oils. Low ash generation. Warning: Not suitable for all cars. Check suitability from the vehicle manual.
C2 Low friction special oils with sulfur, phosphorus and ash limits (Mid SAPS) higher than in C1 class. Warning: Not suitable for all cars. Check suitability from the vehicle manual.
Oils used for the purpose and meeting the same quality specifications can usually be mixed together regardless of whether they are single grade or multigrade oils. If a modern, high detergent engine oil is applied to an engine where an older class of low detergent oil has been used, it is recommended that the first change interval is shortened to, for example, 1,000 kilometers or the engine is cleaned in some other way.

Oil must always be changed at the latest after the number of kilometers driven indicated by the car manufacturer has been reached. The maximum change interval is shortened by, for example:

- driving in town and short distances
- driving in winter and cold engine
- dusty conditions
- too high temperatures

Even though oils have been developed strongly and endure the long change intervals allowed by engine manufacturers, the cheapest way to prolong the life of an engine is to change oil at sufficiently regular intervals.

Oil consumption

Even an engine that is in good order naturally consumes some oil. This is compensated by fuel dilution, which can be up to 10% especially in gasoline engines during winter and short trips. This will make the oil level rise after which, when driving for longer, the level can quickly drop as oil thinned by gasoline is burnt and gasoline evaporates.

Oil consumption is most increased by driving at full throttle and high revs with recurrent engine braking.

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**API classification**

The American API classification comprises gasoline engine S classes, such as API SL, and diesel engine C classes, such as CI-4.

**Mixing oils**

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- dusty conditions
- too high temperatures

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Oil consumption is most increased by driving at full throttle and high revs with recurrent engine braking.
### Neste Pro+ F 0W-30

**Fully synthetic motor oil**

Meets or exceeds the following quality criteria:
- ACEA C2
- Ford WSS-M2C950-A

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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</thead>
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<tr>
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<td>0W-30</td>
<td>842</td>
<td>46</td>
<td>9.4</td>
<td>194</td>
<td>-51</td>
<td>&lt;-40</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Reduces emissions

### Neste Pro+ F 5W-20

**Fully synthetic motor oil**

Meets or exceeds the following quality criteria:
- API SN, SM, SL, SJ
- ACEA C5
- Ford WSS-M2C948-B

<table>
<thead>
<tr>
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<th>SAE</th>
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<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<tr>
<td>1176</td>
<td>5W-20</td>
<td>852</td>
<td>42</td>
<td>7.8</td>
<td>155</td>
<td>-39</td>
<td>&lt;-35</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Very clean engine
- Protects against wear

### Neste Pro+ V 0W-20

**Fully synthetic motor oil**

Meets or exceeds the following quality criteria:
- ACEA C5
- Volvo VCC RBSO-2AE

<table>
<thead>
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<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<td>0W-20</td>
<td>844</td>
<td>49</td>
<td>9.2</td>
<td>188</td>
<td>-45</td>
<td>&lt;-40</td>
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</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Also suitable for hybrid cars
- Efficient reduction of friction

### Neste Pro+ W LL-III 5W-30

**Fully synthetic motor oil**

Meets or exceeds the following quality criteria:
- ACEA C3
- BMW Longlife-04
- MB-Approval 229.51
- VW 504.00, VW 507.00

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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</thead>
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<tr>
<td>1178</td>
<td>5W-30</td>
<td>853</td>
<td>69</td>
<td>11.8</td>
<td>170</td>
<td>-42</td>
<td>&lt;-40</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Long oil change intervals
- Reduces emissions
### Neste Pro F

**5W-30**

- **Fully synthetic motor oil**
- Meets or exceeds the following quality criteria:
  - API SL, SJ/CF
  - ACEA A5/5, A1/B1
  - Ford WAA-M2C913-A
  - Ford WSS-M2C912-A

<table>
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<th>100 °C</th>
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<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<tr>
<td>1175</td>
<td>5W-30</td>
<td>853</td>
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<td>9.8</td>
<td>166</td>
<td>-45</td>
<td>&lt;-35</td>
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</table>

- Recommended for use where Fiat 9.55535.G1 is specified.

### Neste Pro C2

**0W-30**

- **Fully synthetic motor oil**
- Meets or exceeds the following quality criteria:
  - ACEA C2
  - PSA B71 2312

<table>
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<tr>
<th>Product number</th>
<th>SAE</th>
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<th>100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<tr>
<td>1171</td>
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<td>10.0</td>
<td>171</td>
<td>-51</td>
<td>&lt;-40</td>
<td></td>
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</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Reduces emissions

### Neste Pro C2

**5W-30**

- **Fully synthetic motor oil**
- Meets or exceeds the following quality criteria:
  - API SN, SM, SL, SJ/CF
  - ACEA C2
  - Fiat 9.55535-S1
  - PSA B71 2290
  - Renault RN0700

<table>
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<th>Product number</th>
<th>SAE</th>
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<th>Viscosity mm²/s (cSt)</th>
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<th>100 °C</th>
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<th>Pumpability limit temperature °C</th>
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<td>-39</td>
<td>&lt;-35</td>
<td></td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Reduces emissions

### Neste Pro C2/C3

**5W-30**

- **Fully synthetic motor oil**
- Meets or exceeds the following quality criteria:
  - API SN, SM, SL, SJ
  - ACEA C2/C3
  - BMW Longlife -04
  - BMW Longlife -01
  - Renault RN17 RSA (performance level)

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
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<th>Viscosity mm²/s (cSt)</th>
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<th>100 °C</th>
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<tbody>
<tr>
<td>1184</td>
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<td>72</td>
<td>12</td>
<td>164</td>
<td>-39</td>
<td>&lt;-35</td>
<td></td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Long oil change intervals
### Neste Pro C3
#### 5W-40

- **Fully synthetic motor oil**
  - Meets or exceeds the following quality criteria:
    - API SN, SM, SL, SJ/CF
    - ACEA C3
    - BMW Longlife -04
    - Ford WSS-M2C917A
  - GM dexos2
    - MB 226.5
    - MB-Approval 229.31
    - Porsche A40
    - Renault RN0700, RN0710
    - VW 502.00/505.00/505.01

#### Properties
- Excellent fuel-saving properties
- Long oil change intervals
- Reduces emissions

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
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<td>87</td>
<td>14.2</td>
<td>-51</td>
<td>&lt;-35</td>
</tr>
</tbody>
</table>

### Neste Pro C4
#### 5W-30

- **Fully synthetic motor oil**
  - Meets or exceeds the following quality criteria:
    - ACEA C4
    - MB-Approval 229.51, MB 229.31, MB 226.51
    - Renault RN0720

#### Properties
- Excellent cold start properties
- Excellent fuel-saving properties
- Reduces emissions

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<td>73</td>
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<td>-42</td>
<td>&lt;-35</td>
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</tbody>
</table>

### Neste Pro
#### 0W-20

- **Fully synthetic motor oil**
  - Meets or exceeds the following quality criteria:
    - API SN-RC, SM, SL, SJ
    - Chrysler MS 6395
    - Ford WSS-M2C947-A
    - ILSAC GF-5/GF-4, GF-3

#### Properties
- Excellent cold start properties
- Excellent fuel-saving properties
- Very clean engine

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<td>46</td>
<td>8.7</td>
<td>-45</td>
<td>&lt;-40</td>
</tr>
</tbody>
</table>

### Neste Pro
#### 0W-30

- **Fully synthetic motor oil**
  - Meets or exceeds the following quality criteria:
    - API SL, SJ/CF
    - ACEA A5/B5, A1/B1

#### Properties
- Excellent cold start properties
- Excellent fuel-saving properties
- Long oil change intervals

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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</thead>
<tbody>
<tr>
<td>1167</td>
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<td>54</td>
<td>9.7</td>
<td>-54</td>
<td>&lt;-40</td>
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</table>
### Neste Pro 0W-40

**Fully synthetic motor oil**

- Meets or exceeds the following quality criteria:
  - API SN, SM, SL, SJ/CF
  - ACEA A3/B4, A3/B3
  - BMW LL-01
  - MB-Approval 226.5

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
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<td>80</td>
<td>14.0</td>
<td>181</td>
<td>-54</td>
<td>&lt;-40</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Helps reduce fuel consumption
- Long oil change intervals

### Neste Pro 5W-30

**Fully synthetic motor oil**

- Meets or exceeds the following quality criteria:
  - API SL, SJ/CF
  - ACEA A3/B4, A3/B3
  - BMW Longlife-01
  - Fiat 9.55555-G1

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1169</td>
<td>5W-30</td>
<td>855</td>
<td>67</td>
<td>11.6</td>
<td>170</td>
<td>-42</td>
<td>&lt;-35</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Excellent fuel-saving properties
- Long oil change intervals

### Neste Premium+ 5W-40

**Synthetic motor oil**

- Meets or exceeds the following quality criteria:
  - API SM, SL, SJ/CF
  - ACEA A3/B4, A3/B3
  - MB 229.1
  - VW 502.00/505.00/505.01

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1165</td>
<td>5W-40</td>
<td>858</td>
<td>88</td>
<td>14.1</td>
<td>167</td>
<td>-45</td>
<td>&lt;-35</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Helps reduce fuel consumption
- Long oil change intervals

### Neste Premium+ 5W-50

**Synthetic motor oil**

- Meets or exceeds the following quality criteria:
  - API SL, SJ/CF
  - ACEA A3/B4, A3/B3

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1166</td>
<td>5W-50</td>
<td>850</td>
<td>104</td>
<td>18.1</td>
<td>194</td>
<td>-45</td>
<td>&lt;-35</td>
</tr>
</tbody>
</table>

- Excellent cold start properties
- Long oil change intervals
- For cars with high mileage
### Neste Premium+ 10W-40

**Semi-synthetic motor oil**

Meets or exceeds the following quality criteria:
- API SN, SM, SL, SJ/CF
- ACEA A3/B4, A3/B3
- MB 229.3
- PSA B71 2300

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1163</td>
<td>10W-40</td>
<td>869</td>
<td>95</td>
<td>14</td>
<td>150</td>
</tr>
</tbody>
</table>

**Good cold start properties**

**Long oil change intervals**

**Comprehensive engine protection**

### Neste Special 10W-30

**Multigrade oil for gasoline engines**

Meets or exceeds the following quality criteria:
- API SF/CC

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1179</td>
<td>10W-30</td>
<td>852</td>
<td>64</td>
<td>10.1</td>
<td>144</td>
</tr>
</tbody>
</table>

**Good cold start properties**

**For cars with high mileage**

### Neste Special 30

**Monograde oil for gasoline engines**

Meets or exceeds the following quality criteria:
- API SG/CF-4

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1181</td>
<td>30</td>
<td>885</td>
<td>95</td>
<td>11.3</td>
<td>105</td>
</tr>
</tbody>
</table>

**Protects against wear**

**For small engines**

---

Passenger car motor oils 15
### Neste Turbo+ NEX 10W-40

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1869</td>
<td></td>
<td></td>
<td>94</td>
<td>14</td>
<td>152</td>
<td>-42</td>
</tr>
</tbody>
</table>

**Fully synthetic multigrade engine oil**
Meets or exceeds the following quality criteria:
- API CJ-4, CI-4, CH-4/4SN
- ACEA E9
- Caterpillar ECF-3
- Cummins CES 20081
- Detroit Diesel DDC 93K218
- Deutz DQC III-10LA
- Mack EO-O Premium Plus
- MAN M3575
- MB-Approval 228.31
- MTU Type 2.1
- Renault Trucks RLD-3
- Scania Low Ash
- Volvo VDS-4, VDS-3

- Good cold start properties
- Helps reduce fuel consumption
- Long oil change intervals
- Reduces emissions

### Neste Turbo+ NEX 15W-40

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td></td>
<td></td>
<td>105</td>
<td>14.6</td>
<td>144</td>
<td>-39</td>
</tr>
</tbody>
</table>

**Fully synthetic multigrade engine oil**
Meets or exceeds the following quality criteria:
- API CJ-4, CI-4, CH-4/4SN
- ACEA E9
- Caterpillar ECF-3
- Cummins CES 20081
- Detroit Diesel DDC 93K218
- Deutz DQC III-10LA
- Mack EO-O Premium Plus
- MAN M3575
- MB-Approval 228.31
- MTU Type 2.1
- Renault Trucks RLD-3
- Scania Low Ash
- Volvo VDS-4, VDS-3

- Long oil change intervals
- Reduces emissions
- Very clean engine
- Protects against wear

### Neste Turbo+ E6 5W-30

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871</td>
<td></td>
<td></td>
<td>74</td>
<td>12.2</td>
<td>166</td>
<td>-45</td>
</tr>
</tbody>
</table>

**Fully synthetic multigrade diesel engine oil**
Meets or exceeds the following quality criteria:
- API CJ-4, CI-4, CH-4/0
- ACEA E9/E7/E8/E4
- Cummins CES 20081
- Deutz DQC IV-10 LA
- MAN 3271-1, 3477, 3575, 3677, 3691
- MB-Approval 228.51
- MTU Type 3.1
- Scania LDF-4
- Scania Low Ash
- Volvo VDS-4

- Excellent cold start properties
- Excellent fuel-saving properties
- Long oil change intervals
- Reduces emissions

### Neste Turbo+ E6 10W-40

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1868</td>
<td></td>
<td></td>
<td>91</td>
<td>13.8</td>
<td>155</td>
<td>-42</td>
</tr>
</tbody>
</table>

**Fully synthetic multigrade diesel engine oil**
Meets or exceeds the following quality criteria:
- API CI-4, CH-4/0
- ACEA E9/E7/E6
- Caterpillar ECF-1-a
- Cummins CES 20076, CES 20077
- Deutz DQC IV-10 LA
- JASO DH-2
- Mack EO-N, EO-M Plus
- MAN M3477, M3271-1
- MB-Approval 228.51
- MTU Type 3.1
- Renault RVI RXD, RLD-2, RGD
- Scania Low Ash
- Volvo VDS-3, CNG

- Good cold start properties
- Helps reduce fuel consumption
- Long oil change intervals
- Reduces emissions

Heavy equipment diesel engine oil
### Neste Turbo+ 5W-30

- **Product number:** 1867
- **SAE:** 5W-30
- **Density (kg/m³):** 860
- **Viscosity @ 40°C (cSt):** 72
- **Viscosity index:** 12
- **Pour point (°C):** -54
- **Pumpability limit temperature (°C):** -35

- **Uses:** Fully synthetic multigrade diesel engine oil
- **Quality criteria:**
  - ACEA E7/E4
  - Cummins CES 20,071/-2/-6/-7
  - Mack EO-M+
  - MAN M3277

- **Features:**
  - Excellent cold start properties
  - Excellent fuel-saving properties
  - Long oil change intervals

### Neste Turbo+ 10W-40

- **Product number:** 1866
- **SAE:** 10W-40
- **Density (kg/m³):** 867
- **Viscosity @ 40°C (cSt):** 89
- **Viscosity index:** 13.5
- **Pour point (°C):** -39
- **Pumpability limit temperature (°C):** -30

- **Uses:** Synthetic diesel engine oil
- **Quality criteria:**
  - API CF
  - ACEA E7/E4
  - Deutz DQC III-05
  - MAN M3277

- **Features:**
  - Good cold start properties
  - Helps reduce fuel consumption
  - Long oil change intervals

