



Product Data

Molub-Alloy 860 Range

High-performance grease

Description

Castrol Molub-Alloy™ 860 ES greases are high-performance multi-service lithium complex greases formulated from premium petroleum base oils, lubricating solids and a combination of corrosion inhibitors specifically chosen for protection against corrosive process waters. These are designed to extend the service life of bearings in heavy-duty applications and at elevated temperatures. Molub-Alloy 860 ES greases provide an appropriate oil film for applications at slower to moderate speeds, higher loads, and/or higher temperatures sustained for longer periods of time. The load-carrying and anti-wear capabilities of Molub-Alloy 860 ES greases exceed conventional complex greases. High-performance is the result of chemical additives working synergistically with select Molub-Alloy lubricating solids which are dispersed uniformly throughout the grease. These lubricating solids offer their greatest benefit at slow speeds or when bearings endure heavy loads and shocks. Solids also protect newly machined bearing surfaces during the critical period of 'running in'. Good bearing surfaces are essential for long service life.

Application

Primary metals, including steel – use Molub-Alloy 860 ES greases near hot ingots, soaking pits, and reheat furnaces to lubricate pit cover carriages, mill stand screws, slipper couplings, roll bearings, manipulators and guide rolls for continuous casters. Paper and forest products – on paper machines, use Molub-Alloy 860 ES greases on the 'wet end' couch, suction, and press roll bearings where water wash, corrosive process waters, and high temperatures are present. Molub-Alloy 860 ES greases have been used successfully in all heavy-duty industry applications including anti-friction bearings, bushings, mill rolls and couplings.

- Molub-Alloy 860/150 ES greases should be used when loads are moderate-to-heavy, temperatures are elevated (up to 204°C/400°F) and speeds are moderate-to-high.
- Molub-Alloy 860/220 ES greases should be used when loads are moderate-to-heavy, temperatures are elevated (up to 204°C/400°F) and speeds are slow-to-moderate
- Molub-Alloy 860/460 ES greases should be used when loads are heavy, temperatures are elevated (up to 204°C/400°F) and speeds are slow

Advantages

- Excellent friction reduction characteristics due to Molub-Alloy solid lubricants – easier start-up, reduced heat, and reduced energy leading to longer bearing life.
- Exceptional water resistance – coating film stays on the surface even in presence of water, even when exposed to the action of hot and chemically active process water.
- Excellent EP and anti-wear properties – protects equipment against extreme/shock loading and helps minimize bearing component wear and hence extends equipment life.
- Excellent mechanical stability and adhesion – grease keeps its consistency in service ensuring long-term protection and reduced consumption as film stays between lubricated surfaces.
- Outstanding oxidation/thermal stability and high dropping point – provides reliable performance and extended lubricant life in high-temperature applications.
- Formulated to address environmental concerns – it is free of antimony, barium, lead, and zinc.

Typical Characteristics

Name	Method	Units	150-1 ES	150-2 ES	220-0 ES	220-1 ES	220-2 ES	460-1 ES	460-2 ES
Appearance	Visual	-	Dark grey						
Thickener type	-	-	Lithium complex						
Base oil	-	-	Mineral oil						
Consistency	ISO 2137 / ASTM D217	NLGI Grade	1	2	0	1	2	1	2
Density @ 20°C / 68°F	ASTM D4052 / DIN 51757D	kg/m³	-	-	-	883	886	887	896
Worked Penetration (60 strokes @ 25°C / 77°F)	ISO 2137 / ASTM D217	0.1 mm	310-340	265-295	355-385	310-340	265-295	310-340	265-295
Dropping point	ASTM D2265	°C/°F	260+/ 500+	260+/ 500+	-	260+/ 500+	260+/ 500+	260+/ 500+	260+/ 500+
Base Oil Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm²/s	150	150	220	220	220	460	460
Base Oil Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm²/s	14	14	16.6	16.6	16.6	28.5	28.5
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	202/397	202/397	232/450	232/450	232/450	232/450	232/450
Pour Point	ISO 3016 / ASTM D97	°C/°F	-3/26.6	-3/26.6	-3/26.6	-3/26.6	-3/26.6	-1.2/ 29.84	-1.2/ 29.84
Rust Test (distilled water)	ASTM D1743	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Rust Test - EMCOR (distilled water)	ISO 11007 / ASTM D6138	Rating	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Copper Corrosion (24 hrs, 100°C / 212°F)	ASTM D4048	Rating	1b	1b	1b	1b	1b	1b	1b
Four Ball Weld Load test - Load Wear Index (27°C / 1770 rpm)	ISO 11008 / ASTM D2596	-	60	60	60	60	60	60	60
Four Ball Weld Load test - Weld Point	ISO 11008 / ASTM D2596	kgf	500	500	500	500	500	500	500
Four Ball Wear test - Wear Scar Diameter (40 kgf / 75°C / 1200 rpm / 1 hr)	ASTM D2266	mm	0.6	0.55	0.55	0.55	0.55	0.5	0.5
Timken OK Load	ASTM D2509	kg / lbs	23/50	23/50	23/50	23/50	23/50	27/60	27/60
Roll Stability test - Shear Stability	ASTM D1831	0.1 mm	10	10	-	10	10	10	10
Water Wash-out	ISO 11009 / ASTM D1264	%wt loss	6	4	-	6	4	4	4

Additional Information

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At temperatures above 121°C/250°F, regular reapplications of 860 ES must be considered. At temperatures near 177°C/350°F, weekly reapplications of 860 ES are suggested. For continuous service near 204°C/400°F, reapply 860 ES daily.

This oil can be used in Molub-Alloy 860 ES greases which have been used above 220°C/450°F. However, frequent reapplication of grease is necessary to prevent deterioration of the petroleum base oil. Reapply before the grease in the bearing stiffens. In order to minimize potential incompatibilities when converting to a new grease, all previous lubricant should be removed as much as possible prior to operation. During initial operation, relubrication intervals should be monitored closely to ensure all previous lubricant is purged.

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