



High-Performance Lubricants, Coolants, and Greases

# INDUS-GEAR™: Industrial Gear Lubricants

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Industrial gear systems are a critical component in countless manufacturing and power transmission systems – transferring torque, altering speed, and driving mechanical efficiency in modern industry. From mining conveyors and steel production to wind turbines and robotics, these systems operate under immense load and require lubricants that deliver consistent, high-level protection across both enclosed gearboxes and exposed gear drives.

The Rock Oil INDUS-GEAR range provides advanced solutions for industrial gear applications – from high-performance enclosed gear oils to specialised lubricants designed for heavily loaded exposed gear systems. Each product is engineered to deliver exceptional wear protection, micropitting resistance, oxidation stability, and extended service life, meeting or exceeding leading OEM and industry standards including DIN 51517 Part 3, AGMA 9005-F16, and Flender (Siemens) approvals.



In enclosed gearboxes, Industrial Gear Oils (IGOs) protect bearings and gears from wear, corrosion and micropitting, while maintaining efficiency and reliability under heavy load. With modern OEMs designing more compact, higher-power gearboxes, lubricants must offer advanced film strength, fine filterability, and long-term stability.

A properly formulated gear oil improves operational uptime, reduces maintenance costs, and prevents catastrophic failures. Gearbox downtime can cost industries hundreds of thousands of pounds per hour in lost production, making lubricant performance a key factor in total cost of ownership.

### Example cost implications of gearbox failure in steel manufacturing

Minimum production downtime	2.5 to 3 hrs
Minimum production downtime costs	£150,000 p/h
<b>Total</b>	<b>£450,000</b>



**A single part failure in an industrial gearbox can result in....**



**Total production shutdown**



**Lost output and revenue**



**Cancelled contracts**



**Additional service costs**

*This excludes parts and labour costs, as well as any contractors required to carry out repairs – further emphasising the importance of robust protection*

Industrial gear systems are lubricated using either circulating oils in enclosed gearboxes or highly adhesive greases and compounds for exposed gear drives. While enclosed gear oils are typically selected according to recognised standards such as DIN 51517, open gear lubricants are engineered to provide exceptional adhesion, load-carrying capability, and resistance to contamination in severe operating environments.

## DIN and OEM Standards for Enclosed Gear Oils:

Rock Oil enclosed gear oils align directly with the DIN 51517 framework, making product selection straightforward for industrial gearbox applications:

DIN Classification	Rock Oil Equivalent	Description & Typical Applications
CL	-	Basic gear oils without EP/AW additives. Used for light-duty gear sets where loads and temperatures are low. (Not part of the INDUS-GEAR range.)
CLP	INDUS-GEAR M CLP	Mineral-oil-based gear lubricants with EP/AW additives for heavy-duty service. Deliver excellent load-carrying capacity, wear protection, and corrosion resistance.
CLP HC	INDUS-GEAR S PAO CLP	Synthetic PAO-based gear oils meeting the same EP/AW requirements as CLP but offering longer oil life, higher efficiency, and wider temperature tolerance.
CLP (E)	INDUS-GEAR BIO ES	Biodegradable ester-based lubricants combining high-performance protection with environmental responsibility. Ideal for hydropower and other sensitive applications.
CLP-PG	INDUS-GEAR S PAG	PAG-based synthetics for extreme temperature and pressure conditions, providing exceptional thermal stability and extended drain intervals. (Not miscible with mineral or PAO oils.)

**All Rock Oil industrial gear oils meet or exceed the performance requirements of DIN 51517 Part 3 and relevant OEM specifications.** The Rock Oil INDUS-GEAR range is divided into four performance tiers, ensuring precise lubricant selection for every industrial gear application:

Range	Base Type	Typical Use	Key Advantages
INDUS-GEAR M CLP	Mineral	Heavy-duty enclosed gear systems	Proven reliability, high load capacity
INDUS-GEAR S PAO CLP	Synthetic PAO	Extreme environments, robotics, wind	Micropitting resistance, energy efficiency
INDUS-GEAR S PAG	Synthetic PAG	High-temperature gear units, calendaring machinery	Outstanding thermal stability, long service life
INDUS-GEAR BIO ES	Biodegradable Ester	Ecologically sensitive sites	Environmentally responsible, high polarity protection



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**INDUS-GEAR™**

## INDUS-GEAR™ M CLP SERIES:

Premium mineral-based industrial gear oils designed for enclosed gear systems, exceptional load-carrying performance and long-term reliability. Formulated with advanced sulphur-phosphorus EP additives, these lubricants ensure outstanding wear protection and corrosion resistance, even in damp or contaminated environments.