### Neste Turbo LXE 10W-30

- **Product number:** 1862
- **SAE:** 10W-30
- **Density (kg/m³):** 868
- **Viscosity @ 40°C (cSt):** 81
- **Viscosity index:** 12.2
- **Pour point (°C):** -42
- **Pumpability limit temperature (°C):** -30

- **Uses:** Semi-synthetic diesel engine oil
- **Quality criteria:**
  - API CI-4, CH-4/SL
  - ACEA E7/E5/E3
  - Caterpillar ECF-2, ECF-1-a
  - Cummins CES 20,071/-2/-6/-7/-8
  - Deutz DQC III-10
  - MAN M3275
  - MB 228.3
  - MTU Type 2
  - Renault RVI RLD, RLD-2
  - Volvo VDS-3, VDS-2

- **Features:**
  - Good cold start properties
  - Excellent fuel-saving properties

### Neste Turbo LXE 10W-40

- **Product number:** 1863
- **SAE:** 10W-40
- **Density (kg/m³):** 867
- **Viscosity @ 40°C (cSt):** 100
- **Viscosity index:** 14.8
- **Pour point (°C):** -42
- **Pumpability limit temperature (°C):** -30

- **Uses:** Multigrade diesel engine oil
- **Quality criteria:**
  - API CI-4, CH-4/SL
  - ACEA E7/E5/E3
  - Caterpillar ECF-2, ECF-1-a
  - Cummins CES 20,071/-2/-6/-7/-8
  - Deutz DQC III-10
  - MAN M 3275
  - MB 228.3
  - MTU Type 2
  - Renault RVI RLD, RLD-2
  - Volvo VDS-3, Volvo VDS-2

- **Features:**
  - Good cold start properties
  - Protects against wear
### Neste Turbo S 15W-40

**Product number**: 1864  
**SAE**: 15W-40  
**Density kg/m³**: 870  
**+15 °C Viscosity mm²/s (cSt)**: 106  
**40 °C Viscosity mm²/s (cSt)**: 14.9  
**100 °C Viscosity mm²/s (cSt)**: 145  
**Viscosity index**:  
**Pour point °C**: -36  
**Pumpability limit temperature °C**: <-25

### Neste Turbo LXE 15W-40

**Product number**: 1864  
**SAE**: 15W-40  
**Density kg/m³**: 870  
**Viscosity mm²/s (cSt)**: 106  
**Pour point °C**: -36  
**Pumpability limit temperature °C**: <-25

### Neste Diesel 10W-30

**Product number**: 1856  
**SAE**: 10W-30  
**Density kg/m³**: 865  
**+15 °C Viscosity mm²/s (cSt)**: 70  
**40 °C Viscosity mm²/s (cSt)**: 10.6  
**100 °C Viscosity mm²/s (cSt)**: 138  
**Viscosity index**:  
**Pour point °C**: -36  
**Pumpability limit temperature °C**: <-30

### Neste Diesel 15W-40

**Product number**: 1857  
**SAE**: 15W-40  
**Density kg/m³**: 885  
**+15 °C Viscosity mm²/s (cSt)**: 107  
**40 °C Viscosity mm²/s (cSt)**: 14.1  
**100 °C Viscosity mm²/s (cSt)**: 134  
**Viscosity index**:  
**Pour point °C**: -33  
**Pumpability limit temperature °C**: <-25

---

**Meets or exceeds the following quality criteria:**  
API CF-4, CF, CE, CD/SF  
ACEA E2  
Caterpillar TO-2  
Mack EO-J  
MIL-L-2104 E

---

**Meets or exceeds the following quality criteria:**  
API CF, CE, CD/SF  
CCMC D5, PD2  
CCMC D5, PD2 HPD

---

**Meets or exceeds the following quality criteria:**  
API CI-4, CH-4/SL  
ACEA E7/E5/E3  
Caterpillar ECF-2, ECF-1-a  
Cummins CES 20.071/-2/6/-7/8  
Deutz DQC III-10  
Global DHD-1  
JASO DH-1  
Mack EO-N, EO-M Plus  
MAN M3275  
MTU Approval 228.3  
Renault RVI RLD, RLD-2  
Volvo VDS-3, Volvo VDS-2

---

**Meets or exceeds the following quality criteria:**  
API CF-4, CF, CE, CD/SF  
CCMC D5, PD2  
CCMC D5, PD2 HPD  
Caterpillar TO-2  
Mack EO-J  
MIL-L-2104 E  
Volvo Truck Manual Gear Boxes  
Volvo VDS

---

**Protects against wear**  
**Keeps the engine clean**  
**Good cold start properties**  
**Keeps the engine clean**  
**Protects against wear**  
**Protects against wear**
### Neste Diesel 10W

**Single-grade diesel engine oil**

- Meets or exceeds the following quality criteria:
  - API CF-2, CF, CD/CF
  - Caterpillar TO-2
  - MIL-L-2104 D

- Protects against wear

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumppability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855</td>
<td>10W</td>
<td>877</td>
<td>38</td>
<td>6.5</td>
<td>122</td>
<td>-39</td>
<td>-33</td>
</tr>
</tbody>
</table>

### Neste Diesel 20W-30

**Diesel engine oil of single grade type**

- Meets or exceeds the following quality criteria:
  - API CF-2, CF, CD/CF

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumppability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1858</td>
<td>20W-30</td>
<td>872</td>
<td>99</td>
<td>11.9</td>
<td>111</td>
<td>-33</td>
<td>&lt;-20</td>
</tr>
</tbody>
</table>

### Neste Diesel 30

**Single-grade diesel engine oil**

- Meets or exceeds the following quality criteria:
  - Caterpillar TO-2
  - DB 2270
  - MIL-L-2104 D
  - Caterpillar TO-2

- Protects against wear

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumppability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1859</td>
<td>30</td>
<td>881</td>
<td>105</td>
<td>12.3</td>
<td>108</td>
<td>-33</td>
<td>-</td>
</tr>
</tbody>
</table>

### Neste Farm Universal 10W-30

**Multi-purpose oil for tractors and agricultural machines, STOU**

- Meets or exceeds the following quality criteria:
  - API CG-4, CF-4, CF, CE/CF, CD/CF
  - ACEA E3, E2, E1
  - API GL-4
  - Allison C3, C4
  - Case MS 1208, MS 1209
  - (Hy-Trans Ultra)
  - Caterpillar TO-2
  - FNHA-2-C-201.00

- Protects against wear

- Good cold start properties
- Multi-purpose
- Wet brake compatible

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumppability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1861</td>
<td>10W-30</td>
<td>872</td>
<td>69</td>
<td>10.5</td>
<td>140</td>
<td>-42</td>
<td>-37</td>
</tr>
</tbody>
</table>
Looking for the right product?

Look for the lubricant recommendations for your vehicle in the Internet.

You can conveniently search for products suitable for your vehicle with the registration number of your vehicle. Using this service, you can easily find the Neste lubricants and chemicals best suited for your vehicle.

www.neste.fi/voiteluainesuosituksset
Motorcycle engine oils

Neste Pro Bike 10W-40

Fully synthetic engine oil
Meets or exceeds the following quality criteria:
API SN, SM, SL, SJ
JASO MA-2

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Pumpability limit temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1170</td>
<td>10W-40</td>
<td>861</td>
<td>91</td>
<td>13.6</td>
<td>155</td>
<td>-42</td>
<td>-40</td>
</tr>
</tbody>
</table>

Two-stroke engine oils

Neste Super Racing 2T

Fully synthetic two-stroke oil
Meets or exceeds the following quality criteria:
ISO EGD
JASO FC
Piaggio Hexagon

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Flash point (PM) °C</th>
<th>Pour point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>875</td>
<td>54</td>
<td>9.4</td>
<td>84</td>
<td>-48</td>
</tr>
</tbody>
</table>

Neste Super 2T

Fully synthetic two-stroke oil
Meets or exceeds the following quality criteria:
API TC
CEC TSC-3

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Flash point (PM) °C</th>
<th>Pour point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1939</td>
<td>50 (oil part)</td>
<td>858</td>
<td>100</td>
<td>-45</td>
</tr>
</tbody>
</table>

Neste Marine 2T

Two-stroke oil for outboard engines
Meets or exceeds the following quality criteria:
API TD
NMMA TC-W3

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Flash point (PM) °C</th>
<th>Pour point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1938</td>
<td>872</td>
<td>58</td>
<td>-42</td>
</tr>
</tbody>
</table>
Gearbox and drive gear oils

SAE viscosity classification for gearbox oils

---SAE classification determines the viscosity of gearbox and drive gear oils without taking any other properties into account.

---The winter use classes are SAE 70W, 75W, 80W and 85W.

---The summer use classes are 90 and 140.

<table>
<thead>
<tr>
<th>SAE class</th>
<th>Maximum temperature</th>
<th>Viscosity cSt/100 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150,000 cP Viscosity</td>
<td>Minimum</td>
</tr>
<tr>
<td>70W</td>
<td>-55 °C</td>
<td>4.1</td>
</tr>
<tr>
<td>75W</td>
<td>-40 °C</td>
<td>4.1</td>
</tr>
<tr>
<td>80W</td>
<td>-26 °C</td>
<td>7.0</td>
</tr>
<tr>
<td>85W</td>
<td>-12 °C</td>
<td>11.0</td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>13.5</td>
</tr>
<tr>
<td>140</td>
<td></td>
<td>24.0</td>
</tr>
</tbody>
</table>

API performance classification for gearbox oils

---GL-1 without EP (Extreme Pressure) additive, low surface pressure

---GL-4 with EP additive, for synchronized gearboxes

---GL-5 approx. two times the EP additive compared to GL-4, for hypoid differentials

Power transmission oils

Neste Pro Axle TDL 75W-90

Fully synthetic Total Drive Line power transmission oil

Meets or exceeds the following quality criteria:
- API GL-4/GL-5
- API MT-1
- Mack GO-J
- MAN 341 Type Z2
- MAN 342 Type M3
- MAN 341 Type E3
- MAN M 3343 Type S
- MB 235.8
- MIL-PRF-2105E
- SAE J2360
- Scania STO 1:0
- Volvo 97312
- ZF TE-ML 02B, 05B, 07A, 12B, 16F, 17B, 19C

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index 100 °C</th>
<th>Viscosity index Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cPFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2152</td>
<td>75W-90</td>
<td>868</td>
<td>107</td>
<td>15.3</td>
<td>152</td>
<td>-54</td>
<td>70,000 / -40 °C</td>
</tr>
</tbody>
</table>

- Excellent EP properties
- Wide range of applications
- Very wide operating temperature range
- Reduces friction
Fully synthetic drive gear oil
Meets or exceeds the following quality criteria:
API GL-5
MIL-L-2105 D

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2151</td>
<td>75W-90</td>
<td>886</td>
<td>86</td>
<td>14.7</td>
<td>180</td>
<td>222</td>
<td>-54</td>
</tr>
</tbody>
</table>

Fully synthetic drive gear oil
Meets or exceeds the following quality criteria:
API GL-5
MIL-L-2105 D
Scania STO 1:0

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2150</td>
<td>75W-140</td>
<td>857</td>
<td>172</td>
<td>25.0</td>
<td>181</td>
<td>220</td>
<td>-48</td>
</tr>
</tbody>
</table>

Synthetic gearbox and drive gear oil
Meets or exceeds the following quality criteria:
API GL-5
MIL-L-2105 D

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2149</td>
<td>80W-90</td>
<td>850</td>
<td>87</td>
<td>14.3</td>
<td>170</td>
<td>210</td>
<td>-45</td>
</tr>
</tbody>
</table>

Synthetic gearbox and drive gear oil
Meets or exceeds the following quality criteria:
API GL-5
MIL-L-2105 D

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2148</td>
<td>80W-140</td>
<td>851</td>
<td>177</td>
<td>25.2</td>
<td>176</td>
<td>225</td>
<td>-36</td>
</tr>
</tbody>
</table>
**Neste Axle 80W-90**

Drive gear oil

Meets or exceeds the following quality criteria:

- API GL-5
- MIL-L-2105 D

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2146</td>
<td>80W-90</td>
<td>883</td>
<td>128</td>
<td>107</td>
<td>224</td>
<td>-30</td>
<td>99,000 / -26 °C</td>
</tr>
</tbody>
</table>

**Neste Axle 80W-140**

Drive gear oil

Meets or exceeds the following quality criteria:

- API GL-5
- MIL-L-2105 D

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2145</td>
<td>80W-140</td>
<td>856</td>
<td>190</td>
<td>170</td>
<td>218</td>
<td>-39</td>
<td>32,600 / -26 °C</td>
</tr>
</tbody>
</table>

**Neste Axle LS 80W-90**

Limited slip drive gear oil

Meets or exceeds the following quality criteria:

- API GL-5
- MIL-L-2105 D

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cP/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2147</td>
<td>80W-90</td>
<td>890</td>
<td>127</td>
<td>113</td>
<td>218</td>
<td>-33</td>
<td>49,000 / -26 °C</td>
</tr>
</tbody>
</table>
**Neste Pro Gear V 75W-80**

**Fully synthetic heavy vehicle gearbox oil for extended oil change intervals**

- Meets or exceeds the following quality criteria:
  - API GL-4
  - EATON Manual Transmission
  - MAN 341 Type E4
  - MB-Approval 235.29
  - Volvo 97307
  - Voith Retarder 153.00090010

**Product number | SAE | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP/°C**
--- | --- | --- | --- | --- | --- | --- | ---
2111 | 75W-80 | 861 | 65 | 10.2 | 144 | 220 | -55 | 150,000 / -40 °C

---

**Neste Pro Gear 75W-80**

**Fully synthetic gearbox oil**

- Meets or exceeds the following quality criteria:
  - ZF TE-ML 01L
  - ZF TE-ML 02L
  - ZF TE-ML 08
  - ZF TE-ML 16K
  - Volvo 97305

**Product number | SAE | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP/°C**
--- | --- | --- | --- | --- | --- | --- | ---
2112 | 75W-80 | 860 | 56 | 9.5 | 155 | 234 | -42 | 70,550 / -40 °C

---

**Neste Pro Gear 75W-90**

**Fully synthetic gearbox oil**

- Meets or exceeds the following quality criteria:
  - API GL-4
  - MIL-L-2105
  - ZF 13-118

**Product number | SAE | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP/°C**
--- | --- | --- | --- | --- | --- | --- | ---
2113 | 75W-90 | 843 | 84 | 14.5 | 181 | 230 | -63 | 28,500 / -40 °C
Neste Gear GL-4
80W-90

Gearbox oil
Meets or exceeds the following quality criteria:
API GL-4
ZF TE-ML 08, 24A

Neste Gear GL-1
80W-90

GL-1 gearbox oil
Meets or exceeds the following quality criteria:
API GL-1

Neste Premium
Gear UTTO

Synthetic hydraulic oil and power transmission oil for agricultural machines
Meets or exceeds the following quality criteria:
API GL-4
John Deere J 20 A/C
John Deere J 20 B/D
Massey Ferguson M1110,
M1127A, M1135, M1143
MF CMS M1145
New Holland NH-410B
Volvo 97303 (VCE WB 101)

Neste Gear UTTO

Hydraulic oil and power transmission oil for agricultural machines
Meets or exceeds the following quality criteria:
API GL-4
Komatsu
Kubota UDT
Massey Ferguson M1135,
M1141, M1143, M1145
Steiger SEMS 17001
Versatile 23M, 24M
White Farm (AGCO) Q-186
ZF TE-ML 03E, 05F, 06D, 06K,
06N, 06R, 17E, 21F
John Deere J20 A/B/C, J4B/C, J21A

