Motta™ Mining industry solutions

Unlock potential

Empowering productivity

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Introduction to the mining industry

Mining operations run in harsh conditions, facing surrounding exposed dust, dirt, and harsh operating temperatures. This challenging environment makes equipment and machinery difficult to maintain, and even faces the risk of accidental injuries and unplanned downtime. Whether you are mining rals, metals, oil sands, or coal, you want your equipment to operate efficiently and reliably, thereby increasing production efficiency, protecting the environment, and helping to ensure operational safety.

Motta Industrial Lubricants are specially formulated to protect equipment in harsh conditions. We help with reliable products and lubrication expertise

Your various Mottae or fixed equipment runs efficiently. We offer a variety of synthetic and high-performance ral oil-based products to meet the many special needs of the mining industry.

We don't just provide lubricants, we have a comprehensive Motta Serv[SM] Lubrication services can help the mining industry reduce costs, increase efficiency, and even

Under certain conditions, help reduce the impact on the environment. We understand the mining industry very well and can help you improve the operating efficiency of your mining equipment in a timely manner through personnel, products and lubrication services.

Main open-pit mining equipment

- Drill
- Dump truck
- Electric shovel (electric excavator)
- Wheel loader
- Crawler hydraulic excavator (hydraulic shovel)
- Bulldozer
- Water sprinkler
- Grader

Coal mining industry equipment operating conditions

Equipment Operation Characteristics

- Heavy load, medium and low speed operation
- Harsh environment, heavy pollution
- Compact equipment structure, small size, high power
- Continuous operation
- Inconvenient maintenance

Requirements for lubricating oil

- Suitable viscosity and viscosity-temperature characteristics
- Extreme pressure and anti-wear performance
- Shear resistance
- High temperature resistance, oxidation resistance
- Foam control performance
- Rust and corrosion protection

(Rotary/Downhole) Drill

Equipment Name	(Rotary/Downhole) Drill	
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Hydraulic System	Motta Y400 Series	Motta Y400 Series
		Motta Y300 Series
Engine	Motta Li king ™ 5W-30 /5W-40 Series	Motta li king Ck-4 15W-40
	Motta Li King 5W-40	Motta Li King 15W-40/20W-50
Transmission System		Motta HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Motta HD Series
		Motta Li King Gear Oil Series
Rock Drill Oil		Motta EAL 500
Grease Lubrication System	Motta L 1000 Series	Motta Grease HP Series
		Motta Grease HP 2 Series
		Motta EP Grease Series
Air Comprr	Motta S800 Series	Motta S800 Series

Dump Truck/Haul Truck

(Mining Heavy Duty Dump Truck)

Equipment Name	Dump Truck/Haul Truck (Mining Heavy Duty Dump Truck)	
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Engine	Motta Li King ™ 5W-30 /5W-40 Series	Motta Li King 15W-40 Ci-4
	Motta Li King 5W-40	Motta Li King 15W-40/20W-50
Hydraulic System	Motta Y400 Series	Motta Y300 Series
		Motta Y200 Series
Transmission System		Motta HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Motta HD Series
		Motta Li King Gear Oil Series
Grease Lubrication System	Motta grease Sg Series	Motta Grease HP Series
		Motta Grease HP Series
		Motta EP Grease Series

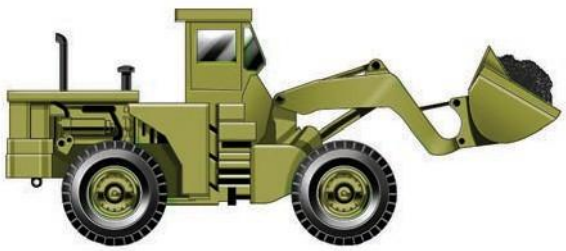
Electric Excavator (Electric Shovel)

Equipment Name	Electric Excavator (Electric Shovel)	
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Hydraulic System	Motta S800 Series	Motta S800 Series
Gearbox	Motta L800 Gear Oil Series	
Open Gear		Motta OPG Open Gear Lubricant
Grease Lubrication System	Mottaith GT Series	Motta Motta HP Series
		Motta Motta HP Series
		Motta EP EP Grease Series
Wire Rope		Motta 798
		Motta 300CN

Crawler Hydraulic Excavator (Hydraulic Shovel)

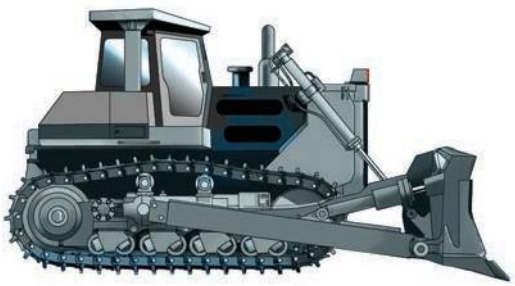
Equipment Name	Crawler Hydraulic Excavator (Hydraulic Shovel)	
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Air Comprr	Motta S800 Series	Motta S Supreme Series
Hydraulic System	Motta Y400 Series	Motta Y 300 Series
		Motta Y 200 Series
Engine	Motta Li King ™ 5W-30 /5W-40 Series	MottaLi King5W-40
	Motta Li King 5W-40	MottaLi king 15W-40/20W-50
Transmission System		Motta Trans HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Motta HD Series
		Motta Li King Gear Oil Series
Grease Lubrication System	Motta GT Series	Motta Grease HP Series
		Motta Grease HP Series
		Motta EP Grease Series

Wheel Loader



Equipment Name	Wheel Loader	
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Hydraulic System	Motta Y400 Series	Motta Y300 Series
		Motta Y200 Series
Engine	Motta Li King ™ 5W-30 /5W-40 Series	Motta Li King High Performance 15W-40
	Motta Li King 5W-40	Motta Li King 15W-40/20W-50
Transmission System		Motta Trans HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Mottaube HD Series
		Motta Li King Gear Oil Series
Grease Lubrication System	Motta GT Series	Motta Grease HP Series
		Motta Grease HP Series
		Motta EP Series

Track-Type Tractor



Equipment Name	Track-Type Tractor	
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Hydraulic System	Motta Y400 Series	Motta Y300 Series
		Motta Y200 Series
Engine	Motta Li King ™ 5W-30 /5W-40 Series	Motta Li King High Performance 15W-40
	Motta Li King 5W-40	Motta Li King 15W-40/20W-50
Transmission System		Motta Trans HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Mottaube HD Series
		Motta Li King Gear Oil Series
Grease Lubrication System	Motta GT Series	Motta Grease HP Series
		Motta Grease HP Series

Water Sprinkler Truck

Equipment Name	Water Sprinkler Truck	
Lubrication Point	Recommended Synthetic Oil	Recommended ral Oil
Hydraulic System	Motta Y400 Series	Motta Y300 Series Motta Y200 Series
Engine	Motta Li King ™ 5W-30 /5W-40 Series	Motta Li King High Performance 15W-40
	Motta Li King 5W-40	Motta Li King 15W-40/20W-50
Transmission System		Motta Trans Oil HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Mottaube HD Series Motta Li King Gear Oil Series
Grease Lubrication System	Motta GT Series	Motta Grease HP Series Motta Grease HP Series

Motor Grader

Equipment Name	Motor Grader	
Lubrication Point	Recommended Synthetic Oil	Recommended ral Oil
Hydraulic System	Motta Y400 Series	Motta Y300 Series Motta Y200 Series
Engine	Motta Li King ™ 5W-30 /5W-40 Series	Motta Li King High Performance 15W-40
	Motta Li King 5W-40	Motta Li King 15W-40/20W-50
Transmission System		Motta Trans Oil HD Series
Differential and Drive System	Motta Li King Gear Oil Series	Mottaube HD Series Motta Li King Gear Oil Series
Grease Lubrication System	Motta GT Series	Motta Grease HP Series Motta Grease HP Series

·Coal mining machine

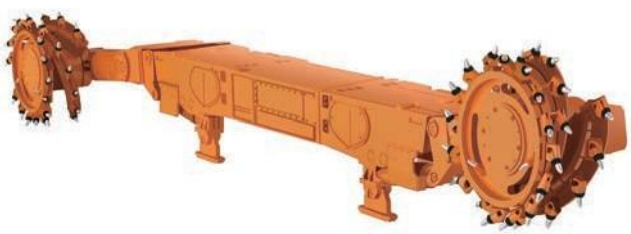
·Three machines (scraper conveyor / transfer machine / crusher)

·Pumping station

·Excavation equipment

Oil recommendation

Comprehensive mining equipment Coal mining machine



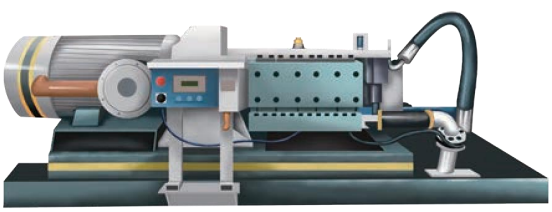
Equipment name	Coal mining machine	
Lubrication point	Recommended synthetic oil	Recommended ral oil
Rocker arm spur gear box	Motta L800 Gear Oil Series	Motta gearL500 Series
Rocker arm planetary gearbox	Motta L800 Gear Oil Series	Motta gearL500 Series
Hydraulic system		Motta Y300 Series
		Motta Y200 Series
Traction planetary gearbox	Motta L800 Gear Oil Series	Motta gearL500 Series
Crusher reducer		Motta gearL500 Series
Cutting motor	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Rocker arm hinge pin	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Traction sprocket pin	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Crusher pin	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Traction block idler pin	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series

Three Machines:

Armored Face Conveyor/Stage Loader/Crusher

Equipment Name	Three Machines: Armored Face Conveyor/Stage Loader/Crusher	
Lubrication Point	Recommended Synthetic Oil	Recommended ral Oil
Reducer	Motta L700 Series Motta L800 Gear Oil Series	Motta gearL500 Series
Motor Bearing	Motta GT ™Series	Motta Grease HP Series/ Motta Grease EP Series
Hydraulic Coupler		Motta Fluid 400
Gearbox	Motta L700 Series Motta L800 Gear Oil Series	Motta gear L500 Series
Sprocket Bearing	Motta L700 Series Motta L800 Gear Oil Series	Motta gear L500 Series

Pumping Station



Pumping Station		
Lubrication Point	Recommended Synthetic Oil	Recommended ral Oil
Crankcase	Motta L800 Gear Oil Series Motta L1000Series	Motta gearL500 Series
Motor	Motta GT Series	Motta Grease HP Series/ Motta Grease EP Series