Although synthetic technology continues to expand, high-quality mineral oils remain widely used across heavy industry, offering proven reliability and cost-effective performance where operating conditions and service intervals are moderate.

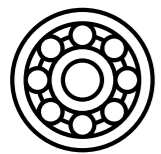


### INDUS-GEAR M CLP Series Features and Benefits

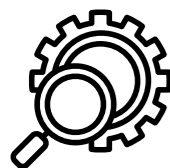
- Exceptional load-carrying performance, even at high temperatures
- Compatible with bronze and copper alloys
- Excellent oxidation and thermal stability for extended oil life
- Robust protection against rust and corrosion
- Strong resistance to water contamination and foaming
- Enhanced anti-wear performance for reduced downtime

Viscosity Grade	Typical Application	Product Code
68	Parallel shaft gears (spur, helical, herringbone)	06130
100	Parallel shaft gears (spur, helical, herringbone)	06032
150	Parallel shaft gears (spur, helical, herringbone)	06044
220	Intersecting shaft gears (straight bevel, spiral bevel)	06140
320	Intersecting shaft gears (straight bevel, spiral bevel), Crossed shaft gears (skew, worm, hypoid)	06150
380	Crossed shaft gears (skew, worm, hypoid)	12790
460	Crossed shaft gears (skew, worm, hypoid)	06051
680	Slow-speed, high-load or heavily shock-loaded gear drives, such as those found in heavy rolling mills, kilns, and mining equipment.	06160
1000	Slow-speed, high-load or heavily shock-loaded gear drives, such as those found in heavy rolling mills, kilns, and mining equipment.	08400

#### Proven Wear Protection



High-performance extreme-pressure formulation provides outstanding protection for bearings and gears under heavy or shock loading.



Exceptional resistance to micropitting and scuffing ensures long service life and reliable operation across a wide viscosity range.

#### Optimised Foam Control & Air Release

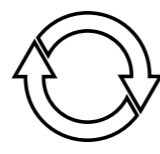


Designed to maintain consistent oil flow and film strength in modern gear systems, even under fine filtration.



Excellent defoaming and air release properties minimise entrained air, supporting smooth, efficient gearbox performance and extended oil life.

#### Reliable Materials Compatibility



Formulated for use with a broad range of seal and elastomer materials to prevent leakage and minimise maintenance downtime.



Meets and exceeds leading OEM and industry specifications for industrial gear oils, ensuring full compatibility with existing system coatings and materials.

### Performance Specifications, Approvals & Recommendations:

DIN 51517 PART 3  
 AGMA 9005-F16 AS  
 (AGMA F16 supersedes AGMA D94)  
 US STEEL 124  
 DAVID BROWN S1.53.101 (E)  
 ISO 12925-A CKSMP  
 ZT TE-ML 04H  
 ZF WITTEN ZFN-W-17-145  
 FLENDER GMBH (SIEMENS)  
 SUMITOMO DRIVE TECHNOLOGIES  
 CHINESE GB 5903 L-CKC/L-CKD  
 FIVES CINCINNATI EP GEAR OILS  
 GM LS-2 EP GEAR OILS  
 INDIAN STANDARD IS 8406  
 SCHAEFFLER FAG STEPS 1-4  
 SCHULLER PRESSEM GMBH DT55 005/1  
 SMS GROUP SN 180-3  
 EICKHOFF QSV19.0002  
 RENK 36011  
 HANSEN INDUSTRIAL TECHNOLOGIES





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## INDUS-GEAR™ S PAO CLP SERIES:

A high-performance range of fully synthetic industrial gear oils, formulated with premium PAO base oils and advanced additive technology. Developed for severe operating conditions, these lubricants deliver outstanding wear protection, exceptional micropitting resistance, and improved mechanical efficiency.