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³ @+15 °C</th>
<th>Viscosity mm²/s (cSt) @40 °C</th>
<th>Viscosity index</th>
<th>Flash point (COC) °C</th>
<th>Pour point °C</th>
<th>Cold viscosity cp°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2120</td>
<td>80W-90</td>
<td>882</td>
<td>152</td>
<td>14.7</td>
<td>244</td>
<td>-33</td>
<td>150,000 / -26 °C</td>
</tr>
<tr>
<td>2121</td>
<td>80W-90</td>
<td>886</td>
<td>138</td>
<td>14.0</td>
<td>274</td>
<td>-30</td>
<td>49,000 / -26 °C</td>
</tr>
<tr>
<td>2137</td>
<td>5W-30</td>
<td>867</td>
<td>64</td>
<td>10.8</td>
<td>160</td>
<td>-39</td>
<td>10,400 / -26 °C</td>
</tr>
<tr>
<td>2135</td>
<td>10W-30/80W</td>
<td>876</td>
<td>67</td>
<td>10.0</td>
<td>133</td>
<td>-42</td>
<td>21,500 / -26 °C</td>
</tr>
</tbody>
</table>
Neste Gear TO-4 10W

Meets or exceeds the following quality criteria:
- API GL-4
- API MT-1
- Allison C-4

Caterpillar TO-2
Caterpillar TO-4
Eaton Fuller
Komatsu KES 07868.1
ZF TE-ML 03C, 07F

Product number | SAE | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP °C |
--- | --- | --- | --- | --- | --- | --- | --- |
2130 | 10W | 871 | 37.6 | 6.2 | 112 | 236 | -45 | 19,200 / -26 °C |

Neste Gear TO-4 30

Meets or exceeds the following quality criteria:
- API GL-4
- API MT-1
- Allison C-4

Caterpillar TO-2
Caterpillar TO-4
Eaton Fuller
Komatsu KES 07868.1
ZF TE-ML 03C, 07F

Product number | SAE | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP °C |
--- | --- | --- | --- | --- | --- | --- | --- |
2131 | 30 | 876 | 93 | 11.3 | 108 | 260 | -36 | 24,245 / -26 °C |

Multi-brand automatic transmission oil

Meets or exceeds the following quality criteria:
- GM Dexron IID, IIE, III, III-H, VI
- BMW: LT 7141, LA 2634, M-1375.4, 6
- ETL-7045E, ETL-8072B
- Chrysler: ATF +3, Diamond SP-III, NAG-1, 3403-M115
- Ford: Mercon, Mercon V, SP, LV, FNR 5
- GM 9986195
- Honda: ATF-Z1 (Not for CVT)
- Hyundai: SPH-IV
- KIA: Red-1, SP-II, III, IV
- Mercedes-Benz: 236.1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 14, NAG-1, 3403-M115
- Mitsubishi: Diamond SP-II, III, IV
- Nissan / Infiniti: S, D, J, K-matic
- Subaru: ATF, ATF-HP
- Toyota / Lexus: Type T, T-III, T-IV, WS (Not for hybrid!!)
- Volvo: 1161521, 1161540

Product number | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP °C |
--- | --- | --- | --- | --- | --- | --- |
2160 | 843 | 28.5 | 6.0 | 163 | 202 | -42 | 10,600 / -40 °C |

Automatic transmission oils

Very wide operating temperature range
Reduces friction
Suitable for long oil change intervals
Excellent protection against wear

Gearbox and drive gear oils 29
Neste ATF CVT

Multi-brand automatic transmission oil for CVT gearboxes

Meets or exceeds the following quality criteria:
- BMW / Mini cooper EZL 799
- Dodge/Jeep NS-2, CVT fluid +4
- Ford CVT23, CVT30, Mercon C
- GM/Saturn DEX-CVT
- Honda HMMF
- Hyundai Genuine CVT Fluid
- Hyundai/Kia SP-III (not in step up automatic transmissions)

MB 236.20

Neste ATF-S

Fully synthetic automatic transmission oil

Meets or exceeds the following quality criteria:
- Allison C-4
- Caterpillar TO-2
- Denison
- Ford M
- GM Dexron IIIE
- MAN 339 Type L1, 339 Type V2, 339 Type Z2
- MB-Approval 236.8

2163

Product number | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP/°C
--- | --- | --- | --- | --- | --- | ---
2163 | 855 | 34.5 | 72 | 180 | -45 | 9,000 / -40 °C

Neste ATF-X

Automatic transmission oil

Meets or exceeds the following quality criteria:
- Allison C-4
- Ford Mercon

GM Dexron III
- Volvo 97325, 97335, 97340
- ZF TE-ML 05L, 09, 11A, 11B

2162

Product number | Density kg/m³ | Viscosity mm²/s (cSt) | Viscosity index | Flash point (COC) °C | Pour point °C | Cold viscosity cP/°C
--- | --- | --- | --- | --- | --- | ---
2162 | 863 | 37 | 77 | 183 | -51 | 16,000 / -40 °C
Hydraulic oils

Hydraulics in nowadays are found almost in all machinery and vehicles used in land construction, forestry, construction or moving and transporting goods. Many earthmovers, diggers, forest machines, etc. are fully hydraulic and almost all trucks have a hydraulic lift, skip, bogie hoist or, at the very least, power steering.

The oil used in a hydraulic system must have the right viscosity, right additives, it must be clean and water-free and it must be uncontaminated by oxidation. Some hydraulics manuals say that up 90% of damage to hydraulics are caused by the oil used. Damages may also be caused by other reasons. These include water, dirt or even sand that has gotten into the oil. Also, the wrong type of topping up oil or neglecting the periodic change of oil and filters may cause serious damage. Carefully following the manufacturer’s instructions ensures the long life and flawless operation of a hydraulic system.

Hydraulic equipment manufacturers determine performance according to various standards. Standards in various countries are very much alike.

<table>
<thead>
<tr>
<th>Hydraulic use</th>
<th>DIN 51524 Part 1 = HL Part 2 = HLP Part 3 = HVLP</th>
<th>ISO 6743-4 HV/ HM/ HL</th>
<th>SS 155434 Oil additives, performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern hydraulics used outside, e.g. vehicles year around Pressure &gt; 100 bar</td>
<td>HVLP</td>
<td>HV AV</td>
<td>Corrosion, oxidation and wear prevention + enhancers of the viscosity index (VI) VI &gt;= 140</td>
</tr>
<tr>
<td>Modern hydraulics operated indoors Pressure &gt; 100 bar</td>
<td>HLP</td>
<td>HM AM</td>
<td>Corrosion, oxidation and wear prevention VI &gt;= 90</td>
</tr>
<tr>
<td>Old, simple systems, Indoor use Pressure &lt; 100 bar</td>
<td>HL</td>
<td>HL -</td>
<td>Corrosion and oxidation prevention VI &gt;= 70</td>
</tr>
</tbody>
</table>

The correct viscosity for the operating temperature range is possibly the most important property of a hydraulic oil. This is emphasized in outdoor use due to the fluctuating temperature, which is why most oils for outdoor use are multigrade oils. On start-up, oil must flow through the suction pipes to the pump fast enough. If the flow is too slow, the pump will suck in a partial vacuum and starts to cavitate. Recurrent cavitation will damage the pump. Various pumps have different suction capacity and suction pipes in various systems differ from each other. Consequently, there is no generally valid viscosity value, but the limit is usually at maximum 1,000–1,500 cSt, which seems to be a reasonably realistic value. If the heat-up operation can be performed carefully at low revs, the above value can sometimes be exceeded considerably.

During operation, the oil will thin as it heats up. If it thins too much, the performance of the system will start to suffer due to internal leakages, valves start to stick due to insufficient lubrication and excess wear can occur in the pump.

Minimum viscosity from the perspective of wear is usually considered 10 cSt and from the perspective of performance approx. 14 cSt. Some slowly revolving hydraulic motors require an oil with at least 20 cSt viscosity to function effectively.
Selection chart for hydraulic oils

Optimum viscosity
The best viscosity range for continuous operation is approx. 16 to 36 cSt. This will ensure that internal leakage does not occur, which means that the system performance is good, lubrication capability is good and prevents the wear of parts, and the thickness of the oil does not yet cause extra flow resistance.

Typical temperature ranges
- The lowest allowed operating temperature for a displacement pump (corresponds to viscosity 300–1,000 cSt*)
- The lowest allowed operating temperature for a gear pump (corresponds to viscosity 36–300 cSt*)
- Optimal operating temperature (corresponds to viscosity 16–36 cSt*)
- Highest allowed operating temperature (corresponds to viscosity 10–16 cSt*)

*Viscosity limits are indicative. Check the values recommended by the hydraulics manufacturer.
Vehicle hydraulic oils

Neste Hydraulic 15 Arctic

Hydraulic oil for arctic conditions
Meets or exceeds the following quality criteria:
DIN 51524 part 3 HVLP
ISO 11158 HV
AFNOR NFE 48-603, NFE 48-690/1

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -30 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2615</td>
<td>15</td>
<td>880</td>
<td>15</td>
<td>5</td>
<td>305</td>
<td>-60</td>
<td>108</td>
<td>415</td>
</tr>
</tbody>
</table>

Particularly wide operating temperature range
Extremely good performance at low temperatures
Efficient protection against corrosion

Neste Hydraulic 28 Arctic

Hydraulic oil for arctic conditions
Meets or exceeds the following quality criteria:
AFNOR NFE 48-603, NFE 48-690/1
DIN 51524 part 3 HVLP
ISO 11158 HV

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -30 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2616</td>
<td>28</td>
<td>888</td>
<td>28</td>
<td>8.7</td>
<td>309</td>
<td>-57</td>
<td>111</td>
<td>975</td>
</tr>
</tbody>
</table>

Particularly wide operating temperature range
Extremely good performance at low temperatures
Efficient protection against corrosion

Neste Hydraulic 15 Super

Super grade hydraulic oil
Meets or exceeds the following quality criteria:
DIN 51524 part 3 HVLP
ISO 11158 HV

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2625</td>
<td>15</td>
<td>839</td>
<td>15</td>
<td>4</td>
<td>179</td>
<td>-51</td>
<td>194</td>
<td>565</td>
</tr>
</tbody>
</table>

Very wide operating temperature range
Excellent protection against wear
Efficient protection against corrosion

Neste Hydraulic 22 Super

Super grade hydraulic oil
Meets or exceeds the following quality criteria:
DIN 51524 part 3 HVLP
ISO 11158 HV

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2626</td>
<td>22</td>
<td>850</td>
<td>22</td>
<td>5.1</td>
<td>168</td>
<td>-54</td>
<td>202</td>
<td>665</td>
</tr>
</tbody>
</table>
## Neste Hydraulic 32

*Super grade hydraulic oil*

Meets or exceeds the following quality criteria:
- DIN 51524 part 3 HVLP
- ISO 11158 HV
- AFNOR NFE 48-603, NFE 48-690/1
- Cincinnati Milacron P-68

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2627</td>
<td>32</td>
<td>859</td>
<td>32</td>
<td>72</td>
<td>200</td>
<td>-45</td>
<td>204</td>
</tr>
</tbody>
</table>

## Neste Hydraulic 46

*Super grade hydraulic oil*

Meets or exceeds the following quality criteria:
- DIN 51524 part 3 HVLP
- ISO 11158 HV
- AFNOR NFE 48-603, NFE 48-690/1
- Cincinnati Milacron P-70
- Eaton Vickers I-286-S, M-2950-S
- SS 15 54 34 AV

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2628</td>
<td>46</td>
<td>865</td>
<td>46</td>
<td>9.3</td>
<td>190</td>
<td>-45</td>
<td>212</td>
</tr>
</tbody>
</table>

## Neste Hydraulic 68

*Super grade hydraulic oil*

Meets or exceeds the following quality criteria:
- DIN 51524 part 3 HVLP
- ISO 11158 HV
- AFNOR NFE 48-603, NFE 48-690/1
- Cincinnati Milacron P-69

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2629</td>
<td>68</td>
<td>874</td>
<td>68</td>
<td>11.4</td>
<td>163</td>
<td>-42</td>
<td>227</td>
</tr>
</tbody>
</table>

## Neste Hydraulic 32

*Hydraulic oil for outdoor use*

Meets or exceeds the following quality criteria:
- DIN 51524 part 3 HVLP
- Eaton Vickers I-286-S, M-2950-S
- ISO 11158 HV
- SS 15 54 34 AV

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2635</td>
<td>32</td>
<td>851</td>
<td>32</td>
<td>6.32</td>
<td>144</td>
<td>-42</td>
<td>215</td>
</tr>
</tbody>
</table>
Neste Hydraulic 46

Hydraulic oil for outdoor use
Meets or exceeds the following quality criteria:
DIN 51524 part 3 HVLP
Eaton Vickers I-286-S, M-2950-S
ISO 11158 HV
SS 15 54 34 AV
Wide operating temperature range
Very low shear
Efficient protection against corrosion

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -20 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2636</td>
<td>46</td>
<td>859</td>
<td>46</td>
<td>8</td>
<td>146</td>
<td>-39</td>
<td>220</td>
</tr>
</tbody>
</table>

Synthetic biodegradable hydraulic oils

Neste Biohydraulic SE 15

Biodegradable hydraulic oil
Meets or exceeds the following quality criteria:
ISO 15380 L-HEES
SS 15 54 34 BV Miljöanpassad
Environmentally friendly
Very good performance at low temperatures
Excellent lubricating properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2602</td>
<td>15</td>
<td>924</td>
<td>15</td>
<td>3.8</td>
<td>155</td>
</tr>
</tbody>
</table>

Neste Biohydraulic SE 32

Biodegradable hydraulic oil
Meets or exceeds the following quality criteria:
ISO 15380 L-HEES
SS 15 54 34 BV Miljöanpassad
Environmentally friendly
Very wide operating temperature range
Excellent lubricating properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2603</td>
<td>32</td>
<td>910</td>
<td>32</td>
<td>71</td>
<td>193</td>
</tr>
</tbody>
</table>

Neste Biohydraulic SE 46

Biodegradable hydraulic oil
Meets or exceeds the following quality criteria:
ISO 15380 L-HEES
SS 15 54 34 BV Miljöanpassad
Environmentally friendly
Very wide operating temperature range
Excellent lubricating properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2604</td>
<td>46</td>
<td>919</td>
<td>46</td>
<td>91</td>
<td>191</td>
</tr>
</tbody>
</table>
## Industrial hydraulic oils

### Neste Hydraulic HLP 32

Meets or exceeds the following quality criteria:
- DIN 51524 HLP
- DIN 51524 HL
- ISO 6743: ISO-L-HM

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2555</td>
<td>32</td>
<td>853</td>
<td>32</td>
<td>5.5</td>
<td>105</td>
<td>-33</td>
<td>224</td>
</tr>
</tbody>
</table>

- Efficient protection against wear
- Good corrosion protection
- Good oxidation resistance
- No thinning during use

### Neste Hydraulic HLP 46

Meets or exceeds the following quality criteria:
- DIN 51524 HLP
- DIN 51524 HL
- ISO 6743: ISO-L-HM
- Cincinnati Machine P-70, Denison HF-0, HF-1, HF-2
- Vickers I-286-S, M-2950-S

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2556</td>
<td>46</td>
<td>858</td>
<td>46</td>
<td>6.81</td>
<td>104</td>
<td>-30</td>
<td>238</td>
</tr>
</tbody>
</table>