Continuous r

Continuous r		
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Traction System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Cutting System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Motor	Motta GT Series	Motta grease HP Series/ Motta Grease EP Series
Hydraulic System		Motta Y300 Series Motta Y200 Series
Each Pin Shaft	Motta GT Series	Motta grease HP Series/ Motta Grease EP Series
Tail Wheel	Motta GT Series	Motta grease HP Series/ Motta Grease EP Series

Bolter r

Bolter r		
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Traction System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Cutting System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Collection System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Motor	Motta GT Series	Motta grease HP Series/ Motta Grease EP Series
Hydraulic System		Motta Y300 Series Motta Y200 Series
Each Pin Shaft	Motta GT Series	Motta grease HP Series/ Motta Grease EP Series
Tail Wheel	Motta GT Series	Motta grease HP Series/ Motta Grease EP Series

Bolting Machine

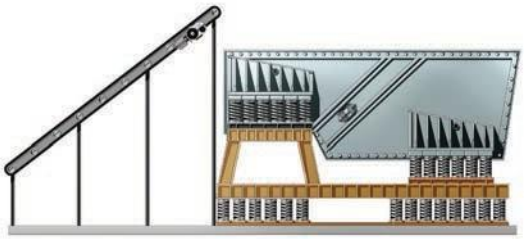
Bolting Machine		
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Traction System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Drill Box	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Motor	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Hydraulic System		Motta Y300 Series Motta Y200 Series
Each Pin Shaft	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Telescopic Lubrication	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Track Adjustment	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series

Roadheader

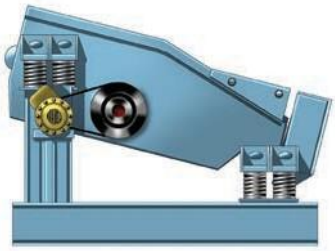
Roadheader		
Lubrication Points	Recommended Synthetic Oil	Recommended ral Oil
Walking System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Cutting System	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Motor	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Hydraulic System		Motta Y300 Series Motta Y200 Series
Each Pin Shaft	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series
Tail Wheel	Motta GT Series	Motta grease HP Series/ Motta EP Grease Series

Machining/Refining

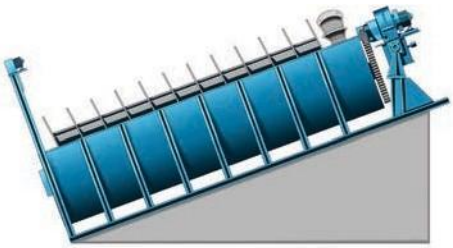
Crusher



Vibrator



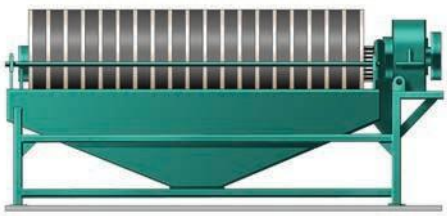
Vibrating Screen



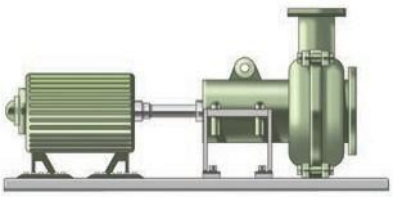
Classifier

Grinder

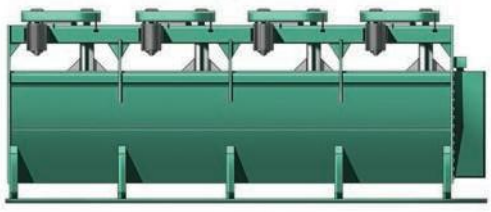
Thickener



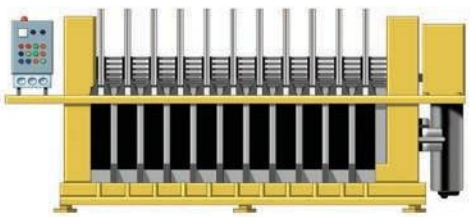
Magnetic Separator



Vacuum Pump/Process Pump



Flotation Machine/Flotation Tank

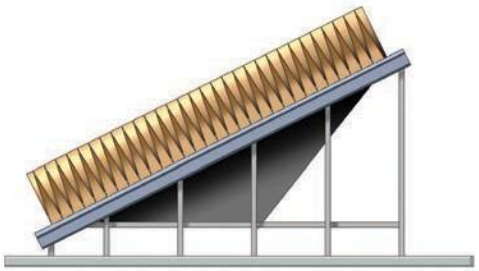


Filter

	Synthetic Products	Conventional Products
Crusher		
Coupling - Lubricating Oil	Motta Y400 Series	Motta Y300 Series
Lubrication System Main Line and Connecting Rod	MottaLGear Oil Series	Motta gear 600 ™XP Series
	Motta GT Series	Motta Grease HP Series
		Motta Grease HP Series
Moving Jaw Bushing	Motta GT Series	Motta Grease HP Series
		Motta Grease HP Series
Toggle Device	Motta L800 Gear Oil Series	Motta gearL500 Series
Vibrator		
Conveyor		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L700 Series	Motta Y Name Series
Motor	Motta GT 100	Motta EM
Coupling - Grease		Motta Grease XTC
Coupling - Lubricating Oil	Motta Y400 Series	Motta Y300 Series
	Motta L1000Series	
Bearing - Idler, Pulley,	etc. Motta GT Series Motta	Grease HP Series
Feeder		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Bearing	Motta GT Series	Motta Grease HP Series
Vibrating Screen		
Conveyor		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L700 Series	Motta Y Name Series
Motor	Motta GT 100	Motta EM
Coupling - Lubricating Oil	Motta Y400	Motta Y300 Series
	Motta L1000Series	
Bearing - Idler, Pulley,	etc. Motta GT Series	Motta Grease HP Series
Screen		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Eccentric Bearing - Lubricating Oil	Motta L800 Gear Oil Series	Motta gearL500 Series
Eccentric Bearing - Grease	Motta GT Series	Motta Grease HP Series
Bearing	Motta GT Series	Motta Grease HP Series
Seal	Motta GT Series	Motta Grease HP Series
Magnetic Separator		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Grease Fill Point	Motta GT Series	Motta Grease HP Series

	Synthetic Products	Conventional Products
Grinder		
Open Gear Drive Motta Tega NC Series	Motta L800 Gear Oil Series	Motta OPG Series
Motor	Motta GT 100	Motta EM
Coupling - Grease		Motta Grease XTC
		Motta Grease EP 1
Gearbox	Motta L800 Gear Oil Series	Motta gearL500 Series
Open Gear Spray System		Motta Tega NC Series
Mill Lug Bearing	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L700 Series	Motta Y Name Series
Mill Pinion Bearing - Lubricating Oil	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L700 Series	Motta Y Name Series
Mill Pinion Bearing -	Motta GT Series	Motta Grease HP Series
Process Pump		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Journal Bearing - Oil Lubrication	Motta L Series	Motta Y Name Series
Journal Bearing - Grease Lubrication	Motta GT Series	Motta Grease HP Series
Classifier		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Grease Fill Point	Motta GT Series	Motta Grease HP Series
Journal Bearing - Grease	Motta GT Series	Motta Grease HP Series
Flotation Tank		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Vertical Bearing	Motta GT Series	Motta Grease HP Series
Filter		
Gear Drive	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Lug Bearing - Grease	Motta GT Series	Motta Grease HP Series
Lug Bearing - Lubricating Oil	Motta L700 Series	Motta gearL500 Series
Main Worm Gear Reducer	Motta L700 Series	
Grease Fill Point	Motta GT Series	Motta Grease HP Series
Concentrator		
Gearbox	Motta L800 Gear Oil Series	Motta gearL500 Series
	Motta L1000Series	
Motor	Motta GT 100	Motta EM
Coupling - Grease		Motta Grease XTC
		Motta Grease EP 1
Grease Fill Point	Motta GT Series	Motta Grease HP Series

Final Processing/Finished Product



Carbon Fiber Safety Screen

Dryer Rotary Dryer

	Synthetic Products	Conventional Products
Carbon Fiber Safety Screen		
Gearbox	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Coupling - Grease		Motta Grease XTC Motta Grease EP 1
Electric motor	Motta GT 100	Motta EM
Grease fitting	Motta GT Series	Motta Grease HP Series
Dryer Rotary Dryer		
Open Gear Drive	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Open Gear Lubricant		Motta OPG Series Motta Vacuoline 300 CN
Electric motor	Motta GT 100	Motta EM
Coupling - Grease		Motta Grease XTC Motta Grease EP 1
Gearbox	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series
Lug Bearing	Motta L800 Gear Oil Series Motta L700 Series	Motta gearL500 Series Motta OPG Series
Pinion Bearing - Gear Oil	Motta L800 Gear Oil Series Motta L700 Series	Motta gear 600 Series Motta OPG Series
Pinion Bearing - Grease	Motta GT Series	Motta Grease HP Series

Note: Schematics and product recommendations are for general guidance only. Products listed are typically product family names. Please refer to the equipment manufacturer's manual or consult your Motta Industrial Lubricants team for final lubrication recommendations.

Product Performance Overview

Motta Main Product Recommendations	
Motta L700 Series Gear and Circulating Oils	Helps extend oil life and can help reduce oil consumption and waste oil disposal.
Motta L800 Gear Oil Series	Can help reduce energy consumption by up to 3.6%*.
Motta S Air Comprr Oil	Long oil life, which can help reduce oil consumption and waste oil disposal.
Motta Series	Premium products developed for various applications under harsh temperature conditions.
Motta OPG Series	Excellent gear protection can help extend equipment life, thereby reducing maintenance costs.
Motta Grease HP Series	Contains molybdenum disulfide, long grease life, helps reduce oil consumption and waste oil disposal.
Motta Y300 Series	Outstanding energy efficiency **, Excellent cleaning performance.
Motta Y200 Series	High-performance anti-wear hydraulic oil, suitable for hydraulic systems using high-pressure, high-output pumps, and other hydraulic components such as close-clearance servos Demanding needs of valves and CNC machine tools.
Motta Gear OilL500 Series	Has excellent heavy pressure and heavy load characteristics, helping to reduce accidental downtime and downtime maintenance time of equipment.
Motta Li King Engine Oil	
Motta Li King 5W-30/5W-40	Advanced fully synthetic heavy-duty diesel engine oil for long-lasting and reliable lubrication.
Motta Li King High Grade 15W-40	Helps extend the life of vehicle engines operating on harsh roads and off-road.
Motta Li King 15W-40/20W-50	Provides excellent lubrication protection for a variety of heavy-duty equipment and operating environments, helping to extend engine life.
Motta Li King Special 15W-40/20W-50	Provides reliable protection for diesel engines operating under severe on-highway and off-highway applications.
Motta Gear Lubricant	
Motta Li King Gear Oil 75W-90/80W-140	Suitable for heavy-duty power transmission systems that require gear lubricants with excellent load-carrying capacity, while also requiring Able to cope with extreme pressure and shock loads.
Motta Li King Gear Oil 80W-90/85W-140	Specifically designed for axles and rear axles of heavy-duty vehicles that are subject to extreme pressure and shock loads, providing ior performance and meeting the American Petroleum Institute API GL-5 quality level.
Mottaube HD 80W-90/85W-140	High-performance heavy-duty gear lubricant designed for heavy-duty automotive rear axle and final drive applications.
Motta 424 Hydraulic Transmission Fluid	High-performance, multi-purpose lubricant specifically formulated to meet the specifications of transmissions and hydraulic oils. Especially suitable for applications requiring reduced wet Vibration of brakes and power take-offs.
Motta Trans Oil HD 10W/HD 30	This series of products is specially formulated to enable power shift transmissions, gearboxes and rear axles to perform excellently. In hydraulic applications In this regard, they can still play a protective role even in high-pressure systems.