As equipment manufacturers continue to demand longer service intervals, higher efficiency, and lower operating temperatures, synthetic gear oils are increasingly replacing traditional mineral formulations. The INDUS-GEAR S PAO CLP Series reflects this shift – providing enhanced durability and energy performance to meet the latest OEM and end-user requirements.



### INDUS-GEAR S PAO CLP Series Features and Benefits

- Superior micropitting resistance and bearing protection
- Engineered by Rock Oil using advanced additive technology for exceptional OEM-approved performance
- Extended drain intervals and oil life under extreme loads
- Enhanced efficiency with up to 8.5% energy improvement
- Excellent air release and foam control for smooth system operation
- Compatible with mineral gear oils for simplified transition

Viscosity Grade	Product Code
32	06541
46	06740
68	06720
100	06760
150	06511
220	06201
320	06620
460	06571
680	06700
1000	08410

## Performance Specifications, Approvals & Recommendations:

DIN 51517 PART 3  
 US STEEL 224  
 FLENDER GMBH REVISION 16 (SIEMENS)  
 EICKHOFF QSV19.0002  
 CHINESE GB 5903 L-CKC/L-CKD  
 ISO 12925-1 CKC/CKD/CKSMP  
 RENK 36011-11  
 ZF WITTEN XFN-W-17-145

AGMA 9005-F16  
 DAVID BROWN S1.53.101 TYPE E  
 FIVES CINCINNATI EP  
 SUMITOMO DRIVE TECHNOLOGIES BUI-TEC-2009-4-001 H  
 GENERAL ELECTRIC GED50E35  
 SCHAEFFLER FAG STEP 1-4  
 SEQ EURODRIVE  
 HANSEN INDUSTRIAL TECHNOLOGIES BUI-TEC-2009-4-001 H

### Market Growth



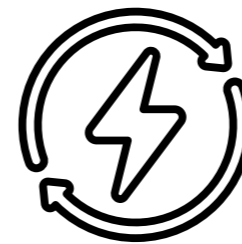
The synthetic gear oil market continues to grow at an annual rate of 5.2%.

### Operational Savings



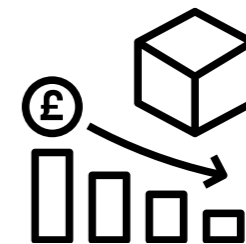
Enhanced reliability can save operators over £468,000 per incident through reduced downtime and maintenance.

### Energy Efficiency



Energy efficiency improvements of up to 8.5% are achievable under demanding operating conditions.

### Optimised Formulation



Improved thickening efficiency can reduce treat rates, delivering up to 40% cost savings.





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## INDUS-GEAR™ S PAG SERIES:

Synthetic polyalkylene glycol (PAG) fluids providing outstanding high-temperature stability, low friction, and extended service intervals. Chosen where even PAO synthetics reach their limits, PAG lubricants are designed for the most thermally demanding gear applications, operating effectively at temperatures exceeding 200 °C.

### INDUS-GEAR S PAG Series Features and Benefits

- Excellent thermal stability and oxidation resistance
- Extended service life beyond 10,000 hours at 100°C
- Low friction and high load-carrying capability
- Outstanding corrosion resistance (ASTM D665B pass)
- Free from sulphur, chlorine, and lead additives
- Not miscible with mineral or PAO oils – system flushing required before use



#### Performance Specifications, Approvals & Recommendations:

General approval has been given for this lubricant range as a Type “G” lubricant in David Brown industrial enclosed gear units

#### Typical Applications:

- Worm and bevel gear units
- Calendering machinery and high-temperature industrial drives

Viscosity Grade	Product Code
150	14220
220	14230
320	14530
460	14540
680	15790

## INDUS-GEAR™ BIO ES SERIES:

Biodegradable ester-based industrial gear oils combining environmental responsibility with exceptional performance. With sustainability targets now influencing lubricant choice across construction, forestry, and renewable energy sectors, ester-based formulations provide a high-performance alternative where environmental impact is a key consideration.