- Efficient protection against wear
- Good corrosion protection
- Good oxidation resistance
- No thinning during use

### Neste Hydraulic HLP 68

Meets or exceeds the following quality criteria:
- DIN 51524 HLP
- DIN 51524 HL
- ISO 6743: ISO-L-HM
- Cincinnati Machine P-69, Denison HF-0, HF-1, HF-2
- Vickers I-286-S, M-2950-S

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2557</td>
<td>68</td>
<td>862</td>
<td>68</td>
<td>8.9</td>
<td>102</td>
<td>-27</td>
<td>242</td>
</tr>
</tbody>
</table>

- Efficient protection against wear
- Good corrosion protection
- Good oxidation resistance
- No thinning during use

### Neste Hydraulic HLP 100

Meets or exceeds the following quality criteria:
- DIN 51524 HL
- DIN 51524 HLP
- ISO 6743: ISO-L-HM
- Cincinnati Machine P-68, Denison HF-0, HF-1, HF-2
- Vickers I-286-S, M-2950-S

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2558</td>
<td>100</td>
<td>867</td>
<td>100</td>
<td>11.4</td>
<td>99</td>
<td>-27</td>
<td>254</td>
</tr>
</tbody>
</table>

- Efficient protection against wear
- Good corrosion protection
- Good oxidation resistance
- No thinning during use
### Industrial hydraulic oil

**Neste Hydraulic HLP 150**

Meets or exceeds the following quality criteria:
- DIN 51524 HL
- DIN 51524 HLP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2559</td>
<td>150</td>
<td>876</td>
<td>150</td>
<td>15.7</td>
<td>108</td>
<td>-27</td>
</tr>
</tbody>
</table>

**Zinc-free industrial hydraulic oil**

**Neste Hydraulic HLP ZFX 32**

Meets or exceeds the following quality criteria:
- DIN 51524 part 2, HLP
- ISO 11158 HL, HM
- Denison HF-0, HF-1, HF-2

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2565</td>
<td>32</td>
<td>869</td>
<td>32</td>
<td>5.4</td>
<td>102</td>
<td>-33</td>
</tr>
</tbody>
</table>

**Zinc-free industrial hydraulic oil**

**Neste Hydraulic HLP ZFX 46**

Meets or exceeds the following quality criteria:
- DIN 51524 part 2, HLP
- ISO 11158 HL, HM
- Denison HF-0, HF-1, HF-2

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2566</td>
<td>46</td>
<td>875</td>
<td>46</td>
<td>6.8</td>
<td>104</td>
<td>-27</td>
</tr>
</tbody>
</table>

**Zinc-free industrial hydraulic oil**

**Neste Hydraulic HLP ZFX 68**

Meets or exceeds the following quality criteria:
- DIN 51524 part 2, HLP
- ISO 11158 HL, HM
- Denison HF-0, HF-1, HF-2

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2567</td>
<td>68</td>
<td>879</td>
<td>68</td>
<td>8.9</td>
<td>102</td>
<td>-27</td>
</tr>
</tbody>
</table>
Neste Hydraulic
HLP ZFX 100

Zinc-free industrial hydraulic oil
Meets or exceeds the following quality criteria:
- DIN 51524 part 2, HLP
- ISO 11158 HL, HM
- Denison HF-0, HF-1, HF-2

Features:
- Efficient protection against wear
- Good corrosion protection
- Good oxidation resistance
- Zinc-free additives

Neste Hydraulic
SYN 15

Synthetic hydraulic oil
Meets or exceeds the following quality criteria:
- DIN 51524 part 3 HVLP
- ISO 11158 HV

Features:
- Very good performance at low temperatures
- Excellent shear resistance
- Excellent oxidation resistance
- Efficient protection against wear

Neste Hydraulic
SYN 32

Synthetic hydraulic oil
Meets or exceeds the following quality criteria:
- DIN 51524 part 3 HVLP
- ISO 11158 HV

Features:
- Very wide operating temperature range
- Excellent shear resistance
- Excellent oxidation resistance
- Efficient protection against wear

Neste Biohydraulic
HFDU 46

Flame retarding biodegradable hydraulic oil
Meets or exceeds the following quality criteria:
- ISO 6743/4 HFDU
- ISO 12922
- Factory Mutual
- SS 15 64 34 BV Miljöanpassad

Features:
- Reduces fire risk
- Suitable for high-pressure systems
- For mobile equipment and industrial use
- Environmentally friendly

Synthetic hydraulic oils

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -30 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2568</td>
<td>100</td>
<td>885</td>
<td>100</td>
<td>11.3</td>
<td>-18</td>
<td>252</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -30 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2567</td>
<td>15</td>
<td>833</td>
<td>15</td>
<td>4</td>
<td>-63</td>
<td>137</td>
<td>770</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -30 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2588</td>
<td>32</td>
<td>837</td>
<td>32</td>
<td>6.5</td>
<td>-54</td>
<td>215</td>
<td>2,550</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Ignition temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2600</td>
<td>46</td>
<td>920</td>
<td>47</td>
<td>9.4</td>
<td>-48</td>
<td>300</td>
<td>360</td>
</tr>
</tbody>
</table>

Hydraulic oils 39
Lubricating greases

Lubricating greases are mineral and synthetic oils thickened with various thickeners and soaps. In addition, lubricating greases may contain various additives to improve their lubricating and EP properties as well as corrosion prevention.

Depending on the demands of the lubrication target, you may choose a lubricating grease with optimal operating temperature, lubricating properties and penetration/viscosity.

Neste lubricating greases are lithium and calcium-based greases containing complex thickeners covering even demanding use targets in traffic and industry.

Penetration

The hardness of a lubricating grease is determined with a test where a metal cone is left to freely sink into the grease at a standard temperature (25 °C) after which the result is given in tenths of a millimeter. The higher the NLGI number a grease has, the thicker the grease.

<table>
<thead>
<tr>
<th>NLGI number</th>
<th>Penetration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>000</td>
<td>445–475</td>
</tr>
<tr>
<td>00</td>
<td>400–430</td>
</tr>
<tr>
<td>0</td>
<td>355–385</td>
</tr>
<tr>
<td>1</td>
<td>310–340</td>
</tr>
<tr>
<td>2</td>
<td>265–295</td>
</tr>
<tr>
<td>3</td>
<td>220–250</td>
</tr>
<tr>
<td>4</td>
<td>175–205</td>
</tr>
<tr>
<td>5</td>
<td>130–160</td>
</tr>
<tr>
<td>6</td>
<td>84–115</td>
</tr>
</tbody>
</table>

Thickeners

The performance of a lubricating grease depends on the common effect of base oil and additives as well as on the properties of the thickener chosen. Typical properties of thickeners:

- **Lithium**
  - *** excellent mechanical resistance
  - *** fair water resistance
  - *** good temperature resistance
  - *** suitable for long maintenance intervals

- **Lithium complex**
  - *** excellent mechanical resistance
  - *** good water resistance
  - *** good temperature resistance

- **Calcium (water-free)**
  - *** excellent mechanical resistance
  - *** good water resistance
  - *** average temperature resistance

Miscibility

<table>
<thead>
<tr>
<th></th>
<th>Lithium</th>
<th>Lithium complex</th>
<th>Calcium</th>
<th>Calcium complex</th>
<th>Sodium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Lithium complex</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Calcium</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Calcium complex</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Sodium</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
**Vehicle lubricating greases**

**Neste MP Grease**

General lubricating grease for vehicles

Meets or exceeds the following quality criteria:
- DIN 51502: KP2K-30
- ISO 12924: ISO-L-XC(F)CHB2

**Multi-purpose grease**
- Good wear resistance and EP properties
- Good rust protection
- Good adhesion on metal surfaces

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +25 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7010</td>
<td>900</td>
<td>2</td>
<td>Lithium</td>
<td>&gt;180</td>
<td>-30... +120</td>
<td>110</td>
</tr>
</tbody>
</table>

**Neste Molygrease**

Lithium-based special grease containing molybdenum sulfide

Meets or exceeds the following quality criteria:
- DIN 51502: KP2K-30
- ISO 12924: ISO-L-XC(F)CHB2

- Withstands impact loads
- Good wear resistance and EP properties
- Excellent rust protection
- Withstands mechanical stress

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7025</td>
<td>910</td>
<td>2</td>
<td>Lithium</td>
<td>&gt;180</td>
<td>-30... +120</td>
<td>110</td>
</tr>
</tbody>
</table>

**Neste Superlix EP 2**

High-quality lubricating grease for vehicles

Meets or exceeds the following quality criteria:
- DIN 51502: KP2N-30
- ISO 12924: ISO-L-XC(F)DIB2
- VOLVO Std 1277.2
- NLGI GC-LB

- Good temperature resistance
- Excellent mechanical resistance
- High drop point
- Good wear resistance and EP properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7253</td>
<td>900</td>
<td>2</td>
<td>Lithium complex</td>
<td>&gt;260</td>
<td>-30... +40</td>
<td>210</td>
</tr>
</tbody>
</table>

**Neste OH Grease 0**

Special grease for the joint studs of work machinery and vehicles

Meets or exceeds the following quality criteria:
- DIN 51502: KPOK-40
- ISO 12924: ISO-L-XD(F)CHB0

- Excellent adhesion
- Excellent pumpability even in winter
- Good resistance to impact loads
- Excellent water resistance

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7030</td>
<td>890</td>
<td>0</td>
<td>Anhydrous calcium</td>
<td>&gt;120</td>
<td>-40... +120</td>
<td>1,350</td>
</tr>
</tbody>
</table>
### Neste OH Grease 2

**Special grease for the joint studs of work machinery and vehicles**

Meets or exceeds the following quality criteria:
- DIN 51502: KP2K-30
- ISO 12924: ISO-L-XC(F)ICB2

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density $\text{kg/m}^3$ @+20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7032</td>
<td>900</td>
<td>2</td>
<td>Anhydrous calcium</td>
<td>&gt;140</td>
<td>-30...+120</td>
<td>1,350</td>
</tr>
</tbody>
</table>

- Excellent adhesion
- Good wear resistance and EP properties
- Good resistance to impact loads
- Excellent water resistance

### Neste Center Grease 00 EP

**Grease for central lubrication systems**

Meets or exceeds the following quality criteria:
- DIN 51502: KP00G-40
- ISO 12924: ISO-L-XD(F)IB00

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density $\text{kg/m}^3$ @+20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7410</td>
<td>900</td>
<td>00</td>
<td>Lithium complex</td>
<td>&gt;170</td>
<td>-40...+100</td>
<td>120</td>
</tr>
</tbody>
</table>

- Excellent pumpability
- Good performance at low temperatures
- Good wear resistance and EP properties
- Good rust prevention properties

### Neste Semilix

**Semi-synthetic lubricating grease**

Meets or exceeds the following quality criteria:
- DIN 51502: KP1.5N-35
- ISO 6743: ISO-L-XCDHB1.5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density $\text{kg/m}^3$ @+20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7017</td>
<td>880</td>
<td>1.5</td>
<td>Lithium complex</td>
<td>&gt;260</td>
<td>-35...+150</td>
<td>150</td>
</tr>
</tbody>
</table>

- Wide operating temperature range
- Good wear resistance and EP properties
- Good rust protection
- Excellent oxidation resistance

### Neste Avora

**Grease for open gears**

Meets or exceeds the following quality criteria:
- DIN 51502: OGP0.5N-20
- ISO 12924: ISO-L-XB(F)DIB0.5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density $\text{kg/m}^3$ @+20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7110</td>
<td>940</td>
<td>0.5</td>
<td>Calcium/lithium complex</td>
<td>&gt;260</td>
<td>-20...+140</td>
<td>850</td>
</tr>
</tbody>
</table>

- Easy to apply
- Excellent corrosion protection
- Excellent water resistance
- Good wear resistance and EP properties

### Industrial lubricating greases
### Neste Allrex M

**Molybdenum sulfide-containing general grease**

Meets or exceeds the following quality criteria:
- DIN 51502: KPF2K-30
- ISO 6743: ISO-L-XCCIB2

- Good mechanical resistance
- Good rust prevention properties
- Good wear resistance and EP properties
- Withstands impact loads
- Good rust prevention properties
- Good mechanical resistance

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7015</td>
<td>950</td>
<td>2</td>
<td>Lithium</td>
<td>&gt;180</td>
<td>-30... +120</td>
<td>200</td>
</tr>
</tbody>
</table>

### Neste Allrex EP 0

**Grease for general use**

Meets or exceeds the following quality criteria:
- DIN 51502: KP0K-30
- ISO 12924: ISO-L-XC(F)CIB0

- Multi-purpose
- Good pumpability
- Good wear resistance and EP properties
- Good rust prevention properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7020</td>
<td>920</td>
<td>0</td>
<td>Lithium</td>
<td>&gt;160</td>
<td>-30... +120</td>
<td>200</td>
</tr>
</tbody>
</table>

### Neste Allrex EP 1

**Grease for general use**

Meets or exceeds the following quality criteria:
- DIN 51502: KP1K-30
- ISO 6743: ISO-L-XCCFB1

- Multi-purpose
- Good pumpability
- Good wear resistance and EP properties
- Good rust prevention properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7021</td>
<td>930</td>
<td>1</td>
<td>Lithium</td>
<td>&gt;180</td>
<td>-30... +120</td>
<td>200</td>
</tr>
</tbody>
</table>

### Neste Allrex EP 2

**Grease for general use**

Meets or exceeds the following quality criteria:
- DIN 51502: KP2K-30
- ISO 6743: ISO-L-XCCIB2
- MAN 283 L1-P 2
- MB Blatt 2670
- VOLVO Std 127718

- Multi-purpose
- Good pumpability
- Good wear resistance and EP properties
- Good rust prevention properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +20 °C</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7022</td>
<td>950</td>
<td>2</td>
<td>Lithium</td>
<td>&gt;180</td>
<td>-30... +120</td>
<td>200</td>
</tr>
</tbody>
</table>
Neste Allrex EP
Grease for general use
Meets or exceeds the following quality criteria:
DIN 51502: KP2.5K-30
ISO 6743: ISO-L-XCCIB2.5
Volvo Std 97718

Neste Templex
High temperature grease
Meets or exceeds the following quality criteria:
DIN 51502: KP1.5N-30
ISO 12924: ISO-L-XC(F)DIB1.5

Neste Synlix
Fully synthetic lubricating grease
Meets or exceeds the following quality criteria:
DIN 51502: KPHC1.5N-40
ISO 6743: ISO-L-XDDIB1.5

Neste Synlix LT
Fully synthetic special grease
Meets or exceeds the following quality criteria:
DIN 51502: KPHC2K-55
ISO 6743: ISO-L-XECIB2.0

Product number | Density kg/m³ +20 °C | NLGI hardness | Thickener type | Drop point °C | Operating temperature range °C | Base oil viscosity cSt
7023 | 940 | 2.5 | Lithium | >180 | -30...+130 | 205

Product number | Density kg/m³ +20 °C | NLGI hardness | Thickener type | Drop point °C | Operating temperature range °C | Base oil viscosity cSt
7013 | 910 | 1.5 | Lithium complex | >260 | -30...+140 | 560

Product number | Density kg/m³ +20 °C | NLGI hardness | Thickener type | Drop point °C | Operating temperature range °C | Base oil viscosity cSt
7018 | 900 | 1.5 | Lithium complex | >260 | -40...+150 | 160