*The energy-saving identification is a registered trademark of Motta. This data comes from the experimental conclusions made by Motta Research and Engineering Company (Paulsboro, New Jersey) in 2010-2011: In gear lubrication applications, when compared with traditional formulations of the same viscosity when tested in circulating and gear applications under controlled conditions, the 3.6% efficiency; the increase in efficiency varies depending on the technology used allows up to working conditions and application.

** Motta Research and Engineering Company, Paulsboro, New Jersey 2007 -2009 Experimental conclusion made in: The efficiency improvement described here is only for this lubricant compared to Motta's standard hydraulic oil.

The technology achieved up to 6% energy efficiency improvement compared to the reference oil. This product's energy efficiency claim is based on test results of oil use conducted in accordance with all applicable industry standards and protocols. Compared to the Motta Y200 series, the lubricant used

Motta L1000 Series

Gear Oil

Main Benefits

Helps improve equipment uptime and accelerate business growth

Provides excellent protection even under harsh conditions, helping to reduce maintenance needs

Helps control energy consumption and reduce operating costs

Your gearboxes are operating at higher production efficiency under increasingly demanding temperatures.

work. To this end, we have specially formulated Motta L 1000 Series lubricants.

This series of oils can provide:

- Equipment protection at high and low temperatures
- Longer oil life, helping to reduce maintenance and replacement costs
- Helps reduce operating failures and longer filter life

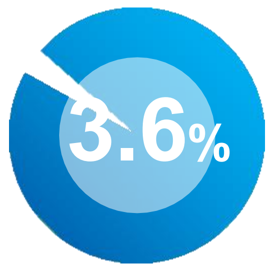
More than 500

Major equipment manufacturers recommend over 1800

Use in

In field and laboratory tests, compared to other tested

ral oils, energy efficiency is improved by up to 3. 6%*



Typical Properties †

Motta L700 Series									
Viscosity, ASTM D 445									
cSt @ 40°C	32	68	100	150	220	320	460	680	1000
cSt @ 100°C	6.3	11.6	15.3	21.1	28.5	38.5	50.7	69.0	98.8
Viscosity Index, ASTM D2270	148	165	162	166	169	172	174	181	184
Pour Point, °C, ASTM D5950	-57	-51	-45	-42	-42	-42	-39	-39	-33
Flash Point, °C, ASTM D 92	236	225	235	220	220	225	228	225	222

*This data comes from experiments conducted by Motta Research and Engineering Company, Paulsboro, New Jersey, in 2010-2011: In gear lubrication applications, energy efficiency is only related to fluid performance when compared to traditional reference gear oils of the same viscosity; when tested in controlled conditions [illegible] depending on
The technology used allows for up to 3.6% operating conditions and application.
Typical properties are typical values obtained under normal production conditions and are not equivalent to product specifications. The typical values of products may vary during normal production conditions and production at different blending plants, but this does not affect product performance. The information contained in this document is subject to change without notice. Not all products are available locally. For more information, please contact your local Motta representative or visit Motta.com.cn/industrial. Motta has many affiliated companies and subsidiaries, most of which include , Motta or Motta in their company names. Local Motta affiliates are responsible for their local actions.

Motta Gear Oil Series

Gear Oil

Main benefits

Longer oil drain intervals help reduce equipment downtime

Provides excellent protection in harsh environments, helping to reduce equipment maintenance needs

Helps reduce energy consumption of gears during transmission

Reliable equipment is a prerequisite for improving productivity. For this reason, we have specially developed the Motta Gear Oil Series. This series of oils can provide:

- Excellent water separation characteristics help extend filter life
- Excellent seal compatibility helps minimize leakage and consumption
- Viscosity loss resistance, extending oil life
- Anti-wear protection, effectively helping to reduce conventional wear patterns

3.6%

Verified by on-site statistics and laboratory tests

The results show that Motta Gear Oil Series has higher energy saving effect than conventional oils 3. 6%. *

Typical Properties†

Motta L800 Gear Oil Series						
Viscosity, ASTM D 445						
cSt @ 40°C	150	220	320	460	680	1000
cSt @ 100°C	22.2	30.4	40.6	54.1	75.5	99.4
Viscosity Index, ASTM D2270	176	180	181	184	192	192
Pour Point, °C, ASTM D97	-54	-45	-48	-48	-42	-33
Flash Point, °C, ASTM D 92	233	233	233	234	234	234

Motta S Series

Air Comprr Oil

Key Benefits

- Excellent Thermal and Oxidation Stability
- Outstanding Varnish and Sludge Control
- Excellent Water Separation and Rust and Corrosion Protection
- High Performance Synthetic Base Oils, High Viscosity Index
- High Load Carrying Capacity

Your air comprrs are working at higher production

efficiency under increasingly demanding temperatures. That's why we carefully formulated Motta S Series

synthetic lubricants:

- Long-lasting ior performance——Therefore, it can help reduce equipment maintenance
- Excellent oxidation and thermal stability——Inhibits the formation of sludge, varnish, and deposits
- Motta S Series is especially suitable for rotary screw comprrs and vane comprrs.

It includes three viscosity grades (ISO 32, 46 and 68)

Choose Motta S Series to help reduce maintenance costs while meeting your equipment needs.

Motta S Series synthetic air comprr oils offer sustainable Excellent performance for up to

24,000

hours.*

Typical Properties†

Motta S 800 Series			
ISO Viscosity Grade	32	46	68
Viscosity, ASTM D445			
cSt@40ºC	30.6	44.1	65.3
cSt@100ºC	5.6	7.1	9.7
Viscosity Index, ASTM D2270， (Minimum)	123	122	129
Copper Strip Corrosion, ASTM D130， 24hours@ 100ºC	1B	1B	1B
Rusting Characteristics, Procedure B ， ASTM D665	Pass	Pass	Pass
Pour Point, ASTM D97， ºC， (Maximum)	-42	-45	-39
Flash Point, ºC， ASTM D93	204	197	192
Specific Gravity 15ºC /15ºC， ASTM D1298	0.8779	0.8676	0.8650

for its local actions.

Motta GT™ Series

Grease

Key Benefits

Longer regreasing intervals for equipment help reduce downtime time and lower maintenance costs

Excellent protection under harsh conditions helps reduce maintenance needs

With anti-rust, anti-corrosion, and anti-wear properties, helps extend equipment life

Motta GT™ Series greases meet harsh temperatures and harsh conditions requirements with the following advantages:

- Easy start-up at low temperatures (-40°C -40°F) and excellent protection at high temperatures (150°C 302°F)
- Provides effective protection even in adverse environments involving water
- Helps control energy consumption and extend equipment life

370+ Equipment Manufacturers

Recommended to use Motta GT™ Series Grease

Typical Properties†

Motta GT Series	DIN 51825	Red	NLGI Grade	Viscosity Grade	Operating Temperature		Mechanical Properties		General Applications
					Minimu[1]m	Maximum	Load	Speed	
100	KPHC2N-40	Red	2	100	-40	150			Motor Bearings
220	KPHC2N-30	Red	2	220	-30	10			Multi-purpose industrial and automotive applications
221	—	Light Ocher	1	220	-40	150			Heavy-duty automotive and industrial equipment with central lubrication systems
460	KPHC1-2N-40	Red	1.5	460	-40	150			Variety of heavy-duty industrial applications
007	GPHC00K-30‡	Red	00	460	-50	150			Enclosed gearboxes
1500	KPHC1-2N-30	Red	1.5	1500	-30	150			Heavy-duty industrial applications
1000Premium	KPFHC2N-30	Gray/Black	2	1000	-30	150			Contains solid lubricants to support very low speed, severe heavy-duty bearing operation under extreme heavy-duty boundary conditions

Motta OPG™ Series

Open Gear Lubricant

Main benefits

Strong retention adhesion provides long-lasting protection

Asphalt-free formula helps maintain system cleanliness to help reduce maintenance needs

High grease flash point helps improve safety and minimize waste generation

Motta OPG series greases are specially formulated for heavy-duty open gear sets.

This series is asphalt-free and helps provide:

- Excellent extreme pressure and anti-wear performance, which helps to maximize the reduction of maintenance and equipment damage
- Excellent low-temperature pumpability and start-up performance

Solvent-free

Solvent-free technology helps reduce grease loss during application and reduces the cost of handling and disposing of waste.

Typical characteristics †

Motta OPG series	800 EXTRA	2000
Operating temperature, multi-purpose grease (°C)	-40to +40	-
Operating temperature, °C, OGL, except for lifting gears *	-40to +10	-
Dispersion temperature (°C)	-45	-20
Penetration (mm/10 @ 25°C)	400	380
Dropping point (°C)	175	193
Flash point (base oil)	158	243
Rust resistance	Pass	Pass
Copper strip corrosion (24 hours @100°C)	1	1
Base oil viscosity		
cSt @ 40°C	680	2000
cSt @ 100°C	60	120
Molybdenum disulfide (Wt. %)	>2.0	>2.0
Timken OK load (kg)	25	25
4 Ball extreme pressure (kgf)		
Solder load, kgf	800	800
Load wear index, kgf	145	145
4Ball wear scar diameter, mm	0.55	0.5
Timken hold (30 lbs./30 minutes)	Pass	Pass
Lincoln Ventmeter		
psi @ -40°C	200	-
psi @ -20°C		117
Appearance viscosity (20 sec.-1)	@-40°C 10,000	@0°C 2,000
		@-15°C 9,000
Application notes		Suitable for manual application

Motta Grease HP™ Series

Grease

Main benefits

Excellent lubricating oil viscosity properties, which can help reduce leakage, help extend re-lubrication intervals, and reduce maintenance costs

Excellent waterproof performance, which can help extend the service life of bearings and help reduce failures caused by wear

Provides reliable bearing protection even under impact loading, helping to extend equipment life

anti-mechanical shear ability, not easy to soften, even in the presence of water, it can help reduce leakage

Motta Grease HP

Traditional Grease

150

Recommended by major global industrial equipment manufacturers

Motta Grease HP™ Series

Motta Grease HP™ Series of high-quality greases are designed for a variety of heavy-duty equipment to help improve equipment reliability.

