



INDUSTRIAL HIGH-PERFORMANCE GEAR OILS

ADDINOL ECO GEAR 150 S, 220 S, 320 S, 460 S, 680 S

PRODUCT DESCRIPTION

ADDINOL Eco Gear ... S are silicone free high-performance gear oils based on synthetic components (PAO) and a specially developed additivation (Surftec[®] technology).

Application temperature range: -30°C up to +120°C, short term temperature peaks up to +150°C.

APPLICATION

- Excellent suitability for the lubrication of closed industrial gears of different types of construction
- Fit for the lubrication of roller and sliding bearings
- Preferred use for low to highest specific loads of the friction pairings and dynamic stress cycles as well as critical thermal conditions in a very wide temperature range
- Usable for the lubrication of denture clutches, guide ways, joints and circulation lubrication systems of any type or operating condition
- **Highly suitable for wind power plants**
- Excellent suitability under boundary and mixed friction conditions

SPECIFICATIONS / APPROVALS

Exceed the requirements on lubricating oils:

- ISO 12925-1 / ISO 6743-6 (CKC / CKD) / CKE / CKSMP
- DIN 51517-3 (CLP)
- ANSI/AGMA 9005-F16

Viscosity grading according to:

- DIN ISO 3448

Approved by:

- David Brown Santasalo MDI-170-E-EN
- FLENDER / SIEMENS
- Pekrun: factory standard 8053
- WINERGY for Servicefill (ISO VG 320)
- Zeilfelder Pumpen (CLP) (ISO VG 220)
- ZF-TE M 27
- For further approvals view the Eco Gear approval list

DELIVERY

Delivery preferable in drums and 20L cans.

CHARACTERISTICS

- ADDINOL Surftec[®] technology
- Best wear protection
- Reliable corrosion protection against steel and nonferrous metals
- Decrease of the friction coefficient and power loss as well as lowering of the oil sump temperature
- Synthetic base oil
- Free from solids and silicone

ADVANTAGES AND BENEFITS

- **Reliable prevention of micro-pitting and pitting as well as re-smoothing of surface damages**
- **High scuffing load capacity also under low peripheral speed and mixed friction conditions**
- **Distinct extension of the operating time of machine elements and industrial devices**
- **Low thermal stress on all gear components**
- **Longer oil change intervals because of lower loads**
- **Significant increase of the lubricant lifetime of high operating temperatures**
- **No restrictions on application of roller and sliding bearings as well as filters and centrifuges**





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SPECIFICATIONS AND TYPICAL PARAMETERS

Feature	Test condition / unit		150 S	220 S	320 S	460 S	680 S	Method acc. to
ISO viscosity grade			150	220	320	460	680	DIN ISO 3448
Density	at 15°C	kg/m ³	869	876	880	884	890	DIN 51757
Viscosity	at 40°C	mm ² /s	149	220	315	450	680	ASTM D 7042
	at 100°C	mm ² /s	18.5	24.5	33	40	51	
Flash point	COC	°C min.	238	240	245	235	230	DIN EN ISO 2592
Pour point		°C max.	-41	-42	-43	-40	-38	ASTM D 7346
FE8 roller bearing lubricant test	wear of roller bearing	mg	m _{w50} < 5					DIN 51819
Corrosion protection on steel	Method A/B	Corr. level	Passed (0)					DIN ISO 7120
Corrosivity on copper	at 100 °C, 3h	Corr. level	1					DIN ISO 2160
Micropitting test	C/8.3/90 C/8.3/60	Load stage	≥ 10 (high)					FVA Nr. 54
Scuffing load capacity (FZG)	A/8.3/90 A/16.6/120	Load stage	> 14 > 12					ISO 14635-1
	A10/16.6R/120	Load stage	≥ 10					ISO 14635-2
Foaming characteristics	at 24°C	ml / ml	0 / 0					ASTM D 892
	at 93.5°C	ml / ml	0 / 0					
	at 24°C after 93.5°C	ml / ml	0 / 0					
Foam and air separation characteristics in Flender foam test	Volume increase, 1 min, % Oil-air-mixture, 5 min, %		< 15 < 10					ISO 12152
VKA welding load		N	3400		3600			DIN 51350-2
Brugger		N / mm ²	> 75		> 80			DIN 51347

ADDINOL - The Experts for High-Performance Lubricants

We at ADDINOL develop and produce more than 600 high-performance lubricants of the new generation. Among these are automotive lubricants for highest demands and pioneering developments for industrial applications. Our customers all over the world benefit from the high and stable quality of our ADDINOL high-performance lubricants, our know-how and the individual customer advisory service of our competent experts. Our company has world wide activities. ADDINOL high-performance lubricants are distributed by more than 120 international partners.

The data given in this product sheet represent our current level of knowledge and experience. Due to the various specific application they do, however, not discharge the user from his own examination. The information provided herein may not be used to derive a legally binding warranty of specific properties or the suitability for a certain purpose of application. Detailed security-concerning and toxicological data as well as security instructions for each product can be taken from the corresponding Material Safety Data Sheets (MSDS). High-performance lubricants from ADDINOL are under continuous development. Therefore, ADDINOL Lube Oil GmbH keeps the right to change technical data in this product data sheet without notification. In case of doubt, please do not hesitate to contact our customers' advisory service.