Product number | Density kg/m³ +20 °C | NLGI hardness | Thickener type | Drop point °C | Operating temperature range °C | Base oil viscosity cSt
7019 | 910 | 2 | Lithium complex | >260 | -55...+120 | 45
**Neste Keidi S**
Lubricant for gang saw guides

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7156</td>
<td>866</td>
<td>280 11.5</td>
</tr>
</tbody>
</table>

- Easy to apply
- Suitable for lubricator use
- For summer use

**Neste Keidi W**
Lubricant for gang saw guides

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7159</td>
<td>884</td>
<td>170 11.1</td>
</tr>
</tbody>
</table>

- Easy to apply
- Suitable for lubricator use
- For winter use

**Neste Avora Spray**
Sprayable grease for open gears

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7111</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Easy to apply
- Excellent corrosion protection
- Excellent water resistance
- Good wear resistance and EP properties

**Neste Contrex**
Protective grease for electrical connectors

Meets or exceeds the following quality criteria:
DIN 51502: K2K-30
ISO 6743: ISO-L-XCCHA2

- Good oxidation resistance
- Excellent corrosion protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>NLGI hardness</th>
<th>Thickener type</th>
<th>Drop point °C</th>
<th>Operating temperature range °C</th>
<th>Base oil viscosity cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>7014</td>
<td>940</td>
<td>2</td>
<td>Lithium</td>
<td>&gt;180</td>
<td>-30... +110</td>
<td>110</td>
</tr>
</tbody>
</table>
Important to take into account when choosing a lubricant

- Equipment manufacturer's recommendations
- Operating temperature / its fluctuations
- Viscosity
- Load and/or pressure
- Running speed / speed of rotation
- Lubrication method / lubrication system
- System volume
- Nature/Environment/User

Also pay attention to

- Whether the oil system has been properly emptied
- Oil filtering when topping up
- Be careful not to over- or under-fill the system
- Using the right product
- Impurities, contamination
- Do not forget to check/change oil filters
- Breather air filter
- Entry of water into the system, draining
- Regular monitoring of oil condition
- Leaking seals / condition of seals

The importance of purity to lubricant system cannot be overstated. Even a small amount imperceptible dirt may paralyze even a large system and cause costly repairs. Free play, for example, pumps and valves may be approx. 1 to 15 µm (thousandths of millimeter), which means that hard dirt particles the size of free play, for example sand dust (silicon) or metal particles are the worst. They may jam the valves when getting lodged in the free play and by scraping precision mechanical metal surfaces. The following table presents typical free play found in lubrication systems.

<table>
<thead>
<tr>
<th>Component type</th>
<th>Free play micrometers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear pump</td>
<td></td>
</tr>
<tr>
<td>gear tip – housing</td>
<td>0.5–5</td>
</tr>
<tr>
<td>gear – side plate</td>
<td>1–1</td>
</tr>
<tr>
<td>Vane pump</td>
<td></td>
</tr>
<tr>
<td>vane tip – ring</td>
<td>–1</td>
</tr>
<tr>
<td>vane – side plate</td>
<td>10–30</td>
</tr>
<tr>
<td>Displacement pump</td>
<td></td>
</tr>
<tr>
<td>piston – cylinder</td>
<td>10–30</td>
</tr>
<tr>
<td>baffle plate – cylinder group</td>
<td></td>
</tr>
<tr>
<td>Directional control valve</td>
<td></td>
</tr>
<tr>
<td>high pressure</td>
<td>2–10</td>
</tr>
<tr>
<td>low pressure</td>
<td>10–30</td>
</tr>
</tbody>
</table>

The figure below shows particle sizes drawn in the same scale. The worst particles from the perspective of a lubrication system are hard 1 to 20 micron particles invisible to the naked eye.

Entry of dirt, for example, in circulation lubrication or hydraulic system is prevented by flushing it before commissioning with new filtered hydraulic oil. If possible, the system is filled through its own filters or a separate filter unit. All maintenance and repair work must be performed in clean and dust-free facilities. Opened parts of the system must be carefully covered from outside dirt and dust. However, dirt will accumulate in the system during running no matter how well it is covered. For example, hydraulic cylinder arms bring in outside impurities through the seals. The ‘natural’ wear of the system creates metallic particles and fine-grained dirt causes “sand-blasting-like” wear when it, for example, hits the walls at pipe turns and spindle edges at a fast speed. Therefore, it is important to remove dirt continuously to retain sufficient cleanliness level.
In order to remove dirt, it is necessary to use appropriate filters and ensure that they are in good condition. Instructions are provided by the equipment manufacturer. The container's breather vent must have as fine of filter as the main filters of the system. During oil change, the sediment collected at the bottom of the container will be removed if it is possible. When needed, the whole system will be flushed with oil normally used in the system.

ISO 4406 method will be used for indicating the purity of the lubricating oil. The classification is based on calculating the number of particles included in an oil sample, either by a microscope or an automatic counter. In the ISO method, particles are divided in three different size groups: ≥ 4 \( \mu m \), ≥ 6 \( \mu m \) and ≥ 14 \( \mu m \).

<table>
<thead>
<tr>
<th>Number</th>
<th>Microns</th>
<th>Number of particles (per ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>≥ 4</td>
<td>1,300–2,500</td>
</tr>
<tr>
<td>16</td>
<td>≥ 6</td>
<td>320–640</td>
</tr>
<tr>
<td>13</td>
<td>≥ 14</td>
<td>40–80</td>
</tr>
</tbody>
</table>

**Oil condition monitoring**

Monitoring the condition of oil is a crucial part of securing the operation of production equipment and the more critical the monitoring target is, the more important it is. Condition of lubrication systems is monitored with oil analyses, which provide information about the condition of the system. Preventive maintenance measures can be undertaken immediately during production turnarounds. Regular oil analysis prevents unmanaged turnarounds.

The location of our technology center in Finland gives us good opportunities to provide fast service that takes the needs of industry into account.

**Circulation lubrication**

Circulation lubrication systems are used when a large number of bearings and gears are to be lubricated in a centralized manner. Circulation lubrication is also capable of handling the cooling of lubrication targets. In addition, it gives the opportunity to control the oil condition well.

Circulation lubrication is most typically used in forest industry (paper, carton and pulp machines, thermomechanical pulp refiners, sanders, rollers, etc.). Turbines and steel industry use large-scale circulation lubrication systems. Printing presses are also circulation-lubricated.

Viscosity of the circulation lubrication oil plays the decisive role in the service life of bearings. The rule of thumb is: the lower the running speed, the higher the viscosity of lubricant in the bearings.

A great deal is demanded from the oil in circulation lubrication, since the system needs to function at varying temperatures and remove outside impurities such as wear particles, oxidation products, water and air bubbles.

Circulation lubrication oil must have good anti-corrosive properties. For example, ASTM D665 -test B, which is performed with synthetic salt water, provides a good understanding of an oil's capability to protect lubricated surfaces from rust.

The time spent on air release is mostly affected by the oil viscosity. Additives used also have a role but not as significant as viscosity. When put under pressure air in the oil may cause cavitation in the pump and pressure strikes in the pipes. Moreover, bearings do not have an oil film at the air bubble. For this reason, good air release properties and selection of the right viscosity class are crucial.

Foaming of oil is different from air in the oil. When oil foams, the difference between foam and clear oil is clearly visible, whereas oil containing air is cloudy. Circulation lubrication oils have effective foam prevention additives, which work even in small doses.

The separation time of oil and water is crucially affected by oil density. The closer the oil density to water density, the worse the separation of oil and water. If a container has been measured large enough, water will sink to the bottom of the container. The thinner the oil, the more effective the separation.

A circulation lubrication system must be flushed before commissioning. Thin mineral or synthetic oils are usually used as purging oils, for example, products in Neste Circlube series are well suited for system flushing.
Classifications of industrial lubricants

At international level

- ISO

National standardization organizations, such as

- ASTM (USA)
- DIN (GERMANY)
- BSS (UNITED KINGDOM)
- AFNOR (FRANCE)
- SS (SWEDEN)

Many large equipment manufacturers also set their own quality and performance requirements (specifications), e.g.

- SKF (Bearings)
- FAG (Bearings)

In addition, some industrial organizations have prepared their own standards and set quality/performance requirements for lubricants, including

- AGMA (American transmission manufacturers)
- US STEEL
- GERMAN STEEL INDUSTRY
- VDMA (German equipment manufacturers)

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Turbine oils

### Neste Turbine 32

Turbine oil

Meets or exceeds the following quality criteria:

- DIN 51515- L-TD
- ISO-L-TGA 32

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGA class</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3084</td>
<td>32</td>
<td>32</td>
<td>874</td>
<td>32</td>
<td>5.2</td>
<td>102</td>
<td>-33</td>
<td>221</td>
</tr>
</tbody>
</table>

- Excellent rust prevention properties
- Good oxidation resistance
- Good air separation ability
- Good water separation ability

### Neste Turbine 46

Turbine oil

Meets or exceeds the following quality criteria:

- DIN 51515- L-TD
- ISO-L-TGA 46

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGA class</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3085</td>
<td>46</td>
<td>46</td>
<td>877</td>
<td>46</td>
<td>6.8</td>
<td>101</td>
<td>-33</td>
<td>225</td>
</tr>
</tbody>
</table>

- Excellent rust prevention properties
- Good oxidation resistance
- Good air separation ability
- Good water separation ability
### Neste Turbine 68

**Turbine oil**

Meets or exceeds the following quality criteria:

- DIN 51515 - L-TD
- ISO-L-TGA 68

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGA class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3086</td>
<td>68</td>
<td>68</td>
<td>878</td>
<td>68</td>
<td>8.8</td>
<td>101</td>
<td>-30</td>
<td>243</td>
</tr>
</tbody>
</table>

- Excellent rust prevention properties
- Good oxidation resistance
- Good air separation ability
- Good water separation ability

### Neste Turbine GT 32

**Turbine oil**

Meets or exceeds the following quality criteria:

- DIN 51 515 - L-TD
- DIN 51 524 - HL
- ISO-L-TGE 32
- SIEMENS TLV 901304-01
- GEK 32 568 F
- GEK 107395
- GEK 101941 A
- BS 489

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGE class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3096</td>
<td>32</td>
<td>23</td>
<td>845</td>
<td>32</td>
<td>5.8</td>
<td>127</td>
<td>-12</td>
<td>211</td>
</tr>
</tbody>
</table>

- Excellent oxidation resistance
- Excellent rust protection
- High viscosity index
- Good water and air separation

### Neste Turbine GT 46

**Turbine oil**

Meets or exceeds the following quality criteria:

- DIN 51 515 - L-TD
- DIN 51 524 - HL
- ISO-L-TGE 46
- SIEMENS TLV 901304-01
- BS 489

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGE class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3097</td>
<td>46</td>
<td>46</td>
<td>843</td>
<td>46</td>
<td>7.8</td>
<td>138</td>
<td>-24</td>
<td>218</td>
</tr>
</tbody>
</table>

- Excellent oxidation resistance
- Excellent rust protection
- High viscosity index
- Good water and air separation

### Neste Turbine GT 68

**Turbine oil**

Meets or exceeds the following quality criteria:

- DIN 51 515 - L-TD
- DIN 51 524 - HL
- ISO-L-TGE 68
- BS 489

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGE class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3098</td>
<td>68</td>
<td>68</td>
<td>845</td>
<td>68</td>
<td>10.7</td>
<td>147</td>
<td>-33</td>
<td>218</td>
</tr>
</tbody>
</table>

- Excellent oxidation resistance
- Excellent rust protection
- High viscosity index
- Good water and air separation
Neste Turbine GT 32 EP

Turbine oil
Meets or exceeds the following quality criteria:
DIN 51 515 - L-TD
DIN 51 524 - HL
ISO-L-TGE 32

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGE class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3093</td>
<td>32</td>
<td>32</td>
<td>845</td>
<td>32</td>
<td>5.8</td>
<td>127</td>
<td>-12</td>
<td>211</td>
</tr>
</tbody>
</table>

Neste Turbine GT 46 EP

Turbine oil
Meets or exceeds the following quality criteria:
DIN 51 515 - L-TD
DIN 51 524 - HL
ISO-L-TGE 46
SIEMENS TLV 901304-01
BS 489

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGE class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3094</td>
<td>46</td>
<td>46</td>
<td>843</td>
<td>46</td>
<td>7.8</td>
<td>138</td>
<td>-24</td>
<td>218</td>
</tr>
</tbody>
</table>

Neste Turbine GT 68 EP

Turbine oil
Meets or exceeds the following quality criteria:
DIN 51 515 - L-TD
DIN 51 524 - HL
ISO-L-TGE 68
BS 489

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-TGE class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3095</td>
<td>68</td>
<td>68</td>
<td>845</td>
<td>68</td>
<td>10.7</td>
<td>147</td>
<td>-33</td>
<td>218</td>
</tr>
</tbody>
</table>

Neste Turbine Hydro 46

Lubrication oil for water turbines

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3081</td>
<td>46</td>
<td>848</td>
<td>49</td>
<td>7.9</td>
<td>130</td>
<td>-39</td>
</tr>
</tbody>
</table>
### Neste Paper Mill 150 D

**Oil for paper machines**

Meets or exceeds the following quality criteria:
- DIN 51524-2 (HLP)
- DIN 51517-2 (CL)

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2980</td>
<td>150</td>
<td>889</td>
<td>150</td>
<td>14.7</td>
<td>-12</td>
<td>257</td>
</tr>
</tbody>
</table>

- Good protection against wear
- Excellent rust prevention properties
- Good water separation
- Good oxidation resistance

### Neste Paper Mill 220 D

**Oil for paper machines**

Meets or exceeds the following quality criteria:
- DIN 51517-2 (CL)

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2981</td>
<td>220</td>
<td>894</td>
<td>220</td>
<td>18.9</td>
<td>-12</td>
<td>270</td>
</tr>
</tbody>
</table>

- Good protection against wear
- Excellent rust prevention properties
- Good water separation
- Good oxidation resistance

### Neste Beta 68 ZFX

**Zinc-free paper machine oil**

Meets or exceeds the following quality criteria:
- DIN 51524-2 (HLP)
- RAU4L 00669.D
- DIN 51517-2 (CL)

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
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</thead>
<tbody>
<tr>
<td>3031</td>
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<td>881</td>
<td>68</td>
<td>8.9</td>
<td>-21</td>
<td>224</td>
</tr>
</tbody>
</table>

- Excellent wear resistance
- Excellent corrosion resistance
- Excellent water and air separation
- Good oxidation resistance

### Neste Beta 100 ZFX

**Zinc-free paper machine oil**

Meets or exceeds the following quality criteria:
- DIN 51524-2 (HLP)
- RAU4L 00669.D
- DIN 51517-2 (CL)

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3032</td>
<td>100</td>
<td>885</td>
<td>100</td>
<td>11.3</td>
<td>-18</td>
<td>238</td>
</tr>
</tbody>
</table>

- Excellent wear resistance
- Excellent corrosion resistance
- Excellent water and air separation
- Good oxidation resistance
### Neste Beta 150 ZFX
Zinc-free paper machine oil

Meets or exceeds the following quality criteria:
- DIN 51524-2 (HLP)
- RAU4L 00659.D
- METSO SOLID-TELA

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/l</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3033</td>
<td>150</td>
<td>889</td>
<td>150</td>
<td>14.7</td>
<td>95</td>
<td>-12</td>
<td>236</td>
</tr>
</tbody>
</table>