- Carefully selected ral oil combined with proprietary lithium complex thickener technology and high-performance additives, It has good protection for the equipment, helps to extend the grease change interval, and helps to improve productivity.
- It is blue in color, making it easy to verify that the application is appropriate. And it has strong adhesion, which can improve water resistance and provide excellent lubrication retention.
- Excellent adhesion and bonding properties and mechanical stability, and can provide excellent rust, corrosion and wear protection.

Typical characteristics †

Motta Grease HP Series				
NLGI Grade	0	0	0	0
Thickener Type	Lithium Complex	Lithium Complex	Lithium Complex	Lithium Complex
Color, Visual	Dark Blue	Dark Blue	Dark Blue	Dark Blue
Worked Penetration, 25º C, ASTM D 217	370	325	280	235
Molybdenum Disulfide, wt%	-	-	-	-
Dropping Point, ºC, ASTM D 2265	270	280	280	280
Base Oil Viscosity, ASTM D 445				
cSt @ 40°C	220	220	220	220
Four-ball Wear Test, ASTM D 2266, Scar Diameter, mm	0.50	0.50	0.50	0.50
Four-ball Weld Load, ASTM D 2596, kfg	315	315	315	315
Timken OK Load, ASTM D 2509, lb	40	40	40	40
Oxidation Stability, ASTM D 942, 100Hour Pressure Drop, kPa (psig)	35(5)	35(5)	35(5)	35(5)
Corrosion Prevention, ASTM D 1743	Pass	Pass	Pass	Pass
Rust Protection, IP 220-mod/ASTM D 6138., Distilled Water	0,0	0,0	0,0	0,0
Copper Strip Corrosion, ASTM D 4048	1B	1B	1B	1B
Penetration Change, Roll Stability, ASTM D 1831, mm/10	-15	-15	0	0

Motta Y300™™Series

Hydraulic Oil

Key Benefits

Excellent cleaning performance helps reduce equipment maintenance costs and shorten downtime. Experiments show that its life is three times longer than other tested products*

Excellent hydraulic efficiency helps reduce power consumption and improve equipment productivity

Provides reliable start-up and pump protection over a wide temperature range

Motta Y300™™Series zinc-free hydraulic oil helps reduce power consumption and

Reduce maintenance costs while helping to increase productivity. These are designed for

Excellent oils designed to meet the demands of today's high-pressure industrial and Mottae equipment

Oil, bringing you the following benefits:

- More efficient hydraulic system efficiency than ™Y 200 Series
- Longer oil life and replacement cycle
- High wear protection helps reduce equipment failures

6%

Motta Y300™™Series

Hydraulic Oil Improves Hydraulic Efficiency

Bench tests have proven that Motta Y300™™Series lubricants

Hydraulic pump performance can be improved by up to 6%*

Typical Properties†

Motta Y300™ Series	32
ISO Viscosity Grade	32
Viscosity, ASTM D 445	
cSt @ 40°C	32.7
cSt @100°C	6.63
Viscosity Index, ASTM D 2270	164
Brookfield Viscosity ASTM D 2983 ， cP @-20°C	1090
Brookfield Viscosity ASTM D 2983 ， cP @-30°C	3360
Brookfield Viscosity ASTM D 2983 ， cP @-40°C	14240
Tapered Roller Bearing (CEC L-45-A-99) Viscosity Loss%	5
Density 15°C， ASTM D 4052 ， kg/L	0.8468
Copper Strip Corrosion, ASTM D 130， 3Hours @ 100°C	1B
FZG Gear Test, DIN 51354, Failure Stage	12
Pour Point, ASTM D 97， °C	-54
Flash Point, °C, ASTM D 92	250
Foam Test Ⅰ、Ⅱ、Ⅲ， ASTM D 892 ， ml	20/0
Dielectric Strength, kV, ASTM D877	49
Acute Aquatic Toxicity (LC-50, OECD 203)	Pass

Motta Y200 Series

Hydraulic Oil

Main Benefits

Long oil drain intervals help reduce hydraulic oil consumption

Deposit control performance helps extend the life of hydraulic components

Enhanced anti-wear protection helps reduce maintenance downtime

Motta Y200 Long Life Hydraulic Oil Series is a high performance anti-wear hydraulic oil,

This series of products meets hydraulic systems using high pressure, high output pumps, and

Other hydraulic components such as close clearance servo valves and CNC machine tools are demanding

Demand

- Has performance to help extend oil life, with oil drain intervals up to

  Can be extended 2 times *

- Excellent oxidation and thermal stability to help extend oil life and greater

  Helps reduce deposit formation to the limit, meeting the stringent requirements of harsh environments and hydraulic systems using high pressure, high output pumps.

  Hydraulic system requirements

- Has enhanced anti-wear performance ***, meets the requirements of major oil pump manufacturers, helping to extend

  Hydraulic component life

Maximum oil drain interval can be extended to

2 *

Excellent performance to meet equipment manufacturer standards

Bosch Rexroth Fluid Rating List RDE 90245

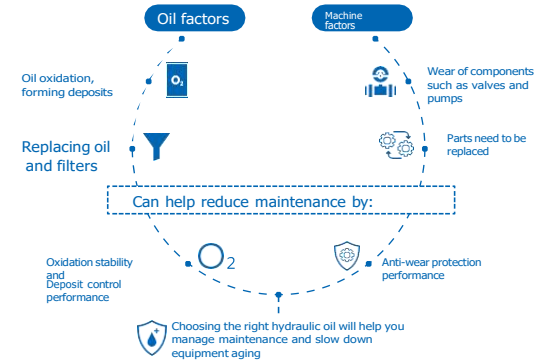
Typical Properties

Y200						
ISO Viscosity Grade	ISO10	ISO22	ISO32	ISO46	ISO68	ISO100
Copper strip corrosion, 3 hours, 100°C, Rating, ASTM D130	1A	1A	1A	1A	1A	1A
Density at 15.6°C, kg/l , ASTM D4052	0.8373	0.8524	0.8596	0.8667	0.8743	0.8797
FZG Scuffing, Failure Load Stage, A/8.3/90 , ISO 14635-1	-	-	11	11	11	-
Flash Point, Cleveland Open Cup	174	234	231	238	252	278
Kinematic Viscosity at 100°C, mm²/s , ASTM D445	2.8	4.4	5.8	7.1	8.9	11.9
Kinematic Viscosity at 40°C, mm²/s , ASTM D445	10.7	21.4	33.4	46.2	68.6	100.2
Pour Point, °C, ASTM D97	-45	-39	-36	-33	-30	-33
Rusting Characteristics, Procedure B , ASTM D665	Pass	Pass	Pass	Pass	Pass	Pass
Viscosity Index, ASTM D2270	106	115	115	110	104	108

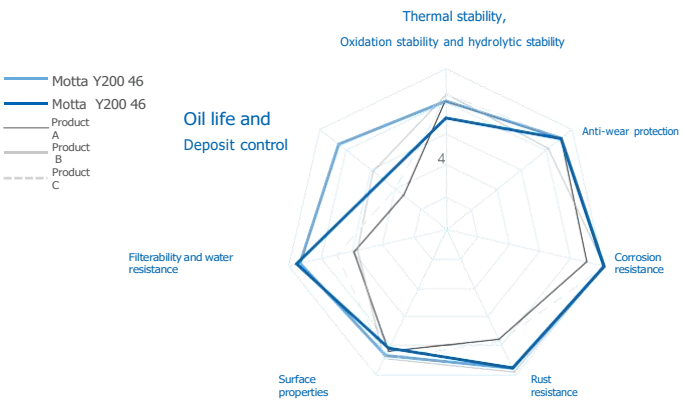
Motta Y200 Series

Hydraulic Oil

The necessity of hydraulic system maintenance



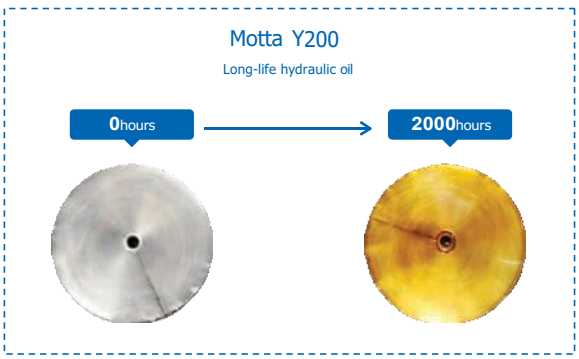
Performance summary

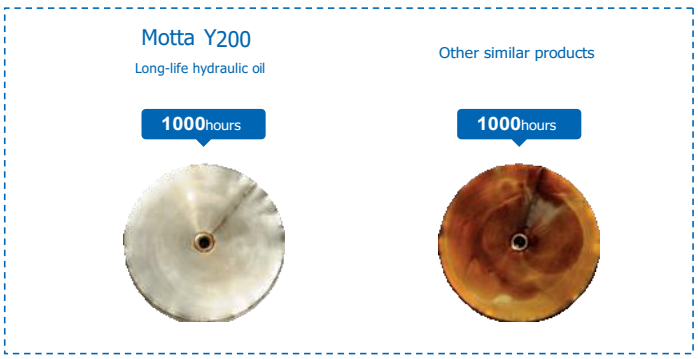


Excellent deposit control helps extend oil life

Extends oil drain intervals up to 2x *

89% Improved deposit control **

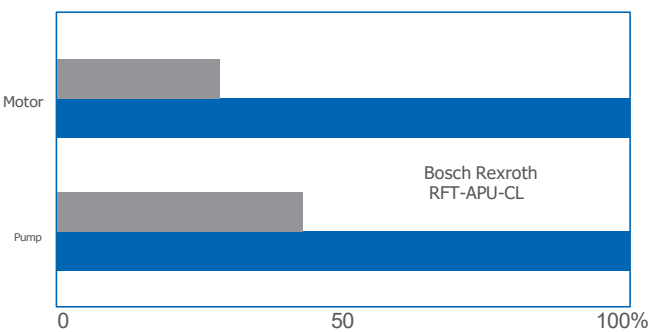




Standard compliant anti-wear protection

72% Improved anti-wear protection ***

Motta Y200 Long-Life Hydraulic Oil demonstrates excellent wear protection in real-time test conditions



