

SYNTHESO D EP oils

Synthetic high-performance gear oils

This product series is discontinued – please use Klübersynth GH 6 as replacement



Benefits for your application

- **Synthetic high-performance gear oils**
 - **Excellent scuffing load capacity**
 - **Excellent wear protection**
 - **Reduce friction**
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Description

SYNTHESO D/EP oils are synthetic high-performance gear oils on a polyglycol basis. They have a very high scuffing load capacity and provide reliable protection against wear. In addition, they have passed the FZG-L-42 scuffing load test for hypoid gear oils. SYNTHESO D/EP oils are especially resistant to ageing and have a good viscosity-temperature relation.

Application

SYNTHESO D/EP oils are used for the lubrication of steel/steel gear systems. They are especially suitable for extreme requirements in terms of wear protection and scuffing load capacity, e.g. in bevel, spur and worm gears subject to shock loads, and in hypoid gears. SYNTHESO D/EP oils are frequently used in high-speed worm gears and gears with a long center distance. In addition, they are used in rolling bearings and gear couplings. Owing to their special polyglycol base oils, they reduce the friction coefficient. When carefully selecting a suitable viscosity grade, it is possible to increase efficiency, decrease temperatures and ensure long-term lubrication.

Application notes

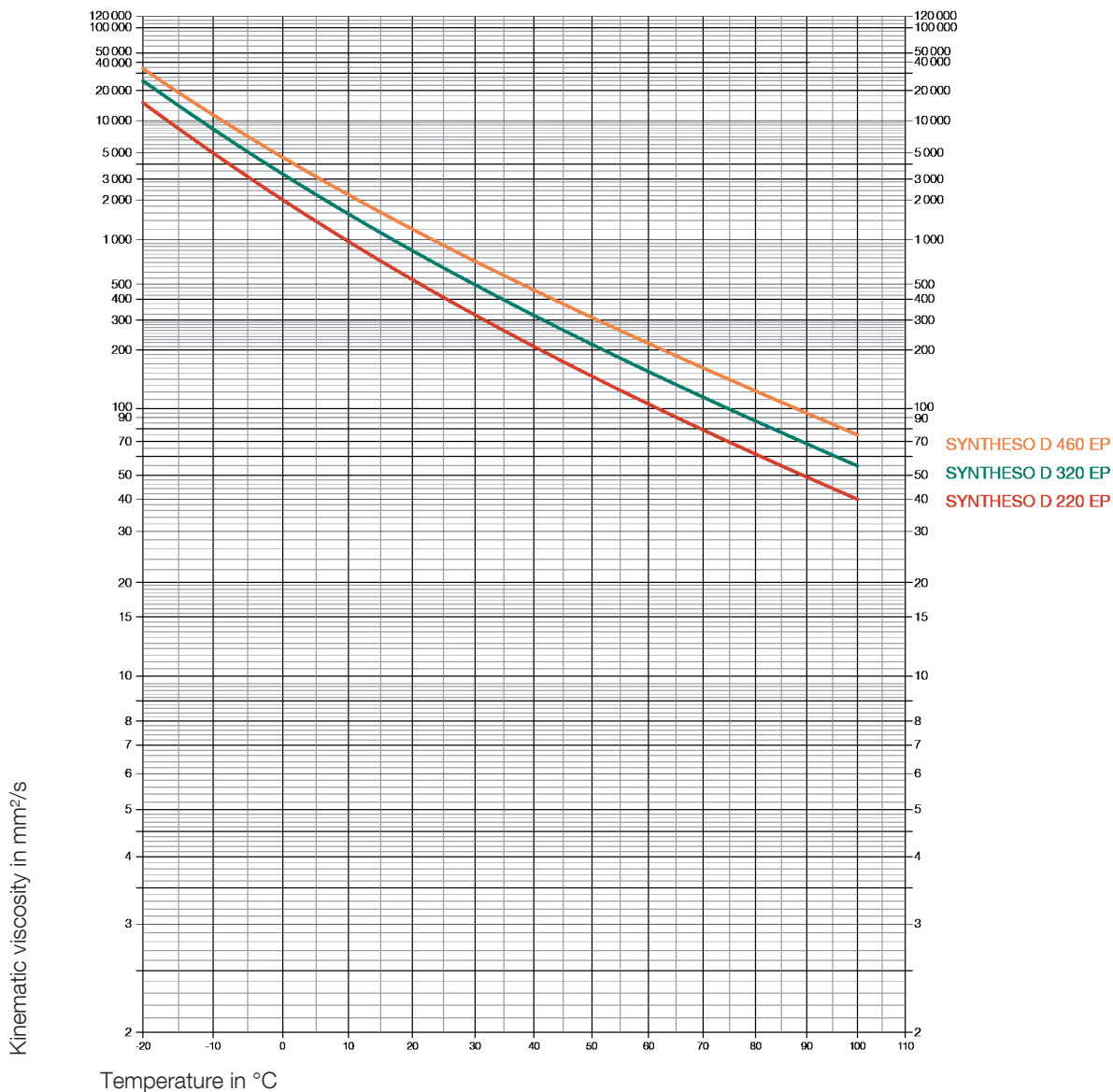
SYNTHESO D/EP oils are suitable for immersion, immersion circulation, and injection lubrication. In case of automatic