- Excellent wear resistance
- Excellent corrosion resistance
- Excellent water and air separation
- Good oxidation resistance

### Neste Beta 220 ZFX
Zinc-free paper machine oil

Meets or exceeds the following quality criteria:
- DIN 51517-2 CL
- RAU4L 00925
- RAU4L 00659.D
- METSO SOLID-TELA
- SKF Dryer section specification ver. 2

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/l</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3034</td>
<td>220</td>
<td>893</td>
<td>220</td>
<td>19.2</td>
<td>96</td>
<td>-12</td>
<td>232</td>
</tr>
</tbody>
</table>

- Excellent wear resistance
- Excellent corrosion resistance
- Excellent water and air separation
- Good oxidation resistance

### Neste Beta 460 ZFX
Zinc-free paper machine oil

Meets or exceeds the following quality criteria:
- DIN 51517-2 CL
- RAU4L 00659.D

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/l</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3036</td>
<td>460</td>
<td>900</td>
<td>460</td>
<td>30.9</td>
<td>97</td>
<td>-12</td>
<td>283</td>
</tr>
</tbody>
</table>

- Excellent wear resistance
- Excellent corrosion resistance
- Excellent water and air separation
- Good oxidation resistance
### Synthetic paper machine oils

#### Neste Lamda 68 ZF
- **Synthetic paper machine oil**
- Long service life
- Excellent oxidation and temperature resistance
- Wide operating temperature range
- Excellent rust protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
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<tbody>
<tr>
<td>3043</td>
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<td>840</td>
<td>68</td>
<td>10.4</td>
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<td>-57</td>
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</tr>
</tbody>
</table>

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#### Neste Lamda 100 ZF
- **Synthetic paper machine oil**
- Long service life
- Excellent oxidation and temperature resistance
- Wide operating temperature range
- Excellent rust protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3052</td>
<td>100</td>
<td>842</td>
<td>100</td>
<td>14.3</td>
<td>149</td>
<td>-51</td>
<td>235</td>
</tr>
</tbody>
</table>

---

#### Neste Lamda 150 ZF
- **Synthetic paper machine oil**
- Long service life
- Excellent oxidation and temperature resistance
- Wide operating temperature range
- Excellent rust protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3053</td>
<td>150</td>
<td>843</td>
<td>150</td>
<td>20.2</td>
<td>156</td>
<td>-51</td>
<td>236</td>
</tr>
</tbody>
</table>

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#### Neste Lamda 220 ZF
- **Synthetic paper machine oil**
- Long service life
- Excellent oxidation and temperature resistance
- Wide operating temperature range
- Excellent rust protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3064</td>
<td>220</td>
<td>843</td>
<td>220</td>
<td>27.7</td>
<td>162</td>
<td>-51</td>
<td>260</td>
</tr>
</tbody>
</table>
## Neste Lamda 320 ZF
Synthetic paper machine oil

- Long service life
- Excellent oxidation and temperature resistance
- Wide operating temperature range
- Excellent rust protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3076</td>
<td>320</td>
<td>844</td>
<td>320</td>
<td>374</td>
<td>165</td>
<td>-42</td>
<td>260</td>
</tr>
</tbody>
</table>

## Neste Lamda 460 ZF
Synthetic paper machine oil

- Long service life
- Excellent oxidation and temperature resistance
- Wide operating temperature range
- Excellent rust protection

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3077</td>
<td>460</td>
<td>845</td>
<td>460</td>
<td>50.7</td>
<td>173</td>
<td>-39</td>
<td>260</td>
</tr>
</tbody>
</table>

## Circulation lubrication and machine oils

### Circulation lubrication oil

#### Neste Circlube 22
Meets or exceeds the following quality criteria:
ISO-L-AN 22

- Good oxidation resistance
- Ashless
- Good water and air separation

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-AN class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
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</thead>
<tbody>
<tr>
<td>3310</td>
<td>22</td>
<td>22</td>
<td>852</td>
<td>22</td>
<td>4.5</td>
<td>118</td>
<td>-39</td>
<td>195</td>
</tr>
</tbody>
</table>

#### Neste Circlube 68
Meets or exceeds the following quality criteria:
ISO-L-AN 68

- Good oxidation resistance
- Ashless
- Good water and air separation

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-AN class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3320</td>
<td>68</td>
<td>68</td>
<td>878</td>
<td>68</td>
<td>8.8</td>
<td>102</td>
<td>-30</td>
<td>235</td>
</tr>
</tbody>
</table>
### Neste Circlube 150

**Circulation lubrication oil**

Meets or exceeds the following quality criteria:

ISO VG 10

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-AN class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3330</td>
<td>150</td>
<td>150</td>
<td>890</td>
<td>150</td>
<td>14.8</td>
<td>98</td>
<td>-33</td>
<td>243</td>
</tr>
</tbody>
</table>

### Neste Circlube 320

**Circulation lubrication oil**

Meets or exceeds the following quality criteria:

ISO-L-AN 320

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-AN class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3340</td>
<td>320</td>
<td>320</td>
<td>896</td>
<td>320</td>
<td>23</td>
<td>96</td>
<td>-18</td>
<td>296</td>
</tr>
</tbody>
</table>

### Neste Spindle 10

**Spindle bearing oil**

Meets or exceeds the following quality criteria:

ISO VG 10

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3395</td>
<td>10</td>
<td>837</td>
<td>10</td>
<td>2.7</td>
<td>114</td>
<td>-48</td>
<td>152</td>
</tr>
</tbody>
</table>

### Spindle bearing oils

- Good oxidation resistance
- Ashless
- Good water and air separation
- Good protection against wear
- Excellent rust prevention properties
- Good oxidation resistance
## Industrial gearbox oils

### Neste Industrial Gear 68 EP

- **Product number**: 3410
- **ISO VG**: 68
- **Density @ +15 °C**: 880 kg/m³
- **Viscosity @ 40 °C**: 68 mm²/s (cSt)
- **Viscosity @ 100 °C**: 8.8 mm²/s (cSt)
- **Viscosity index**: 102
- **Pour point**: -33 °C
- **Flash point (COC)**: 242 °C

**EP gear oil for industrial use**

Meets or exceeds the following quality criteria:

- DIN 51517-3 (CLP)
- ISO-L-CKC 68
- AGMA 9005-E02 2 EP
- David Brown 2EP

**Excellent EP properties**

**Good corrosion protection**

**Excellent oxidation resistance**

### Neste Industrial Gear 100 EP

- **Product number**: 3421
- **ISO VG**: 100
- **Density @ +15 °C**: 883 kg/m³
- **Viscosity @ 40 °C**: 100 mm²/s (cSt)
- **Viscosity @ 100 °C**: 11.4 mm²/s (cSt)
- **Viscosity index**: 100
- **Pour point**: -30 °C
- **Flash point (COC)**: 247 °C

**EP gear oil for industrial use**

Meets or exceeds the following quality criteria:

- DIN 51517-3 (CLP)
- ISO-L-CKC 100
- AGMA 9005-E02 3 EP
- David Brown 3EP

**Excellent EP properties**

**Good corrosion protection**

**Excellent oxidation resistance**

### Neste Industrial Gear 150 EP

- **Product number**: 3430
- **ISO VG**: 150
- **Density @ +15 °C**: 886 kg/m³
- **Viscosity @ 40 °C**: 150 mm²/s (cSt)
- **Viscosity @ 100 °C**: 14.9 mm²/s (cSt)
- **Viscosity index**: 98
- **Pour point**: -21 °C
- **Flash point (COC)**: 262 °C

**EP gear oil for industrial use**

Meets or exceeds the following quality criteria:

- DIN 51517-3 (CLP)
- ISO-L-CKC 150
- AGMA 9005-E02 4 EP
- David Brown 4EP

**Excellent EP properties**

**Good corrosion protection**

**Excellent oxidation resistance**

### Neste Industrial Gear 220 EP

- **Product number**: 3440
- **ISO VG**: 220
- **Density @ +15 °C**: 892 kg/m³
- **Viscosity @ 40 °C**: 220 mm²/s (cSt)
- **Viscosity @ 100 °C**: 19.0 mm²/s (cSt)
- **Viscosity index**: 97
- **Pour point**: -24 °C
- **Flash point (COC)**: 226 °C

**EP gear oil for industrial use**

Meets or exceeds the following quality criteria:

- DIN 51517-3 (CLP)
- ISO-L-CKC 220
- AGMA 9005-E02 5 EP
- David Brown 5EP
- U.S. Steel 224

**Excellent EP properties**

**Good corrosion protection**

**Excellent oxidation resistance**
**Neste Industrial Gear 320 EP**

EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 320

AGMA 9005-E02 6 EP
David Brown 6EP
U.S. Steel 224

**Excellent EP properties**
**Good corrosion protection**
**Excellent oxidation resistance**

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3450</td>
<td>320</td>
<td>898</td>
<td>320</td>
<td>24.2</td>
<td>96</td>
<td>-12</td>
<td>256</td>
</tr>
</tbody>
</table>

**Neste Industrial Gear 460 EP**

EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 460

AGMA 9005-E02 7 EP
David Brown 7EP
U.S. Steel 224

**Excellent EP properties**
**Good corrosion protection**
**Excellent oxidation resistance**

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3460</td>
<td>460</td>
<td>902</td>
<td>460</td>
<td>31.1</td>
<td>98</td>
<td>-15</td>
<td>278</td>
</tr>
</tbody>
</table>

**Neste Industrial Gear 680 EP**

EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)

ISO-L-CKC 680
AGMA 9005-E02 8 EP
U.S. Steel 224

**Excellent EP properties**
**Good corrosion protection**
**Excellent oxidation resistance**

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3473</td>
<td>680</td>
<td>902</td>
<td>680</td>
<td>41.7</td>
<td>102</td>
<td>-12</td>
<td>268</td>
</tr>
</tbody>
</table>
### Neste Industrial Gear NEX 68 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 68
- AGMA 9005-E02 2 EP
- David Brown 2EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3500</td>
<td>68</td>
<td>863</td>
<td>68</td>
<td>11.1</td>
<td>154</td>
<td>-45</td>
<td>219</td>
</tr>
</tbody>
</table>

### Neste Industrial Gear NEX 100 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 100
- AGMA 9005-E02 3 EP
- David Brown 3EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3501</td>
<td>100</td>
<td>871</td>
<td>100</td>
<td>15.3</td>
<td>160</td>
<td>-45</td>
<td>223</td>
</tr>
</tbody>
</table>

### Neste Industrial Gear NEX 150 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 150
- AGMA 9005-E02 4 EP
- David Brown 4EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3502</td>
<td>150</td>
<td>876</td>
<td>150</td>
<td>20.6</td>
<td>159</td>
<td>-39</td>
<td>231</td>
</tr>
</tbody>
</table>

### Neste Industrial Gear NEX 220 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 220
- AGMA 9005-E02 5 EP
- David Brown 5EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ (+15 °C)</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3503</td>
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<td>888</td>
<td>223</td>
<td>27.7</td>
<td>161</td>
<td>-39</td>
<td>223</td>
</tr>
</tbody>
</table>
### Neste Industrial Gear NEX 320 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 320
- AGMA 9005-E02 6 EP
- David Brown 6EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3504</td>
<td>320</td>
<td>892</td>
<td>320</td>
<td>37</td>
<td>165</td>
<td>-39</td>
</tr>
</tbody>
</table>

- **Excellent EP properties**
- **Brilliant corrosion resistance**
- **Excellent wear resistance**

### Neste Industrial Gear NEX 460 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 460
- AGMA 9005-E02 7 EP
- David Brown 7EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3505</td>
<td>460</td>
<td>898</td>
<td>465</td>
<td>49</td>
<td>165</td>
<td>-36</td>
</tr>
</tbody>
</table>

- **Excellent EP properties**
- **Brilliant corrosion resistance**
- **Excellent wear resistance**

### Neste Industrial Gear NEX 680 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 680
- AGMA 9005-E02 8 EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3506</td>
<td>680</td>
<td>908</td>
<td>688</td>
<td>66</td>
<td>167</td>
<td>-33</td>
</tr>
</tbody>
</table>

- **Excellent EP properties**
- **Brilliant corrosion resistance**
- **Excellent wear resistance**

### Neste Industrial Gear S 100 EP

**Fully synthetic EP gear oil for industrial use**

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKD 100
- AGMA 9005-E02 3 EP
- David Brown 3EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
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</thead>
<tbody>
<tr>
<td>3480</td>
<td>100</td>
<td>840</td>
<td>100</td>
<td>14.7</td>
<td>152</td>
<td>-55</td>
</tr>
</tbody>
</table>

- **Excellent EP properties**
- **Excellent protection against micropitting**
- **Very wide operating temperature range**
- **Excellent performance at low temperatures**

---

*Industrial lubricants*
### Neste Industrial Gear S 150 EP

Fully synthetic EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKD 150
- AGMA 9005-E02 4 EP
- David Brown 4EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
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</thead>
<tbody>
<tr>
<td>3482</td>
<td>150</td>
<td>848</td>
<td>150</td>
<td>20.1</td>
<td>155</td>
<td>-48</td>
<td>266</td>
<td></td>
</tr>
</tbody>
</table>

### Neste Industrial Gear S 220 EP

Fully synthetic EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKD 220
- AGMA 9005-E02 5 EP
- David Brown 5EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3485</td>
<td>229</td>
<td>849</td>
<td>220</td>
<td>26.5</td>
<td>158</td>
<td>-48</td>
<td>238</td>
<td></td>
</tr>
</tbody>
</table>

### Neste Industrial Gear S 320 EP

Fully synthetic EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKD 320
- AGMA 9005-E02 6 EP
- David Brown 6EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3490</td>
<td>320</td>
<td>850</td>
<td>320</td>
<td>36.2</td>
<td>160</td>
<td>-48</td>
<td>250</td>
<td></td>
</tr>
</tbody>
</table>

### Neste Industrial Gear S 460 EP

Fully synthetic EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 460
- AGMA 9005-E02 7 EP
- David Brown 7EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³</th>
<th>+15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3499</td>
<td>460</td>
<td>852</td>
<td>460</td>
<td>470</td>
<td>160</td>
<td>-39</td>
<td>280</td>
<td></td>
</tr>
</tbody>
</table>
### Neste Industrial Gear S 1000 EP

Fully synthetic EP gear oil for industrial use

Meets or exceeds the following quality criteria:
- DIN 51517-3 (CLP)
- ISO-L-CKC 1000
- AGMA 9005-E02 8A EP

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) @ 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3492</td>
<td>1000</td>
<td>860</td>
<td>1000</td>
<td>84.8</td>
<td>167</td>
<td>-27</td>
</tr>
</tbody>
</table>

### Neste Quenching F

Quenching oil

Excellent oxidation and temperature resistance
- Long service life
- No major tendency to form precipitation
- High flash point

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) @ 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4068</td>
<td>842</td>
<td>16</td>
<td>3.7</td>
<td>114</td>
<td>-27</td>
</tr>
</tbody>
</table>

### Synthetic food grade lubricating oils

### Neste Nexlube AW 32

Food grade lubrication oil

Clean, colorless, practically odorless
- Multi-purpose
- Long service life
- Very good performance at low temperatures

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) @ 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4611</td>
<td>32</td>
<td>830</td>
<td>32</td>
<td>5.9</td>
<td>135</td>
<td>-55</td>
</tr>
</tbody>
</table>