Motta™ L500 Series

Gear oil

Main Benefits

Effectively prevent through excellent anti-wear protection

Equipment produces micro-pitting, which helps reduce equipment

Replacement cost

Helps reduce bearing by controlling downtime

Replacement costs, effectively extend bearing life, help

Improve productivity

Helps reduce oil leakage through excellent seal compatibility

Oil consumption and pollution

As gearbox technology designs tend to be small devices with high power density, The requirements for gear lubricants are also increasing. Motta gear ™ L500 The series is specially formulated to provide excellent pressure and load carrying capacity. these

Performance helps:

- Effectively reduce equipment downtime and downtime
- Helps ensure trouble-free equipment operation and helps improve productivity
- Control maintenance and replacement costs

Typical Properties†

Motta gearL500 Series							
ISO Viscosity Grade	68	100	150	220	320	460	680
Viscosity, ASTM D 445							
cSt @ 40°C	68	100	150	220	320	460	680
cSt @ 100°C	8.8	11.2	14.7	19.0	24.1	30.6	39.2
Viscosity Index, ASTM D2270	101	97	97	97	97	96	90
Pour Point, °C, ASTM D97	-27	-24	-24	-24	-24	-15	-9
Flash Point, °C, ASTM D 92	230	230	230	240	240	240	285
Density 15.6°C, ASTM D 4052 , kg/l	0.88	0.88	0.89	0.89	0.90	0.90	0.91
FZG micropitting, FVA 54, failure level		10/High	10/High	10/High	10/High	10/High	10/High
FE 8 wear test, DIN 51819-3, D7,5/80-80. Roller wear	2	2	2	2	2	2	2
Timken OK Load, ASTM D 2782, lbs	65	65	65	65	65	65	65
4-Ball EP test, ASTM D2783							
Sintered load, kgf	200	200	250	250	250	250	250
Load wear index, kgf	47	47	47	48	48	48	48
FZG Scuffing Test, Failure Level							
A/8.3/90	12+	12+	12+	12+	12+	12+	12+
A/16.6/90		12+	12+				
Rust Protection, ASTM D 665, Seawater	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Copper Strip Corrosion, ASTM D 130 , 3Hours @ 100°C	1B	1B	1B	1B	1B	1B	1B
Emulsion Resistance, ASTM D 1401 3ml Emulsification Time, Minutes @ 82°C	30	30	30	30	30	30	30
Foam Test, ASTM D 892, Trend Stability, Program 1	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Program 2	30/0	30/0	30/0	30/0	30/0	30/0	30/0

Motta™ Main Products - Engine Oil

Motta Li King™ 5W-30/5W-40 *

| Features and Benefits |

- Suitable for China VI and China V vehicles (1)
- Up to 150,000 km oil drain interval(2)
- Helps protect aftertreatment systems (DPF)
- Helps save fuel up to 2 - 2.6%(3)
- Low-Temperature Start

5W-30

| Meets or exceeds the following requirements |

American Petroleum Institute (API) CK-4, CJ-4/SN

European AutoMottae Manufacturers Association (ACEA) E6, E7, E9

Caterpillar (CATERPILLAR) ECF-3

Cummins (CUMMINS) CES 20086

| Has the following approvals |

Mercedes-Benz (MB-APPROVAL) 228.51

Volvo (VOLVO) VDS-4.5

Renault Trucks (RENAULT TRUCKS) RLD-3

MTU OIL CATEGORY 3.1

5W-40

| Meets or exceeds the following requirements |

American Petroleum Institute (API) CK-4, CJ-4/SN

European AutoMottae Manufacturers Association (ACEA) E7, E9

Caterpillar (CATERPILLAR) ECF-3

Cummins (CUMMINS) CES 20086

| Has the following approvals |

Volvo (VOLVO) VDS-4.5

Renault Trucks (RENAULT TRUCKS) RLD-3

Packaging: 4L /18L/200L**

Long Drain Interval

Engine Protection

Protect Aftertreatment

Helps Save Fuel(3)

Low-Temperature Start

Refer to the vehicle service manual for specific lubricant requirements and usage cycles. The oil drain interval is based on a fully synthetic co-formulated product tested under road conditions; actual use may vary depending on engine type and driving conditions.

2) Fuel economy assessment tests conducted at Millbrook Proving Ground (United Kingdom) show that the 5W-30 co-formulated product, when compared to 15W-40 engine oil in urban driving, achieves 2.6% fuel savings. Additionally, tests by the China Energy Conservation Association (CECA) involving the D10.38 engine demonstrate that the co-formulated lubricant outperforms Motta

Motta™ Main Products - Engine Oil

Motta Li King™ Ultra High Grade 15W-40

| Features and Benefits |

- Synthetic Technology Formula
- High temperature, wear and oxidation resistance to help extend Oil change cycle
- Protects aftertreatment systems, including DPF (particulate trap)
- Excellent soot thickening control helps improve engine efficiency and extend engine life

| Meets or exceeds the following requirements |

American Petroleum Institute (API) CK-4,CJ-4/SN,SM

European AutoMottae Manufacturers Association (ACEA) E7, E9

Cummins CES 20086

MAN M 3275-1

| Approved by |

Mercedes-Benz (MB-Approval) 228.31

Volvo (VOLVO) VDS 4.5/VDS 4

▶ Packaging：20L/200L

Motta Li King™ 15W-40/20W-50

| Features and Benefits |

- Excellent thermal and oxidation stability
- Wear protection and viscosity control
- Cleaner engine, longer component life
- Helps reduce sludge build-up, deposits and viscosity increase

| Approved by |

API CI-4/CH-4

Mercedes-Benz MB-Approval 228.3

Volvo Volvo VDS 3

Cummins Cummins CES 20077

MTU Oil Category 2

RENAULT TRUCKS RLD-2

▶ Packaging：4L/18L/200L

Motta Li King™ 15W-40/20W-50

| Features and Benefits |

- Thermal and oxidation stability
- Controls sludge and deposits
- Excellent detergency and dispersancy

| Meets or Exceeds the Following Requirements |

15W-40

American Petroleum Institute (API) CH-4, SJ

Cummins (CUMMINS) CES 20076

20W-50 American Petroleum Institute (API) CH-4, SJ, SL

| Has the Following Approvals |

Mercedes-Benz (MB-APPROVAL) 228.3

Packaging: 18L/200L

| Meets or exceeds the following requirements |

John Deere JOHN DEERE JDM J20C

| Recommended for applications requiring the following specifications |

API GL-4

Caterpillar CATERPILLAR TO-2

| Has the following approvals |

Allison ALLISON C-4

Volvo WB-101

ZF TE-ML 03E/05F/17E

Packaging: 18L/200L

Motta Oil
HD 10W/HD 30

| Features and Benefits |

Low-temperature pumping performance, shortening equipment start-up time

Excellent clutch friction performance and slip control

Outstanding hydraulic oil stability, improving high-pressure wear protection

Helps see bottom gear wear, extending its re-transmission,

Life in gearboxes and rear axles

| Specifications and Approvals |

Caterpillar Caterpillar TO-4

Allison C-4

ZF-TE-ML 03C

Packaging: 18L/200L

Motta™ Main Products - Gear Oils

Motta ™HD
80W-90/85W-140

□Features and Benefits□

- Effective low-temperature lubrication
- Excellent rust and corrosion protection
- Excellent thermal stability and resistance to high-temperature oxidation

□Meets or exceeds the following requirements□

API GL-5

Packaging: 4L/18L/200L

Motta Li King ™

Synthetic Gear Lubricant

75W-90/85W-140

□Features and Benefits□

- Advanced full synthetic formula
- Excellent low-temperature fluidity
- Helps improve load-carrying capacity
- Excellent thermal stability and resistance to high-temperature oxidation extends gear and bearing life

□Meets or exceeds the following requirements□

API GL-5/MT-1

□Meets the following approvals□

75W-90

SAE J2360

ZF TE-ML 05A, 16F, 21A

80W-140

SAE J2360

ZF TE-ML 05A/12L/12N/16F/17B/19C/21A

Mercedes-Benz (MB-APPROVAL) 235.8

MAN 342 TYP M2

Packaging: 35LB

(Motta Li King Gear Oil 80W-140)

375LB

(Motta Li King Gear Oil 75W-90)

Motta Li King™Gear Oil 80W-90/85W-140

| Features and Benefits |

- High load carrying capacity
- High temperature and oxidation resistance
- Reduces wear and helps extend the life of gears and bearings

| Specifications and Approvals |

API GL-5

Packaging: 4L/18L/200L

01

Help extend oil drain intervals, reduce unplanned downtime, and increase productivity

Motta Gear Oil™ L500 Series and Motta Serv℠ ℠ Help improve the lubrication effect of coal mining machines, transfer conveyors, scraper conveyor gearboxes, helping customers create value of up to RMB 11,36 ten thousand yuan per year.

Shanghai Tiandi Coal Mining Machine, Zhangjiakou Coal Mining Machinery Factory Transfer Machine and Scraper Conveyor

Shenhua Ningxia Coal Industry Group Co., Ltd. Maidushan Coal

Yinchuan, Ningxia

Background

Maidushan Coal uses a certain brand of L-CKC series gear oil for its coal mining machine Gearboxes of important equipment such as transfer conveyors and scraper conveyors are lubricated. Because lubrication The product cannot meet the requirements of the harsh working conditions of the gearbox and cannot provide Corresponding engineering services resulted in poor equipment lubrication, oil drain intervals short, and frequent unplanned downtime, which brought to coal production Great loss.

Solution

Shenhua Ningmei Group has joined hands with Motta and distributors to carry out unified lubrication management work. Motta recommends using Motta Gear L500 series high-performance gear oil, which is suitable for various heavy-duty closed gear transmissions due to its excellent performance system. It also provides equipment lubrication manuals, Motta Serv℠℠oil analysis, WeChat service platform, on-site lubrication technical exchanges and a series of engineering technical services to help improve equipment lubrication status and improve customer lubrication management level.

Result

On-site use shows that the Motta Gear L500 series products are excellent performance, combined with Motta Serv℠ ℠significantly improved the lubrication effect of coal mining machines, transfer conveyors, scraper conveyor gearbox and on-site lubrication management level, reducing Unplanned downtime, oil drain intervals have doubled. Annual productivity increase The benefits brought are more than 10 million yuan.

02

Helps reduce waste oil drum disposal, helps improve fueling efficiency,

Helping customers save energy and increase efficiency

Motta IBCs help customers reduce the environmental pressure of waste oil drum disposal, reduce oil usage and improve Fueling efficiency, helping customers increase benefits by RMB 1.24 million per year.

