The Perfect Partners

AeroShell

GREASE 33MS

"A powerful new addition to the AeroShell Grease range of products."

AeroShell Grease 33MS is an extreme pressure (EP) grease based on the proven lithium complex technology of AeroShell Grease 33, fortified with 5% Molybdenum Disulphide.

It possesses enhanced anti-wear and anti-corrosion properties and is particularly suitable for lubricating heavily loaded sliding steel surfaces, e.g. bogie pivot pins on aircraft landing gear assemblies.

PROPERTIES		MIL-G-21164D	TYPICAL
Oil type		-	Synthetic hydrocarbon/Ester
Thickener type		-	Lithium Complex
Base oil viscosity mm^2/s			
@ –40°C		-	1840
@ 40°C		-	14.2
@ 100°C		-	3.4
Useful operating temperature range	°C	-	–73 to +121
Drop point	°C	165 min	234
Worked penetration @ 25°C		260 to 310	281
Unworked penetration @ 25°C		200 min	288
Worked stability (100,000strokes)		260 - 375	309
Bomb oxidation pressure drop			
@ 100 hrs	kPa (psi)	68.9 (10) max	10.3
@ 500 hrs	kPa (psi)	103.4 (15) max	34.5
Oil separation @ 100°C in 30 hrs	%m	5 max	2.29
Water resistance test loss @ 40°C	%m	20 max	3.39
Evaporation loss in 22hrs @ 100°C	%m	2.0 max	0.65
Low Temperature Torque @ -73°C			
Starting torque	Nm	0.98 max	0.50
1hr running torque	Nm	0.098 max	0.060
Anti-friction bearing performance @ 121°C hrs		1000 min	>1000 (on all 4 runs)
Extreme pressure properties - load wear index		50 min	57.49
Copper corrosion 24hr @ 100°C		1b max	1b
Rust prevention/Bearing protection 2 days @ 52°C		Must pass	Passes, no corrosion
Colour		-	Dark grey

The benefits of Grease 33MS include:

- Improved anti-wear and corrosion resistance over AeroShell Grease 17, which may result in longer component lives and reduced maintenance costs.
- It is fully compatible with AeroShell Grease 33, so reduces the risks and problems associated with misapplication.
- Load carrying and EP properties equal to that of the well established AeroShell Grease 17.
- Fully approved to MIL-G-21164D.
- A direct alternative to AeroShell Grease 17 but when changing from (clay-based) ASG 17 to (Li-complex based) ASG 33MS, the normal rules on grease changing should be applied.

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AeroShell GREASE 33

SPECIFICATIONS	
U.S.	Approved MIL-PRF-23827C (Type I) Meets SAE AMS 3052
British	Approved DEF STAN 91-53/3
French	Equivalent DCSEA 354/A
Russian	Analogue of ERA and OKB-122-7
NATO Code	G-354
Joint Service Desig.	XG-287
Boeing	Approved BMS 3-33B
Airbus	Approved AIMS 09-06-002

AeroShell Grease 33 is a synthetic universal airframe grease composed of a lithium complex thickened synthetic base oil with corrosion and oxidation inhibitors and load carrying additives.

For many years aircraft operators have been seeking to rationalise grease usage on the airframe and to reduce the number of different greases in their inventories. Boeing addressed this need by developing the BMS 3-33 specification for a non-clay based grease that would provide longer life for components and mechanisms and possess improved wear and corrosion resistance.

Owing to the wide range of operating temperatures, loads and other environmental conditions experienced by various aircraft components, several different types of grease with different performance properties have been required. Boeing's aim, in developing their BMS 3-33 specification, was to define a single, General Purpose grease which met the majority of these requirements whilst providing enhanced corrosion inhibition and load-carrying ability.

This philosophy has been adopted more widely with the issue of Airbus specification AIMS 09-06-002 and industry specification SAE AMS 3052.

AeroShell Grease 33 was the first grease to be approved to BMS 3-33 and AIMS 09-06-002 and continues to offer the improved performance required by these specifications.

AeroShell Grease 33 can be used for routine lubrication on all aircraft types in applications where MIL-PRF-23827C (Type I) grease is specified.

Use of the AeroShell Grease 33 can provide operators with the following benefits:

- Reduced inventories
- Easier maintainability (one major grease for most applications)
- Lower maintenance costs (less wear and corrosion)
- Less chance of product mis-application

PROPERTIES		BMS 3-33B	TYPICAL
Oil type		Synthetic hydrocarbon/Ester	Synthetic hydrocarbon/Ester
Thickener type		Lithium Complex	Lithium Complex
Base oil viscosity mm^2/s			
@ –40°C		-	1840
@ 40°C		-	14.2
@ 100°C		-	3.4
Useful operating temperature range	°C	–73 to +121°C	–73 to +121°C
Drop point	°C	-	216
Worked penetration @ 25°C		265 to 315	297
Unworked penetration @ 25°C		-	290
Bomb oxidation pressure drop fr. 758kPa (110psi) @99°C			
@ 100 hrs	kPa (psi)	70 (10) max	3.5 (0.5)
@ 500 hrs	kPa (psi)	105 (15) max	34 (5)
Oil separation @ 100°C in 30 hrs	%m	-	2.0
Water resistance test loss @ 79°C	%m	10 max	<6
Evaporation loss 500hr @ 121°C	%m	10 max	<10
Load Wear Index	kg	60 min	69
Anti-friction bearing performance @ 121°C hrs		1000 min	1200+
Copper corrosion 24hrs @ 100°C		Must pass	Passes
Dynamic anti-rust test (salt water)		Must pass	Passes
Colour		Blue-green	Green