### Neste Nexlube AW 68

Food grade lubrication oil

Clean, colorless, practically odorless
- Multi-purpose
- Long service life
- Very good performance at low temperatures

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) @ 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4613</td>
<td>68</td>
<td>835</td>
<td>67</td>
<td>10.1</td>
<td>136</td>
<td>-53</td>
</tr>
</tbody>
</table>
## Slideway oils

### Neste Slideway 32

**Slideway oil**

Meets or exceeds the following quality criteria: ISO-L-G 32

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-G class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3810</td>
<td>32</td>
<td>32</td>
<td>872</td>
<td>32</td>
<td>5.6</td>
<td>114</td>
<td>-39</td>
<td>215</td>
</tr>
</tbody>
</table>

### Neste Slideway 68

**Slideway oil**

Meets or exceeds the following quality criteria: ISO-L-G 68

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-G class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3812</td>
<td>68</td>
<td>68</td>
<td>880</td>
<td>68</td>
<td>9</td>
<td>106</td>
<td>-30</td>
<td>239</td>
</tr>
</tbody>
</table>

### Neste Slideway 220

**Slideway oil**

Meets or exceeds the following quality criteria: ISO-L-G 220

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>ISO-L-G class</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s (cSt) 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3815</td>
<td>220</td>
<td>220</td>
<td>893</td>
<td>220</td>
<td>19.1</td>
<td>97</td>
<td>-9</td>
<td>256</td>
</tr>
</tbody>
</table>
## Heat transfer oils

### Neste Therm 4

- **Product number**: 3380
- **Density kg/m³**: 850
- **Viscosity mm²/s (cSt) 40 °C**: 17
- **Viscosity mm²/s (cSt) 100 °C**: 3.7
- **Viscosity index**: 105
- **Pour point °C**: -27
- **Flash point (COC) °C**: 200

### Neste Therm 5

- **Product number**: 3381
- **Density kg/m³**: 872
- **Viscosity mm²/s (cSt) 40 °C**: 31
- **Viscosity mm²/s (cSt) 100 °C**: 5.3
- **Viscosity index**: 104
- **Pour point °C**: -12
- **Flash point (COC) °C**: 220

### Neste Therm S 8

- **Product number**: 3382
- **Density kg/m³**: 833
- **Viscosity mm²/s (cSt) 40 °C**: 47
- **Viscosity mm²/s (cSt) 100 °C**: 79
- **Viscosity index**: 140
- **Pour point °C**: -57
- **Flash point (COC) °C**: 262

### Pneumatic tools

#### Neste Pneumatic 46

- **Product number**: 3540
- **ISO VG class**: 46
- **ISO-L-PBC class**: 46
- **Density kg/m³ 40 °C**: 871
- **Viscosity mm²/s (cSt) 40 °C**: 46
- **Viscosity mm²/s (cSt) 100 °C**: 72
- **Viscosity index**: 121
- **Pour point °C**: -39
- **Flash point (COC) °C**: 193

#### Neste Pneumatic 100

- **Product number**: 3541
- **ISO VG class**: 100
- **ISO-L-PBC class**: 100
- **Density kg/m³ 40 °C**: 882
- **Viscosity mm²/s (cSt) 40 °C**: 100
- **Viscosity mm²/s (cSt) 100 °C**: 116
- **Viscosity index**: 104
- **Pour point °C**: -24
- **Flash point (COC) °C**: 225

### Quality Criteria

- **Heat transfer oil**
  - Good temperature resistance
  - Good oxidation resistance
  - Low vapor pressure

- **Synthetic heat transfer oil**
  - Good temperature resistance
  - Excellent oxidation resistance
  - Low vapor pressure

- **Pneumatic tool oil**
  - Excellent wear resistance
  - Little formation of oil mist
  - Excellent adhesion
  - Excellent wear resistance
## Air compressor oils

### Neste Compressor 68

**Piston compressor oil**

Meets or exceeds the following quality criteria:
DIN 51506 VDL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s (cSt) at 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3550</td>
<td>68</td>
<td>870</td>
<td>68</td>
<td>8.8</td>
<td>102</td>
<td>-27</td>
</tr>
</tbody>
</table>

- Good oxidation resistance
- Ashless
- Very low carbon build-up
- Good rust prevention properties

### Neste Compressor 100

**Piston compressor oil**

Meets or exceeds the following quality criteria:
DIN 51506 VDL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s (cSt) at 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3551</td>
<td>100</td>
<td>882</td>
<td>100</td>
<td>11.4</td>
<td>102</td>
<td>-27</td>
</tr>
</tbody>
</table>

- Good oxidation resistance
- Ashless
- Very low carbon build-up
- Good rust prevention properties

### Neste Compressor 150

**Piston compressor oil**

Meets or exceeds the following quality criteria:
DIN 51506 VDL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s (cSt) at 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3552</td>
<td>150</td>
<td>885</td>
<td>150</td>
<td>14.7</td>
<td>96</td>
<td>-21</td>
</tr>
</tbody>
</table>

- Good oxidation resistance
- Ashless
- Very low carbon build-up
- Good rust prevention properties

### Neste Compressor 220

**Piston compressor oil**

Meets or exceeds the following quality criteria:
DIN 51506 VBL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s (cSt) at 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3550</td>
<td>220</td>
<td>891</td>
<td>220</td>
<td>19</td>
<td>97</td>
<td>-21</td>
</tr>
</tbody>
</table>

- Good oxidation resistance
- Ashless
- Very low carbon build-up
- Good rust prevention properties
### Synthetic compressor oils

**Neste Compressor NEX 46**

Meets or exceeds the following quality criteria:
DIN 51506 VDL, ISO 6743-3A-DAJ

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s at 40 °C</th>
<th>Viscosity mm²/s at 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3555</td>
<td>46</td>
<td>857</td>
<td>45</td>
<td>75</td>
<td>133</td>
<td>-39</td>
<td>240</td>
</tr>
</tbody>
</table>

**Neste Compressor NEX 68**

Meets or exceeds the following quality criteria:
DIN 51506 VDL, ISO 6743-3A-DAJ

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s at 40 °C</th>
<th>Viscosity mm²/s at 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3556</td>
<td>68</td>
<td>862</td>
<td>68</td>
<td>9.8</td>
<td>128</td>
<td>-39</td>
<td>234</td>
</tr>
</tbody>
</table>

**Fully synthetic compressor oil S 32**

Meets or exceeds the following quality criteria:
DIN 51506 VDL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s at 40 °C</th>
<th>Viscosity mm²/s at 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3559</td>
<td>32</td>
<td>842</td>
<td>32</td>
<td>61</td>
<td>140</td>
<td>-60</td>
<td>238</td>
</tr>
</tbody>
</table>

**Fully synthetic compressor oil S 46**

Meets or exceeds the following quality criteria:
DIN 51506 VDL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s at 40 °C</th>
<th>Viscosity mm²/s at 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3560</td>
<td>46</td>
<td>846</td>
<td>46</td>
<td>79</td>
<td>141</td>
<td>-57</td>
<td>240</td>
</tr>
</tbody>
</table>

**Fully synthetic compressor oil S 68**

Meets or exceeds the following quality criteria:
DIN 51506 VDL

<table>
<thead>
<tr>
<th>Product number</th>
<th>ISO VG class</th>
<th>Density kg/m³ at +15 °C</th>
<th>Viscosity mm²/s at 40 °C</th>
<th>Viscosity mm²/s at 100 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3561</td>
<td>68</td>
<td>848</td>
<td>68</td>
<td>10.9</td>
<td>152</td>
<td>-51</td>
<td>246</td>
</tr>
</tbody>
</table>
**Transformer oils**

**Neste Trafo 10X**
Transformer oil
Meets or exceeds the following quality criteria:
- IEC 60296 (ed.4)
- ASTM D 3487 Type II

- High dielectric strength
- Excellent performance at low temperatures
- Good cooling properties
- Good oxidation resistance

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -30 °C</th>
<th>Dielectric strength kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>4140</td>
<td>877</td>
<td>76</td>
<td>-63</td>
<td>142</td>
<td>730</td>
<td>50</td>
</tr>
</tbody>
</table>

**Neste Switch 3 X**
Switch oil
Meets or exceeds the following quality criteria:
- IEC 60296(82) Class III A

- High dielectric strength
- Small electrical losses
- Good cooling properties
- Excellent performance at low temperatures

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt -40 °C</th>
<th>Dielectric strength kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>4141</td>
<td>864</td>
<td>3.2</td>
<td>-70</td>
<td>96</td>
<td>137</td>
<td>58</td>
</tr>
</tbody>
</table>

**Form oils**

**Neste Mould L**
Concrete mold release oil
- Easy to apply
- Protects the mold surface from moisture
- Prevents steel molds from rusting
- Prevents the formation of bubbles in concrete

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s 100 °C</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4110</td>
<td>822</td>
<td>3.4</td>
<td>1.4</td>
<td>-48</td>
<td>85</td>
</tr>
</tbody>
</table>

**Neste Mould M**
Concrete mold release oil
- Easy to apply
- Protects the mold surface from moisture
- Prevents steel molds from rusting
- Prevents the formation of bubbles in concrete

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity mm²/s 100 °C</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4111</td>
<td>832</td>
<td>6.3</td>
<td>2</td>
<td>-48</td>
<td>94</td>
</tr>
</tbody>
</table>
**Anti-corrosion agents**

**Neste Antirust LO**

*Anti-corrosion oil*

- Efficient rust protection
- Easy to apply
- Also suitable for aluminum
- Easy to remove by solvent wash

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4830</td>
<td>876</td>
<td>35</td>
<td>5.9</td>
<td>111</td>
<td>-36</td>
</tr>
</tbody>
</table>

**Neste Antirust 30 HD**

*Protective oil for internal protection of machines*

Meets or exceeds the following quality criteria: MIL-L-2160

- Efficient rust protection
- Good oxidation resistance
- For long-term storage of engines

<table>
<thead>
<tr>
<th>Product number</th>
<th>SAE</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4833</td>
<td>30</td>
<td>888</td>
<td>94.2</td>
<td>11.2</td>
<td>105</td>
<td>-33</td>
</tr>
</tbody>
</table>

**Neste Technical White Oil S 22**

*Fully synthetic technical white oil*

- Particularly wide operating temperature range
- Extremely low evaporation losses
- Almost odorless

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity mm²/s (cSt) 40 °C</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4710</td>
<td>819</td>
<td>16.8</td>
<td>3.8</td>
<td>124</td>
<td>-69</td>
</tr>
</tbody>
</table>

**Neste Biosaw**

*Biodegradable saw chain oil*

- Environmentally friendly
- Produced of renewable raw materials
- Excellent lubricating properties

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Viscosity index</th>
<th>Pour point °C</th>
<th>Flash point (COC) °C</th>
<th>Cold viscosity cSt ≥-20 °C</th>
<th>Biodegradability OECD 301 F</th>
</tr>
</thead>
<tbody>
<tr>
<td>5510</td>
<td>920</td>
<td>70</td>
<td>-99</td>
<td>300</td>
<td>1,700</td>
<td>&gt;80%</td>
</tr>
</tbody>
</table>
Machining fluids

Metal removal is the most common machining method. These methods include lathing, drilling, planing, reaming and grinding.

Machining fluids are used as cooling and lubricating agents, and they are used for lubrication, cooling, purging chips created and giving protection against corrosion throughout the process.

The three main types of machining fluids are oils, emulsions and aqueous solutions. Each type has their special properties:

**Oils:** Good lubrication ability + possible EP additives + lower cooling ability

**Emulsions:** Good cooling ability + lower lubricating ability + possible EP additives

**Aqueous solutions:** Excellent cooling ability + lower lubricating ability

### Additives

Typical additives used in machining fluids include:

- Anti-corrosive agents protecting machines and objects worked on from corrosion.
- Anti-foam agents used to prevent the foaming of water soluble machining liquids in particular.
- Emulgators generating oil-water emulsion.
- Biocides, which protect emulsions and aqueous solutions from micro-organisms thus lengthening the service life of machining fluids.

### Choosing a machining fluid

Machining methods and values, the requirements of the metal worked on, tool properties as well as other conditions determine which machining liquids will be used. Difficult materials and slow machining methods emphasize good lubricating ability and EP properties, in which case the right choice often is a machining oil. Correspondingly, fast machining methods require very good cooling ability and the best result is often achieved with aqueous solutions. Emulsions combine the good lubrication and cooling properties and they are often suitable for even more demanding machining tasks.
## Machining oils

### Neste Cutting Neatoil 15

**Machining oil for steel grades**

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity cSt / 40 °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3995</td>
<td>877</td>
<td>15</td>
<td>162</td>
</tr>
</tbody>
</table>

- Efficient EP additives
- For high feeds
- Good chip removal ability
- Contains active sulfur

### Neste Cutting Neatoil 200

**Machining oil for steel grades**

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity cSt / 40 °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4070</td>
<td>855</td>
<td>16</td>
<td>180</td>
</tr>
</tbody>
</table>

- Efficient EP additives
- For high feeds
- Also suitable for machining difficult materials

### Neste Cutting Neatoil K1

**Machining oil for steel grades and yellow metals**

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity cSt / 40 °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4004</td>
<td>863</td>
<td>31</td>
<td>226</td>
</tr>
</tbody>
</table>

- Passive EP additives
- Does not cause color defects for yellow metal
- Good quality of machined surface
- Suitable for general machining

### Neste Cutting Neatoil MT 13

**Machining oil for steel grades and yellow metals**

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³ +15 °C</th>
<th>Viscosity cSt / 40 °C</th>
<th>Flash point (COC) °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4006</td>
<td>840</td>
<td>13</td>
<td>183</td>
</tr>
</tbody>
</table>

- Passive EP additives
- Does not cause color defects for yellow metal
- Good chip removal ability
### Neste Cutting 100

- **Emulsifiable machining fluid**
- **Product number**: 3970
- **Density**: 910 kg/m³ at +15 °C
- **Viscosity**: 35 cSt at 40 °C
- **pH (5%) Refractometer index**: 9.1/0.9

**Characteristics**
- Effective lubrication
- Good cooling properties
- Prevents bacterial and fungal growth

### Neste Cutting F 110

- **Semi-synthetic emulsifiable machining fluid**
- **Product number**: 3973
- **Density**: 1030 kg/m³ at +15 °C
- **Viscosity**: 48 cSt at 40 °C
- **pH (5%) Refractometer index**: 9.3/1.4

**Characteristics**
- Efficient anti-wear/EP additives
- Efficient anti-corrosion properties
- Very stable emulsion
- Prevents bacterial and fungal growth

---

**Machining fluids**: emulsions
Coolants

Neste coolants are either ethylene of propylene glycol -based coolants suitable for cooling systems of mobile fleet. Glycols used as the base fluid provide good protection against freezing and varied additives protect the cooling system components from corrosion.

The additives used in the coolant dictate its performance, which together with the engine manufacturer’s recommendations determine the change interval.

The freeze resistance of ethylene glycol -based coolants can be measured either with a gravimeter or a refractometer. However, measurement with gravimeter may produce inaccurate results due to, for example, impurities and additives included in the coolant. In most cases, refractometer gives more accurate results.

Measurement of propylene glycol -based coolants (Neste Biocoolant Longlife) cannot be performed with a gravimeter, because when the specific gravity of water and base glycol is almost the same, the propylene glycol volume cannot be determined. In this case, refractometer is the correct usable measuring device.