Motta Tanker Packaging Products

National Energy Zhungeer Group

Ordos City, Inner Mongolia

Background

National Energy Zhungeer Group has always been an important Customer, due to production needs, the customer uses hydraulic oil and engine oil every year Up to 5,000 waste oil drums (208 liters) are generated. According to relevant environmental regulations Requirements, disposing of such a large number of waste oil drums not only requires a lot of Labor, but also need to pay disposal fees to hazardous waste disposal companies, the cost is very Expensive.

Solution

In order to better respond to environmental regulations upgrades and government requirements, and reduce the burden of hazardous waste disposal for enterprises. Motta provided Zhunneng Group with 20 cubic meters for the first time Hazardous waste disposal burden. Motta provided Zhunneng Group with 20 cubic meters for the first time Tanker products (ISO Tank) supply oil. This packaging format does not produce Packaging waste, which can help reduce customers' environmental burden. At the same time, the tanker The filling process is simple and efficient, eliminating the need to frequently switch oil drums and collect oil drum Residual oil, which improves fueling efficiency and reduces total oil usage.

Result

Motta IBC products help customers:

- Directly reduce the generation of 5,000 waste oil drums and reduce hazardous waste disposal costs;
- The oil tanker oil filling operation is simple and efficient, reducing Oil pollution in the intermediate refueling process;
- Eliminate the labor and preparation costs of iron drum oil filling and disposal of waste iron drums. cost.

03

Helps reduce hydraulic system wear,

Avoid unplanned downtime and keep equipment running reliably.

Motta's new generation of long-life hydraulic oil Motta Y200 32 and Motta Serv℠ (Professional Oil Analysis Service) helps Zhunneng Group's dump truck hydraulic system run normally for 4,000 hours without any liquid Pressure oil-related unplanned downtime.

National Energy Group Zhungeer Energy Co., Ltd.

Ordos City, Inner Mongolia

Background

Heidaigou and Haerwusu Coal s, which belong to Zhungeer Energy Group Co., Ltd.

As China's largest open-pit coal , the annual production capacity is about 60 million tons.

Zhungeer Energy has a large number of advanced imported mining equipment, including dump Trucks are the core equipment of open-pit s, with harsh working conditions, and High requirements for lubricant quality.

Solution

Since the oil change of TEREX5500/4400 dump trucks in September 2019, Motta DTE™ 24 UT with its excellent thermal stability, oxidation stability and Hydrolytic stability maintains excellent quality under the harsh operating conditions of mining trucks; Motta Professional on-site technical service and 12 Motta Serv℠ Professional Oil Analysis Services help customers monitor in-use oil quality and equipment lubrication status, ensuring Equipment runs reliably.

Result

Motta's new generation of long-life hydraulic oil Motta DTE 24 UT and Motta Serv℠ Professional oil analysis services have been used in the hydraulic system of Zhunneng Group's dump trucks Completed 4,000 hours of application testing, and compared with the oil used before, Less damage to equipment:

- The truck is running normally, and there are no unplanned shutdowns related to hydraulic oil. situation;
- Oil test report shows very low wear in the hydraulic system;
- The physical and chemical indicators of the oil are good;

04

Improve productivity and help reduce manual maintenance time,

Ensure safe and stable operation of equipment

Motta Y300™ 68and Motta Serv℠℠ Service helps coal plant loading stations reduce equipment downtime Time, improve productivity, and generate a total benefit of RMB 48,000.

Shendong Group (Daliuta Coal)

Daliuta Town, Ordos City, Inner Mongolia

Background

Shendong Group Daliuta Coal Preparation Plant is Shendong's largest coal preparation plant with a production capacity Up to 34 million tons per year. Put into operation in 1993, it is responsible for Daliuta's one and two wells. Washing, processing and loading and transportation of purchased coal. The whole plant has undergone 4 expansions Transformation project, now forming 4 sets of jigging systems for live wells, 3 sets of large well lump coal Heavy medium shallow tank system, 4 sets of heavy medium cyclone system for fine coal and other processes Production method, with 4 sets of automatic loading systems. The loading station originally The use of ral hydraulic oil can cause difficulties in opening the valves of the loading station in winter. situation.

Solution

Using Motta high-quality hydraulic oil Motta Y300 68 since 2017 , The equipment runs smoothly. Motta Y300 68 has excellent high-temperature oxidation stability And excellent low-temperature performance even under harsh conditions and longer oil changes Quality performance characteristics can be maintained during the cycle; Motta Serv℠ ℠Oil analysis Service helps monitor oil and equipment status, optimizing oil change cycles from 1 year to 3 years; Motta engineers' on-site communication and equipment inspections help strengthen on-site lubrication

Result

Motta Y300 68 and Motta Serv℠℠Service helped extend the Lubricating oil change cycle, reduced equipment downtime, and reduced Waste oil emissions reached 836L, thereby improving production efficiency.

05

4Times Oil Change Cycle, Helping Customers Improve Productivity

Motta L1000-150 Planned Engineering Services Reduce Vibrator Reducer Failure Rate and Extend Lubricant Oil Change Cycle by 4 Times Helps Generate Potential Annual Savings of RMB 5.9 Million.

Vibrator Reducer (Aolai, etc.)

Shenhua Shendong Daliuta Coal Preparation Plant

Daliuta, Yulin City, Shaanxi Province

Background

Daliuta Coal Preparation Plant is the largest coal preparation plant of Shendong Group, with various models

A total of 115 coal washing vibrating screens, the vibrating screen reducer has been in high speed for a long time,

Working under high vibration, high impact load, and high dust environment, resulting in reducer

Frequent damage affects the normal operation of production.

Solution

Motta engineers recommended a system after several on-site investigations

Pollution control and use of better lubricating Motta L1000-150 Replacement

Previous Lubricant, Motta L1000-150is a ior gear and bearing

Lubricant, in terms of equipment protection, oil life and trouble-free operation

Outstanding performance, which in turn helps customers improve productivity.

Result

Selection of Motta Motta L1000-150Planned Engineering Service for 1 Year, Vibrator Reducer

The failure rate has decreased significantly, and the lubricant change cycle has been extended to 4 times the original.

It also reduces labor intensity and helps generate potential benefits of RMB per year.

06

Excellent lubrication performance, less usage, ensuring smooth and safe production

Motta OPG™ Open Gear Lubricant 800 & 2000 Saves approximately

RMB 1.2 million annually for
Shenhua Zhungeer Open-pit .

Electric Shovel / Taiyuan Heavy Industry WK-55

Shenhua Group— Shenhua Zhungeer Energy Co., Ltd.

Xuejiawan, Inner Mongolia Autonomous Region

Background

Shenhua Zhungeer Energy Co., Ltd. is the world's largest open-pit coal

One of them, its planned production capacity in 2014 is 72 million tons. The main mining and stripping

The equipment is Taiyuan Heavy Industry WK-55 electric shovel, including pushing gears, side slip plates,

The upper sliding plate and the rotary gear drive of the electric shovel need to operate in low speed, heavy load, impact

And open environment, while excessive grease in the open environment

Use may lead to safety accidents. Harsh working conditions for lubricating oil

Puts forward extremely high requirements. Choosing the right grease is essential to ensure production

Smooth and safe operation is crucial.

Solution

To improve equipment lubrication and reduce lubrication costs, Motta engineers and

Relevant technical personnel from the customer conducted on-site investigations and consulted relevant equipment data,

Finally, Motta OPG Open Gear Lubricant was recommended 800&2000,

At the same time, Motta engineers provided a series of engineering technical services - lubrication system

Inspection, gear inspection, injection volume recommendations, lubrication technical training, etc.

Result

Since August 2013, Motta OPG Open Gear Lubricant 800&2000

Has demonstrated excellent adhesion and anti-wear properties, providing good lubrication protection for the electric shovel's pushing and pressing,

Rotary drive parts. Excellent lubrication performance,

Less lubricant usage saves users approximately

RMB 1.2 million annually for electric shovels.

07

Better lubrication protection to ensure normal equipment operation

Motta Synthetic Gear Oil Motta Gear Oil 320 Improves Belt Reducer Lubrication and Increases Energy Efficiency 3.29%, saving customers RMB per unit per year 3,441yuan.

Belt conveyor single drive gearbox, Flender

Shenhua Beidian Shengli Energy Co., Ltd.

Xilinhot, Inner Mongolia

Background

Shenhua Beidian Shengli Energy Co., Ltd. Storage and Transportation Department M201 Ground Belt System uses a Flender reducer. The reducer is an important drive for raw coal transportation equipment, and its transmission gearbox has always been lubricated with ral oil. The lubricating oil is changed approximately every 12 months.

Solution

2014In , Motta engineers recommended Motta Synthetic Gear Oil Motta Gear Oil 320 for the lubrication of the M201 belt conveyor gearbox, replacing the previously used Motta ral gear oil. Motta L800 Gear Oil 320's excellent performance is not only reflected in providing better lubrication protection for equipment and helping to extend equipment life and oil change cycles, but also its low traction coefficient can effectively reduce power loss and has significant energy-saving benefits. At the same time, Motta engineers conducted gear inspections and on-site lubrication exchange diagnostics, etc. a series of engineering services to ensure the normal operation of the equipment.

Result

Compared to the previously used ral oil, Motta Synthetic Gear Oil Motta L Gear Oil 320 provides better lubrication protection for belt reducers, saving users approximately RMB per reducer per year 3,441yuan.

08

Improving the lubrication of downhole loader engines helps extend oil change intervals and reduces overall operating costs. 15W-40 and planned engineering services help customers improve engine lubrication, extend oil change intervals, and save RMB 430,000 annually.

Downhole loader (Deutz air-cooled engine)

Jinchuan Group Co., Ltd.

Jinchang City, Gansu Province

background

The underground mining area under Jinchuan Group's transportation company has more than 80 underground loader vehicles equipped with Deutz air-cooled engines. Previously, they used a certain brand of CF-4 grade 15W-40 engine oil for lubrication, which had problems such as short oil change intervals, excessive sludge in the oil pan, and short engine overhaul intervals, resulting in high overall operating costs.

Solution

After conducting an on-site investigation, Mota's technical service engineers and vehicle oil manager, taking into account the operating conditions of the downhole loader, recommended that the customer use Mota 15W-40. They also included it in the planned engineering service items, providing services such as lubrication technology exchange, trial operation suggestions, engine inspection, and oil analysis.

result

Field use has shown that Mota 15W-40 provides excellent lubrication protection for the downhole loader engine, improving its lubrication condition. Based on oil analysis and engine inspection results, the oil change interval can be extended from 15 days to 30 days.

benefit

By improving engine lubrication, oil change intervals can be extended, reducing overall maintenance costs and saving customers RMB 430,000 annually.