lubrication systems it is important to observe the manufacturer's instructions on maximum viscosity levels. SYNTHESO D/EP oils are not miscible with mineral oils and synthetic hydrocarbons. We recommend cleaning the lubrication points prior to conversion, and rinsing gears or closed lubrication systems with the SYNTHESO D/EP oil that will be used for lubrication. SYNTHESO D/EP oils are neutral towards ferrous materials and almost all non-ferrous metals. There may be increased wear when the contact surfaces of design elements made of aluminium or aluminium alloys are exposed to dynamic loads (sliding speed and high loads). If necessary, wear tests should be carried out. Depending on the temperature and exposure time, synthetic lubricants on a polyglycol base may have an impact on the functional capacity of rubber-elastic sealing materials. Seals made of NBR materials (acrylonitrile-butadiene-rubber) can be used at permanent temperatures up to 100 °C (corresponds to the temperature limit of SYNTHESO D/EP oils). It has to be taken into account that different elastomer qualities produced by one manufacturer or different manufacturers may show a different behaviour. Paints may be attacked by synthetic lubricants. When applying SYNTHESO D/EP oils we recommend the use of two-component paints (reactive paints) for interior coating. Oil gauge glasses should preferably be made of natural glass or polyamide materials. Other transparent plastics, e.g. Plexiglas, have a tendency to crack under stress. We recommend testing the suitability of design materials in contact with the selected lubricants, especially for series application.

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By operating oil temperature, we understand the oil sump temperature or the temperature of the injected oil. The expected operating oil temperature is calculated by determining the gear's thermal economy, taking into account the produced losses or, in the case of gears already installed, by measuring the

temperature. It might be required to select a lower viscosity to ensure lubricant supply during a cold start and at low ambient temperatures. It is necessary to check in each individual case the viscosity at the existing starting temperature (especially in the case of circulation lubrication), or to test the component at the expected starting temperature (especially in the case of immersion lubrication).



Material safety data sheets

Material safety data sheets can be downloaded or requested via our website www.klueber.com. You may also obtain them through your contact person at Klüber Lubrication.

Pack sizes	SYNTHESO D 220 EP	SYNTHESO D 320 EP	SYNTHESO D 460 EP
Canister 20 kg	-	-	-
Drum 180 kg	+	+	+

Product data	SYNTHESO D 220 EP	SYNTHESO D 320 EP	SYNTHESO D 460 EP
Article number	012056	012125	012068
Upper service temperature	100 °C / 212 °F	100 °C / 212 °F	100 °C / 212 °F
Lower service temperature	-30 °C / -22 °F	-30 °C / -22 °F	-30 °C / -22 °F
ISO viscosity grade, DIN ISO 3448	220	320	460
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 38 mm ² /s	approx. 60 mm ² /s	approx. 78 mm ² /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 220 mm ² /s	approx. 320 mm ² /s	approx. 460 mm ² /s
Density, DIN 51757, 20 °C	approx. 1.05 g/cm ³	approx. 1.05 g/cm ³	approx. 1.05 g/cm ³
Viscosity index, DIN ISO 2909	>= 210	>= 230	>= 230
Pour point, DIN ISO 3016	<= -35 °C	<= -30 °C	<= -30 °C
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 200 °C	>= 200 °C	>= 200 °C
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months	24 months	24 months



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Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.

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