### INDUS-GEAR BIO ES Series Features and Benefits

- 60% biodegradation in 28 days (OECD 301B)
- Excellent lubricity and adhesion to metal surfaces
- Robust wear and micropitting protection under high load
- Reduced friction and improved gear efficiency
- Effective rust and corrosion inhibition
- Rapid water separation and air release



#### Performance Specifications, Approvals & Recommendations:

DIN 51517 PART 3

Typical Applications include ecologically sensitive environments, such as:

- Hydropower and marine gearboxes
- Forestry and agricultural drives
- Wind turbine systems

Viscosity Grade	Product Code
150	12730
220	12731
320	12732





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## OPEN GEAR LUBRICANTS AND SPECIALISED GREASES

Large exposed gear drives and heavily loaded industrial components require lubricants capable of maintaining a durable protective film under extreme load, contamination, and shock conditions. Rock Oil's range of open gear greases and compounds are engineered to deliver excellent adhesion, load-carrying performance, and resistance to water, dust, and debris in demanding industrial environments.

### OPEN GEAR COMPOUND

Highly adhesive bitumen-based extreme pressure lubricant designed for open gear drives operating in heavy industrial environments. The formulation provides excellent adhesion and load carrying capability while protecting components exposed to water, contamination, and severe mechanical loading.

Suitable for the lubrication of large girth gears, wire ropes, chains, couplings and sliding surfaces in mining, quarrying and material handling equipment.

Product Code: 65010

### EXTROL OGG GREASE

High-performance aluminium complex grease incorporating solid lubricants and extreme pressure additives to provide outstanding protection for open gear systems operating under extreme load and contamination.

The formulation produces a durable lubricating film that resists water wash-off while maintaining protection in dusty or abrasive environments.

Product Code: 65780

#### Features and Benefits

- Excellent adhesion to working surfaces
- Strong load carrying capability under heavy shock loads
- Excellent resistance to water and corrosion
- Ideal for exposed gears and components operating in harsh environments

#### Features and Benefits

- Excellent adhesion to gear surfaces
- High load carrying performance with solid lubricants
- Effective lubrication under wet or contaminated conditions
- Resistant to fling-off and dust accumulation
- Suitable for both running-in and service lubrication

## PRO-GUARD™ 460 OGL 00

High-performance open gear grease incorporating extreme pressure additives and finely dispersed graphite to deliver reliable protection for slow to medium speed heavily loaded gears.

The formulation provides excellent adhesion and resistance to fling-off while remaining pumpable for use in spray lubrication systems.

Product Code: 60890

## PRO-GUARD™ 1000 CA-OG 2M

Premium calcium thickened grease designed for applications where heavy loads and water exposure require reliable lubrication and corrosion protection. Formulated with graphite and molybdenum disulphide solid lubricants to maintain protection under extreme pressure conditions.

Product Code: 60850

## FAXENE LOX 55/2 GREASE

High-performance food-grade PFPE grease formulated for extreme temperature and chemically aggressive environments. The PTFE thickened formulation delivers exceptional thermal stability and resistance to chemicals, solvents and oxygen service. Operating capability extends to temperatures of up to 280 °C.

Product Code: 65815

#### Features and Benefits

- Excellent load carrying and anti-wear protection
- Very good adhesion and resistance to fling-off
- Excellent pumpability for spray lubrication systems
- Strong corrosion protection for extended component life

#### Features and Benefits

- Excellent load carrying capacity
- High resistance to water and corrosion
- Solid lubricant protection under heavy loads
- Good adhesion and sealing properties

#### Features and Benefits

- Food-grade formulation suitable for regulated environments
- Exceptional thermal and oxidation stability
- Extremely resistant to chemicals and solvents
- Suitable for oxygen service and vacuum applications