Motta Serv SM Professional Lubrication Services

Motta Serv SM not only quickly solves your equipment lubrication problems through diversified basic services and on-site engineering services, but also combines intelligent and data applications,

Analyze lubricating oil data and equipment operating conditions, extract digital insights to provide you with more forward-looking equipment maintenance plans, allowing you to manage equipment management more confidently,

Help achieve cost reduction and efficiency, and add wings to productivity.

Choose Motta Serv SM Reasons:

When does your equipment need an oil change? What kind of oil should I change? How to perform lubrication maintenance? How to be more energy-saving and environmentally friendly?

In an increasingly digital and intelligent era of industrial interconnection, the demand for improving production efficiency has become increasingly strong. How to make timely and correct choices for your business will be the key to success. As a result, Motta Serv SM service brand came into being, providing your business with a new perspective, allowing you to more calmly respond to the era's challenge.

Unified service execution standards

Professional engineering team and globally standardized execution management bring you consistent high-quality lubrication services.

Offline service execution network

A strong distributor network and its offline service execution team respond to your needs in a timely manner to build a comprehensive service network for you.

Combined with digital solutions

Order on-site service with one click through the Motta Serv digital platform, and you can also visually manage your equipment and monitor equipment in real time

Lubrication status, application of intelligent data analysis, to provide you with forward-looking lubrication insights.

Help you reduce costs and increase efficiency

Use Motta Serv tailored for you SM lubrication service to help you discover lubrication management problems and optimize equipment lubrication solutions,

Improve lubrication management efficiency, reduce maintenance costs, and stimulate production potential.

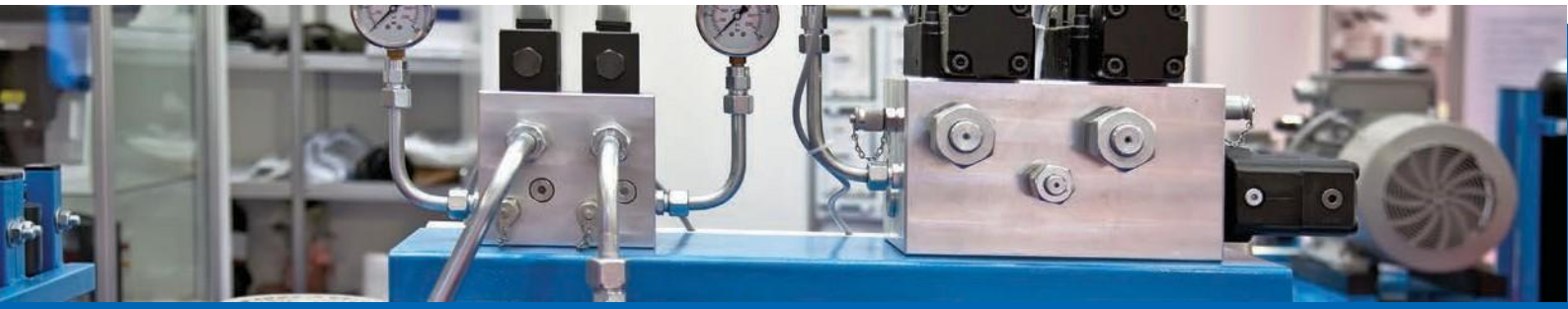
Motta SM Oil Analysis——Engine Analysis

Test	Purpose	Importance of Testing
Coolant Leakage Indicators	Deter the content of sodium, potassium, and boron in engine oil.	Define whether coolant leaks into the engine through worn cylinder head gaskets, cracked cylinder blocks, or cylinder heads. into the engine.
Fuel Dilution	Measure the amount of unburned fuel entering the crankcase.	If fuel is present in the crankcase, it will reduce lubricant viscosity and weaken detergency. Excessive fuel may indicate a potential mechanical problem.
Metal	Deter whether metals in the lubricant (including contaminants and wear particles) its presence and content.	Wear metal content helps deter whether equipment parts are worn or harmful contaminants have entered lubricant. The metal content of chemical additives will also be recorded.
Oxidation	Deter the degree of lubricant oxidation and deterioration.	Oxidation may mean: • Increased wear and corrosion • Shortened equipment life • Increased viscosity • Excessive deposits and blockages
Ferromagnetic Particle (PQ) Index	Used to deter ferrous metals that cannot be detected by current spectral analysis Fatigue failure and metal-to-metal contact wear.	The PQ index can detect early: • Anti-friction bearing wear • Sliding bearing wear • Early signs of piston scuffing • Gear wear
Soot	Deter the soot content in the lubricant as a percentage by weight.	Excessive soot contamination may mean: • Decreased engine performance • Reduced fuel economy • Excessive carbon deposits and sludge • Shortened lubricant life • Increased blow-by
Total Acid Number (TAN)	Measure acidic lubricant oxidation by-products.	An increase in total acid number may indicate increased lubricant oxidation leading to increased lubricant acidity.
Total Base Number (TBN)	Measure the amount of base in the lubricant used to neutralize acids.	A decrease in total base number may indicate: • Changes in fuel characteristics or too rapid lubricant oxidation accelerate the formation of acidic substances, leading to lubricant degradation. • The amount of base in the lubricant that neutralizes acid is reduced.
Viscosity	Deter the lubricant's resistance to flow.	• Viscosity increases due to high soot or insoluble content, water contamination, or mixing with higher viscosity fuel or lubricant. leads to increased viscosity. • Viscosity decreases due to water contamination or mixing with lower viscosity fuel or lubricant. • Viscosity that is too high or too low can cause premature equipment wear.
Moisture	Detect the presence of water contamination.	Water contamination can cause severe corrosion and subsequent wear, improper oil film thickness, or hydrogen embrittlement problems.

Motta Serv SM Oil Analysis

When performing oil analysis, the laboratory treats each oil sample bottle as Independent important analysis object. Each oil sample will be encoded, labeled, and tracked throughout the process. Your sampling equipment will directly benefit from Motta Lubricant knowledge, decades of experience with original equipment manufacturers relationships, and powerful practical application expertise data. As needed, we will provide oil sample analysis reports, to help identify potential problems, list possible causes, and recommend follow-up action.

Hydraulic System Inspection



Motta Serv℠ service, helping you understand the details of critical hydraulic equipment, thereby effectively improving equipment performance.

Service Introduction

Our engineers inspect, report, and document. Your critical equipment

Hydraulic system conditions. They use inspection data to establish optimal replacement

The time for critical hydraulic components such as pumps, valves, heat exchangers, filters

and lubricants - then recommend maintenance to help improve system reliability.

Potential Benefits

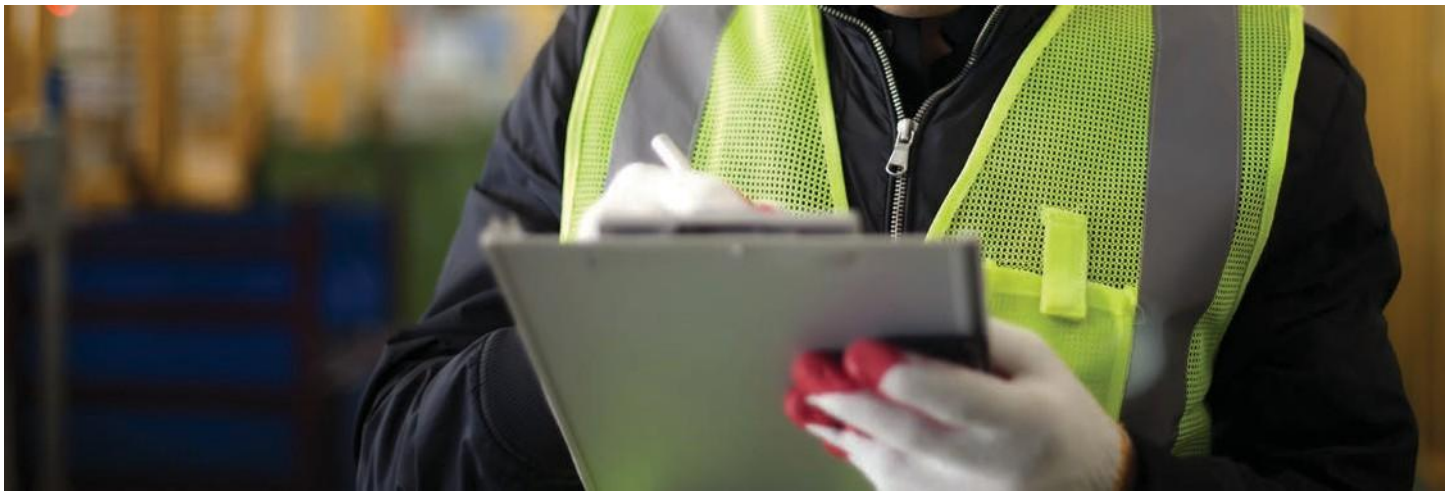
- Help reduce unplanned downtime
- Help reduce lubricant consumption
- Efficiently maintain and monitor equipment operation
- Help reduce the frequency of hydraulic system parts replacement
- Help increase the production of qualified parts
- Help strengthen production safety and environmental protection practices

Execution Method

We will work with you to:

- Understand current plant lubrication practices, equipment life, and potential for improvement
- Develop a regular hydraulic system inspection plan
- Check the condition of components matched with breather valves
- Record reservoir oil temperature and obtain system oil samples
- Evaluate system fluid cleanliness levels
- Compare results to identify changes and trends
- Establish a Hydraulic Fluid Index (HFI) target for the system

Hydraulic System Inspection



Deliverables: The condition of the system inspection will be presented in an engineering service report. This report will also cover improvements to the system performance and reliability, as well as the value of the service.

Related Areas of Focus

- Lubricant Contamination
- Hydraulic System Temperature Too High or Too Low
- Air in Oil (Foaming)
- System Shock Loads
- Hydraulic Pressure Too High
- Pump Suction Restriction
- Improper Filtration or Maintenance
- Hose Condition (if applicable)
- High Leakage Rate; Low Oil Level

Safety, Health and Environment

Our field engineers are familiar with the potential hazards of transporting, storing and using petroleum products, and strictly adhere to operating procedures and Motta's safety guidelines. They coordinate on-site personnel to operate ———on equipment Inspect electrical and mechanical lockouts before performing work, set up appropriate warning signs, and provide assistance to reduce dangerous suggestions.

Gear Inspection

Service Overview

Understanding gear condition will help you effectively extend equipment life and improve performance.

Service Introduction

Our engineers will inspect the condition of gears, bearings, lubricants, lubrication systems, seals, and housings of key enclosed gear units, and provide corresponding reports and records. The test results can help extend the life of the gear unit, improve performance, and assess gear life.

