



ADVANCED SYNTHETIC AVIATION TURBINE OIL

O-163 – MIL-PRF-7808 L Gr. 4

Description

Turbonycoil 400 is a lubricating oil with a viscosity of 4 cSt at 100°C. It is based on polyol esters with high thermal stability, fortified with carefully selected anti-oxidant, anti-wear and anti-corrosion additives. Because of its special formulation, new Turbonycoil 400 has naturally a light dark colour.

Application

Turbonycoil 400 is primarily designed for the latest generation of jet turbine engines that will be used in the XXIst century aircraft, such as the F-22 Raptor. It features the best available turbine oil for military aircraft, with a viscosity of 4 cSt at 100°C, tailored to maximise protection against wear and offer a very good fluidity at low temperature. Its unique anti-oxidant package enables Turbonycoil 400 to withstand extremely high temperature without degradation, nor formation of coke, sludge or varnish.

Turbonycoil 400 has been used since 1999 by two Air Force, as an alternative to MIL-PRF-7808 Gr. 3 on Lockheed Martin F-16 in Turkey, and as an alternative to Mil-PRF-23699 Class STD on Boeing F-18 in Canada (due to the cold climate in that country). The Canadian Air Force has reported a significant decrease in maintenance cost of the accessory gearbox drive using Turbonycoil 400 compared to a competitor product.



Characteristic	Unit	Result	Limit*	Test method
- Density at 20°C	kg/dm ³	0.962	report	ASTM D4052
- Kinematic viscosity at 100°C 40°C	mm ² /s	4.01 17.8	min. 4.0 min. 17.0	ASTM D 445
- Viscosity at -51°C after 35 minutes after 3 hours viscosity change after 3 hours	mm ² /s %	19200 19300 0.5	max. 20000 max. 20000 max. 6.0	ASTM D2532
- Flash point, COC	°C	240	min. 210	ASTM D 92
- Acid number	mg KOH/g	0.14	max. 0.50	ASTM D 664
- Evaporation loss 6 h 30 at 204°C Mass fraction	%	6.7	max. 15.0	ASTM D 972
- Foaming characteristics Foam volume (after) at 24°C 5 minutes aeration foam collapse time	ml s	18 3	max. 100 max. 60	FTM-S-791-3213
- Thermal stability 96 h at 274°C change of viscosity at 40°C acid number change steel weight change	% mg KOH/g mg/cm ²	- 0.3 2.1 0.3	max. 5.0 max. 6.0 max. 4.0	FTM-S-791-3411
- Oxidation and corrosion test 40 h at 220°C change of viscosity at 40°C acid number change specimen weight change Aluminium Silver Iron Iron / M50 Titanium Bronze Magnesium Deposits Evaporation	% mg KOH/g mg/cm ² mg/cm ² mg/cm ² mg/cm ² mg/cm ² mg/cm ² % m % m	+12.2 3.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	-5.0 to +25.0 max. 4.0 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.4 max. +/- 0.4 max. 0.2 max. 4.0	ASTM D4636

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The values above are typical values. They do not constitute any contractual commitment.
Sales specifications are available on request. The present technical data sheet replaces all the previous editions.



Turbonycoil 400

Characteristic	Unit	Result	Limit*	Test method
- Metal trace content				
Si	mg/kg	0.6	max. 2.0	ICP
Sn	mg/kg	0.0	max. 1.0	
Ti	mg/kg	0.0	max. 1.0	
Ni	mg/kg	0.0	max. 2.0	
Fe	mg/kg	0.0	max. 2.0	
Mg	mg/kg	0.0	max. 2.0	
Al	mg/kg	0.3	max. 2.0	
Cu	mg/kg	0.0	max. 1.0	
Ag	mg/kg	0.0	max. 1.0	
Cr	mg/kg	0.0	max. 2.0	
- Rubber swelling AMS 3217/1 168 h at 70°C	% vol.	22	12 to 35	FTM-S-791-3604
- Contamination particles	mg/dm ³	0.3	max. 5.0	FTM-S-791-3013
filtration time	min./dm ³	15	max. 30	
- Corrosion test at 232°C silver	mg/cm ²	- 1.1	max. +/- 4.50	FTM-S-791-5305
bronze	mg/cm ²	- 1.1	max. +/- 4.50	
- Lead corrosion test	g/m ²	- 0.4	max. 9.3	FTM-S-791-5321

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