It is not recommended that different coolants are mixed, but during topping up of anti-freeze agent

Neste Special Coolant and Neste Pro Coolant XLC can be mixed (to improve freeze resistance) when needed. Even then it is recommended that a single coolant is changed to the system as soon as possible. Ethylene and propylene glycol -based coolants must not be mixed.
## Neste Pro+ Coolant B

**Long change interval multi-brand coolant concentrate**

Meets or exceeds the following quality criteria:
- BMW N 600 69.0
- Deutz: H-LV 0161 0188
- MAN 324-NF
- MB-Approval 325.0
- MB 326.0
- MTU: MTL 5048
- Opel/GM: B 040 0240

Meets or exceeds the following quality criteria:
- Porsche: For 924, 928, 944, 968
- Saab: 6901599
- VW TL-774-C (G 11)
- ASTM D3306 Type I
- ASTM D4985
- BS 6580:2010
- JIS K 2234:2006
- SAE J1034

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7770</td>
<td>1.122</td>
<td>Cyan</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>

## Neste Pro+ Coolant B Ready

**Long change interval multi-brand coolant, ready to use**

Meets or exceeds the following quality criteria:
- BMW N 600 69.0
- Deutz: H-LV 0161 0188
- MAN 324-NF
- MB 325.0
- MB 326.0
- MTU: MTL 5048
- Opel/GM: B 040 0240

Meets or exceeds the following quality criteria:
- Porsche: For 924, 928, 944, 968
- Saab: 6901599
- VW TL-774-C (G 11)
- ASTM D3306 Type III
- ASTM D4985
- BS 6580:2010
- JIS K 2234:2006
- SAE J1034

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7771</td>
<td>1.072</td>
<td>Cyan</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>

## Neste Pro+ Coolant M

**Long change interval multi-brand coolant concentrate**

Meets or exceeds the following quality criteria:
- Cummins CES 14603
- Deutz DOC CC-14
- Liebherr Minimum LH-01-COL3A
- MAN 324 Type Si-OAT
- MB 326.5
- MB 326.6
- MB-Approval 325.5
- MB-Approval 325.6

Meets or exceeds the following quality criteria:
- MTU MTL 5048
- Porsche: MY 1996-
- Scania 2008-
- VW TL-774G (G12++)
- ASTM D3306 Type I
- ASTM D4985
- BS 6580:2010
- JIS K 2234:2006
- SAE J1034

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7774</td>
<td>1.125</td>
<td>Purple</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>

## Neste Pro+ Coolant M Ready, Coolant M 50 %

**Long change interval multi-brand coolant, ready to use**

Meets or exceeds the following quality criteria:
- Cummins CES 14603
- Deutz DOC CC-14
- Liebherr Minimum LH-01-COL3A
- MAN 324 Type Si-OAT
- MB 326.5
- MB 326.6
- MB-Approval 325.5
- MB-Approval 325.6

Meets or exceeds the following quality criteria:
- MTU MTL 5048
- Porsche: MY 1996-
- Scania 2008-
- VW TL-774G (G12++)
- ASTM D3306 Type III
- ASTM D4985
- BS 6580:2010
- JIS K 2234:2006
- SAE J1034

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7775</td>
<td>1.062</td>
<td>Purple</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>
Long change interval coolant concentrate
Meets or exceeds the following quality criteria:
TL-774J (G13)
TL-774C (G11)
TL-774F (G12+)
TL-774G (G12++)

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7776</td>
<td>1,140</td>
<td>Red</td>
<td>-35 °C</td>
</tr>
</tbody>
</table>

Long change interval coolant, ready to use
Meets or exceeds the following quality criteria:
TL-774J (G13)
TL-774C (G11)
TL-774F (G12+)
TL-774G (G12++)

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7777</td>
<td>1,077</td>
<td>Red</td>
<td>-35 °C</td>
</tr>
</tbody>
</table>

Long change interval multi-brand coolant concentrate
Meets or exceeds the following quality criteria:
Mack 014 GS 17009
Man 324 Type SNF
Mack 3624
MB-Approval 325.3
MB 326.3
MEZ MN 121 D
MTL 5048
Renault 41-01-001/- -S Type D
Saab B 040 1065
VW TL-774 F (G12+)

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7767</td>
<td>1,113</td>
<td>Red</td>
<td>-40 °C</td>
</tr>
</tbody>
</table>

Long change interval multi-brand coolant, ready to use
Meets or exceeds the following quality criteria:
Mack 014 GS 17009
Man 324 Type SNF
Mack 3624
MB-Approval 325.3
MB 326.3
MEZ MN 121 D
MTL 5048
Renault 41-01-001/- -S Type D
Saab B 040 1065
VW TL-774 F (G12+)

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7768</td>
<td>1,068</td>
<td>Red</td>
<td>-40 °C</td>
</tr>
</tbody>
</table>
### Neste Pro Coolant K

**Meets or exceeds the following quality criteria:**
- Ford specification WSS-M97B44-D
- Volvo VCS

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7772</td>
<td>1.113</td>
<td>Yellow</td>
<td>-40 °C</td>
</tr>
</tbody>
</table>

### Neste Pro Coolant K Ready

**Meets or exceeds the following quality criteria:**
- Ford specification WSS-M97B44-D
- Volvo VCS

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7778</td>
<td>1.068</td>
<td>Yellow</td>
<td>-40 °C</td>
</tr>
</tbody>
</table>

### Neste Pro Coolant N

**Meets or exceeds the following quality criteria:**
- Toyota TSK 2601G-8A
- MB 325.3
- Mitsubishi
- VW TL 774-D/F (G12/G12+)
- BS 6580:2010
- ASTM D3306 Type I
- ASTM D4985
- JIS K 2234:2006
- SAE J1034

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7765</td>
<td>1.124</td>
<td>Purple</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>

### Neste Pro Coolant N Ready

**Meets or exceeds the following quality criteria:**
- Toyota TSK 2601G-8A
- MB 325.3
- Mitsubishi
- VW TL 774-D/F (G12/G12+)
- BS 6580:2010
- ASTM D3306 Type I
- ASTM D4985
- JIS K 2234:2006
- SAE J1034

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7766</td>
<td>1.073</td>
<td>Purple</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>
### Neste Special Coolant

**Coolant concentrate**

Meets or exceeds the following quality criteria:
- ASTM D3306 Type I
- BS 6580:2010

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7756</td>
<td>1,131</td>
<td>Green</td>
<td>-35 °C</td>
</tr>
</tbody>
</table>

### Neste Special Coolant Ready

**Ready-to-use coolant**

Meets or exceeds the following quality criteria:
- ASTM D3306 Type III
- BS 6580:2010

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7757</td>
<td>1,067</td>
<td>Green</td>
<td>-35 °C</td>
</tr>
</tbody>
</table>

### Neste Pro Coolant Bio

**Biodegradable long change interval coolant concentrate**

Meets or exceeds the following quality criteria:
- ASTM D3306 Type II
- ASTM D5216
- ASTM D6210 Type II-FF

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7760</td>
<td>1,042</td>
<td>Green</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>

### Neste Pro Coolant Bio Ready

**Biodegradable long change interval coolant, ready to use**

Meets or exceeds the following quality criteria:
- ASTM D3306 Type IV
- ASTM D5216
- ASTM D6210 Type IV-FF

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Color</th>
<th>Freeze protection of the coolant diluted for use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7761</td>
<td>1,039</td>
<td>Green</td>
<td>-38 °C</td>
</tr>
</tbody>
</table>
Brake fluid

Neste Pro Brake Fluid

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Cold viscosity cP/-40 °C</th>
<th>Boiling point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7921</td>
<td>1,060</td>
<td>max. 700</td>
<td>265 °C</td>
</tr>
</tbody>
</table>

Top quality brake fluid

Meets or exceeds the following quality criteria:
- ABS/ESP/ACC/TCS/DSC

Wide range of applications
- Good heat resistance
- Excellent corrosion protection of different metals
- Compatible with different seal and gasket materials

Windshield washing fluids

A great deal is demanded from windshield washing fluids used in vehicles. It must keep the windshield clean of dirt all year around and protect the windshield wipers from soiling. It must not foam or form a film on the windshield. In addition, it must prevent freezing of the washing system during cold seasons.

All windshield washing fluids in the Voltera range are ethanol-based and eco-friendly and do not contain poisonous methanol. In addition to good freeze resistance, they share good technical and operating properties: they are long-lasting, suit year-round use, are easy to pour from the packaging and have a pleasant odor. Undiluted fluid can also be used for cleaning soiled windshield wipers.

Neste Voltera Pro

Protective windshield washer fluid, ready to use

<table>
<thead>
<tr>
<th>Product number</th>
<th>Freeze resistance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7643</td>
<td>-21 °C</td>
</tr>
</tbody>
</table>

Improves driving safety
- Cleans and protects the windshield
- Excellent visibility even in torrential rain
- Does not contain toxic methanol

Neste Voltera Strong

Windshield washer fluid concentrate

<table>
<thead>
<tr>
<th>Product number</th>
<th>100%</th>
<th>1:1</th>
<th>1:2</th>
<th>1:3</th>
<th>1:4</th>
</tr>
</thead>
<tbody>
<tr>
<td>7640</td>
<td>-80 °C</td>
<td>-30 °C</td>
<td>-17 °C</td>
<td>-11 °C</td>
<td>-8 °C</td>
</tr>
</tbody>
</table>

Cleans the windshield efficiently
- Economical to use
- Protects the windshield washing equipment from freezing
- Does not contain toxic methanol
Neste Voltera Citrus Ready

Windshield washer fluid with lemon odor, ready to use

- Cleans the windshield efficiently
- Protects the windshield washing equipment from freezing
- Does not contain toxic methanol

<table>
<thead>
<tr>
<th>Product number</th>
<th>Freeze resistance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7642</td>
<td>-20 °C</td>
</tr>
</tbody>
</table>

Neste Voltera Ready

Windshield washer fluid, ready to use

- Cleans the windshield efficiently
- Protects the windshield washing equipment from freezing
- Does not contain toxic methanol

<table>
<thead>
<tr>
<th>Product number</th>
<th>Freeze resistance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7641</td>
<td>-20 °C</td>
</tr>
</tbody>
</table>

Neste Voltera Summer Ready

Windshield washer fluid for summer, ready to use

- Efficiently cleans off insects and summer dirt
- Almost odorless

<table>
<thead>
<tr>
<th>Product number</th>
</tr>
</thead>
<tbody>
<tr>
<td>7649</td>
</tr>
</tbody>
</table>
**AdBlue**

AdBlue urea solution

Meets or exceeds the following quality criteria:
ISO 22241

<table>
<thead>
<tr>
<th>Product number</th>
<th>Density kg/m³</th>
<th>Urea content:</th>
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</thead>
<tbody>
<tr>
<td>7862</td>
<td>1.089</td>
<td>32.5% by weight</td>
</tr>
</tbody>
</table>

**Detergents**

**Neste Shampoo**

Vehicle and machine detergent

- Efficient basic detergent
- Excellent removal of oil, grease, road salt and soot
- Tender to different materials

<table>
<thead>
<tr>
<th>Product number</th>
<th>Dosing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7591</td>
<td>5–20%</td>
</tr>
</tbody>
</table>

**Neste PreWash**

Pre-wash agent for vehicles

- Efficient removal of grease and bitumen
- Readily biodegradable

Product number

7600
<table>
<thead>
<tr>
<th><strong>Other products</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neste Pro 4T small-engine gasoline</strong></td>
</tr>
<tr>
<td>Alkylate gasoline for four-stroke engines</td>
</tr>
<tr>
<td>- Almost odorless</td>
</tr>
<tr>
<td>- Long storage life</td>
</tr>
<tr>
<td>- Best for your engine</td>
</tr>
<tr>
<td>Product number</td>
</tr>
</tbody>
</table>

| **Neste Pro 2T small-engine gasoline** |
| Alkylate gasoline for two-stroke engines | - Clean combustion |
| - Almost odorless |
| - Long storage life |
| - Best for your engine |
| Product number | 7961 |

| **Neste Valopetrol** |
| High-quality Wallas-approved heating fuel that is free of aromatics and sulfur. Smoke point at least 35 mm. | - Almost odorless |
| - Clean combustion |
| Product number | 7652 |
**Solvents**

We provide clean hydrocarbon-based solvents for industrial use. Typical uses include paint and glue production, cleaning, grease removal and extraction processes and various uses in rubber industry. Solvents are available in pre-packaged and bulk deliveries.

<table>
<thead>
<tr>
<th>Product number</th>
<th>Product number</th>
<th>Product number</th>
<th>Product number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1370</td>
<td>1374</td>
<td>1371</td>
<td>1373</td>
</tr>
</tbody>
</table>

**Nessol solvents**

**Nessol Heptane**

Heptane-type quickly evaporating aromatics-free hydrocarbon solvent, “purified gasoline”.

**Nessol D40**

White spirit -type hydrocarbon solvent, also known as mineral spirit and petroleum spirit.

**Nessol D60**

Specially refined slowly evaporating aromatics-free hydrocarbon solvent.

**Nessol 40**

Specially refined white spirit -type aromatics-free hydrocarbon solvent.
## Emulsifiable hydrocarbon solvents

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Nessol 40E</strong></td>
<td>Hydrocarbon solvent quickly emulsifying in water, cleans surfaces of road salt, bitumen, grease and other dirt.</td>
</tr>
<tr>
<td>Product number</td>
<td>1372</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nessol D60E</strong></td>
<td>Aromatics-free slowly evaporating hydrocarbon solvent emulsified in water, which can be used as is or mixed with water. Enables rinsing with water. Separates in phases in 45 minutes.</td>
</tr>
<tr>
<td>Product number</td>
<td>1375</td>
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</tbody>
</table>

## Printing ink detergents

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Neste LIPA 1</strong></td>
<td>Easily evaporating aromatics-free printing ink detergent.</td>
</tr>
<tr>
<td>Product number</td>
<td>7571</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neste LIPA 2</strong></td>
<td>Slowly evaporating aromatics-free printing ink detergent. Evaporation time twice of that of LIPA 1.</td>
</tr>
<tr>
<td>Product number</td>
<td>7572</td>
</tr>
</tbody>
</table>

## Isopropanol

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neste Isopropanoli</strong></td>
<td>Colorless liquid, miscible with water and most organic solvents in all ratios.</td>
</tr>
<tr>
<td>Product number</td>
<td>7505</td>
</tr>
<tr>
<td>Old product name</td>
<td>Old product number</td>
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<tr>
<td>------------------------</td>
<td>-------------------</td>
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<tr>
<td>Neste Pro+ F 0W-30</td>
<td>1182</td>
</tr>
<tr>
<td>Neste City Pro F 5W-20</td>
<td>0132</td>
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<tr>
<td>Neste City Pro 0W-20</td>
<td>0130</td>
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<tr>
<td>Neste City Pro W Longlife III 5W-30</td>
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<tr>
<td>Neste City Standard 5W-30</td>
<td>0445</td>
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<tr>
<td>Neste City Pro C2 0W-30</td>
<td>0141</td>
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<tr>
<td>Neste City Pro C2 5W-30</td>
<td>0139</td>
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<td>Neste City Pro C2/C3 5W-30</td>
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<td>Neste Turbo E6 10W-40</td>
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<td>Neste MC Pro 10W-40</td>
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<td>Neste Turbine GT 68</td>
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<tr>
<td>Neste Turbine GT 68 EP</td>
<td>3095</td>
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Unique performance for Nordic conditions.

Sales and marketing

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