Provide recommendations for improving equipment operation and maintenance.

Execution Method

We will work with you to:

- Identify key gear units and understand their current performance and potential for improvement
- Schedule gear inspections during factory or system shutdown plans
- Perform equipment inspections during unplanned downtime or failures
- Record component conditions using standard procedures and track wear trends

Record and report

- Compare results with previous test data, industry standards, and equipment benchmarks

Compare

- Record recommendations and justify them using return on investment and total cost of ownership

Justify

- Submit and distribute complete reports to plant management

Potential Benefits

Help reduce unplanned downtime

Help reduce maintenance labor costs

Help reduce gear replacement frequency

Help increase equipment productivity

Efficiently maintain and monitor equipment operation

Help strengthen production

Safety and environmental practices

Gear inspection

Submission content: The engineering service report will summarize the gearbox condition and provide improvements to the operating and maintenance procedures based on the condition.

Suggestions. The report will include photos of wear patterns, condition explanations, and the value of the service.

Related areas of concern

- Find a more suitable lubricant for the equipment
- Abnormal operating temperature
- Lubricant contamination
- Gear unit overload
- Gear misalignment
- Coupling failure
- Need to extend oil drain interval
- Filtration measures

Safety, health and environment

Our field engineers are familiar with the potential hazards of transporting, storing and using petroleum products, and strictly comply with operating procedures and Motta's safety standards. They coordinate on-site personnel to operate - Inspect electrical and mechanical locks before performing operations on equipment, set appropriate reminder signs, and provide

Help reduce dangerous advice.

Classification and standards of lubricants

Lubricants are mainly divided into automotive lubricants and industrial lubricants according to their use. Automotive lubricants mainly

Includes diesel (gasoline) engine oil, automotive gear oil and automatic transmission fluid, etc. Industrial

Lubricants mainly include hydraulic oil, gear oil, comprr oil, circulating oil, grease, etc.

Classification of automotive lubricating oils

SAE (Society of Automotive Engineers)

Classification: Classifies lubricating oils based on the viscosity characteristics of the oil.

SAE (J300) Viscosity Classification

e.g.: 15W-40

Divided into winter and summer grades

Winter

Summer

Winter grade

0W 5W 10W 15W 20W 25W

Better low-temperature performance

Summer grade

20 30 40 50 60

Higher viscosity

Classification of automotive lubricants

SAE J300 Engine Oil Viscosity Classification					
SAE Viscosity grade	Low temperature (°C) Cranking viscosity, cP maximum	Low temperature (°C) Pumping viscosity, cP maximum, no yield stress	**100%** Kinematic viscosity at (cSt) minimum	Kinematic viscosity at 100 °C (cSt) Maximum	At 150 °C and 10 s High temperature shear viscosity (cP) minimum
0W	6,200 @ -35	60,000 @ -40	3.8	-	-
5W	6,600 @ -30	60,000 @ -35	3.8	-	-
10W	7,000 @ -25	60,000 @ -30	4.1	-	-
15W	7,000 @ -20	60,000 @ -25	5.6	-	-
20W	9,500 @-15	60,000 @ -20	5.6	-	-
25W	13,000 @ -10	60,000 @ -15	9.3	-	-
20	-	-	5.6	<9.3	2.6
30	-	-	9.3	< 12.5	2.9
40	-	-	12.5	< 16.3	2.9 (0W-40/5W-40/10W-40)
40	-	-	12.5	< 16.3	3.7 (15W-40/ 20W-40/25W-40, 40)
50	-	-	16.3	<21.9	
60	-	-	21.9	< 26.1	

SAE J306 Automotive Gear Oil Viscosity Classification			Viscosity classification of transmission shaft and manual transmission lubricants	
SAE Viscosity grade	**100** Kinematic viscosity at °C Minimum, mm²/s	**100** Kinematic viscosity at °C Maximum, mm²/s	Viscosity is 150,000 mPa.s, Maximum temperature °C	**20** Hours KRL shear (CRCL-45-T-93) test, KV100 after shear, mm²/s
70W	4.1	No requirement	-55	4.1
75W	4.1	No requirement	-40	4.1
80W	7.0	No requirement	-26	7.0
85W	11.0	No requirement	-12	11.0
80	7.0	11	No requirement	7.0
85	11.0	13.5	No requirement	11.0
90	13.5	24	No requirement	13.5
140	24.0	41	No requirement	24
250	41.0	No requirement	No requirement	41

Classification of Industrial Lubricants

ISO (International Organization for Standardization) classifies industrial lubricants according to their kinematic viscosity at 40°C (KV, unit Cst)

ISO Industrial Lubricant Viscosity Classification

ISO Viscosity Chart

Industrial oils are graded according to the ISO viscosity classification system approved by the International Organization for Standardization (ISO). The ISO system is based on viscosity at 40°C. The ISO viscosity ranges are summarized in the table below:

ISO Viscosity Grade	Midpoint cSt at 40°C	Viscosity Range 40°C cSt	
		Minimum	Maximum
2	2.2	1.98	2.42
3	3.2	2.88	3.52
5	4.6	4.14	50.6
7	6.8	6.12	7.48
10	10	9.00	11.0
15	15	13.5	16.5
22	22	19.8	24.2
32	32	28.8	35.2
46	46	41.4	50.6
68	68	61.2	74.8
100	100	90.0	110
150	150	135	165
220	220	198	242
320	320	288	352
460	460	414	506
680	680	612	748
1000	1000	900	1100
1500	1500	1350	1650

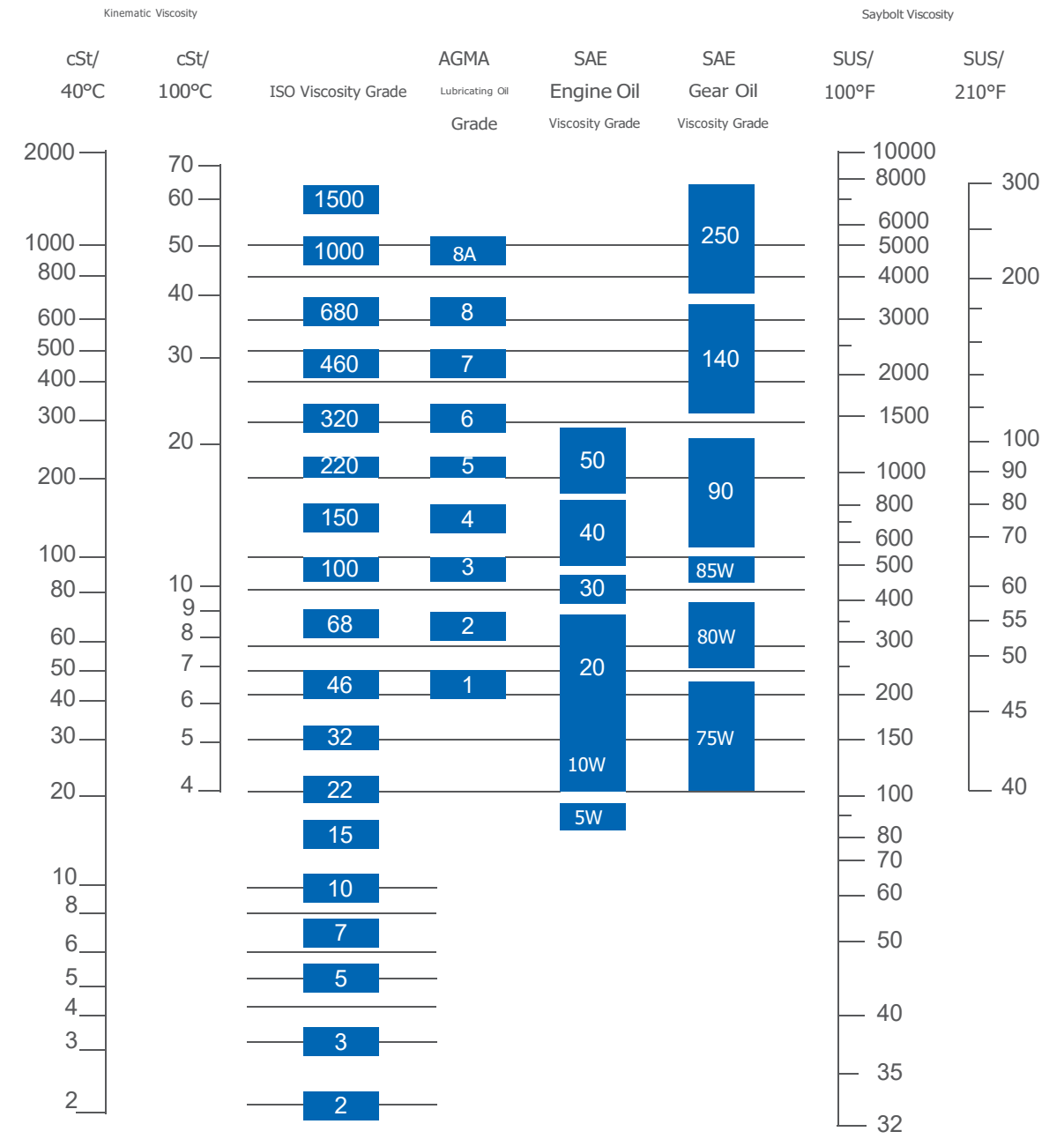
NLGI Grease Consistency Classification System

NLGI Grade	ASTM Worked Penetration at 25°C
000	445-475
00	400-430
0	355-385
1	310-340
2	265-295
3	220-250
4	175-205
5	130-160
6	85-115

NIGL grades are defined as the penetration range after 60 operations

Classification of Industrial Lubricants

Viscosity Classification Comparison



Grease Compatibility Chart

	Complex Aluminum Based Grease	Barium Base	Calcium Base	Calcium 12 | Hydroxy Base	Complex Calcium Based Grease	Clay (Non-soap)	Lithium 12 | Hydroxy	Complex Lithium Based Grease	Calcium Sulfonate	Polyurea (Shear Unstable)	Polyurea (Shear Stable)
Complex Aluminum Based Grease											
Barium Based											
Calcium Based											
Calcium 12 — Hydroxy											
Complex Calcium Based Grease											
Clay (Non-soap)											
Lithium 12 — Hydroxy											
Complex Lithium Based Grease											
Calcium Sulfonate											
Polyurea (Shear Unstable)											
Polyurea (Shear Stable)											

Boundary

Compatible

Incompatible

MOTTA®

MOTTA LUBRICANTS

SPORT CAR

GRAND RACING

MAKE EVERY DROP
OF OIL CAREFULLY

MOTTA®