

**SHELL  
LUBRICANT  
SOLUTIONS**



# Shaping a More Productive Future

Produce more. Spend less.  
Today and tomorrow.



## Our world is changing

We are witnessing the impact of three key trends on the metals industry – all of which require urgent action from businesses who want to stay one step ahead.



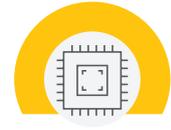
### Cost pressures

Between external pressures and ageing assets, there is a growing demand to reduce downtime and avoid unnecessary costs, by more accurately predicting maintenance needs.



### Environment

The industry is also under mounting pressure to reduce its carbon footprint, through less intensive water use and lower carbon emissions, while fully embracing circular economies.

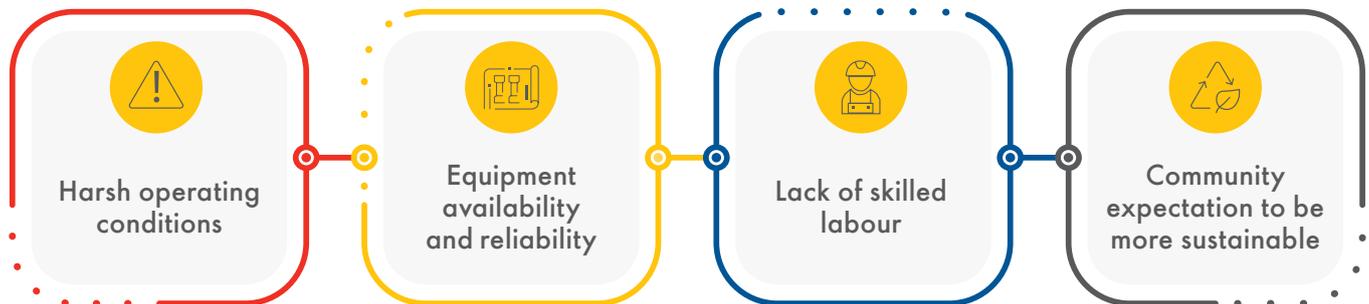


### Technology

Strides are being made in the area of digitization, with the upgrading of facilities and upskilling of workforces boosting productivity throughout the sector.

## Key challenges in the metals industry

The metals industry is one of the most critical and competitive industries in the world; one that operates in extreme conditions, with complex equipment and supply chains. Recent world events have made productivity, efficiency and modernization more important than ever.



## How can Shell help?

No matter where you are in the world, Shell Lubricant Solutions has a dedicated offer for your metals business, helping to maximize equipment efficiency and reduce downtime.

Our reputation is built on strong technical capabilities that have served the leading industry players for several decades.

We are a partner in the truest sense, willing to work as an extension of your own team and able to understand the intricacies of your operation. With ambitions of leading the world in cleaner energy solutions, our competitive range of products and services have your energy and environmental needs at their core.



## Grease portfolio:

Key processes	Continuous Casting	Rolling Mills	General Purpose Mill Applications	Electric Motors / Fans	Couplings
Key Applications	Caster Segment Bearings	Work Rolls	Tables, Mandrels, Shears, Cooling Beds	High-speed Bearings	High-speed Couplings and Spindles
Critical grease performance requirements	<ul style="list-style-type: none"> <li>■ Excellent central system mobility</li> <li>■ Excellent load carrying capacity</li> <li>■ Oxidation resistance</li> </ul>	<ul style="list-style-type: none"> <li>■ Mechanical stability</li> <li>■ Corrosion inhibition/ protection</li> <li>■ Water resistance</li> </ul>	<ul style="list-style-type: none"> <li>■ Excellent central system mobility</li> <li>■ Excellent load carrying capacity</li> <li>■ Oxidation resistance</li> </ul>	<ul style="list-style-type: none"> <li>■ Mechanical stability</li> <li>■ Corrosion inhibition/ protection</li> <li>■ Energy efficiency</li> </ul>	<ul style="list-style-type: none"> <li>■ Excellent load carrying capacity</li> <li>■ Resistance to centrifugal separation</li> <li>■ Extended service interval</li> </ul>
	<b>NLGI recommendation:</b> 1.5	<b>NLGI recommendation:</b> 2 or 1.5	<b>NLGI recommendation:</b> 2 or 1.5	<b>NLGI recommendation:</b> 3 or 2	<b>NLGI recommendation:</b>
	<b>Base oil viscosity recommendation:</b> ISO 460	<b>Base oil viscosity recommendation:</b> ISO 220 - 460	<b>Base oil viscosity recommendation:</b> ISO 220 or 460	<b>Base oil viscosity recommendation:</b> ISO 100	<b>Base oil viscosity recommendation:</b> > ISO 460
Technology recommendation	Polyurea	Lithium Complex	Lithium complex, lithium	Lithium complex, lithium	Lithium complex, lithium
Lithium/Lithium calcium		Shell Gadus S2 V220AC	Shell Gadus S2 V220 C Shell Gadus S2 V220 AC Shell Gadus S2 V220	Shell Gadus S2 V100	Shell Gadus S2 High-speed Coupling
Lithium complex	Shell Gadus S3 V460	Shell Gadus S3 V460	Shell Gadus S3 V460	Shell Gadus S5 V100	Shell Gadus S3 High-speed Coupling
Calcium sulphonate	Shell Gadus S3U 460 A 1.5				
Polyurea	Shell Gadus S5 T460			Shell Gadus S5 T100	

Key processes	Open gear	Wire rope	Slip seal	Slide track
Key Applications	Girth gear/Kiln	Wire	DRI	Pellet plant
Critical grease performance requirements	<ul style="list-style-type: none"> <li>■ Excellent central system mobility</li> <li>■ Excellent load carrying capacity</li> <li>■ Oxidation resistance</li> </ul>	<ul style="list-style-type: none"> <li>■ Mechanical stability</li> <li>■ Corrosion inhibition/protection</li> <li>■ Water resistance</li> </ul>	<ul style="list-style-type: none"> <li>■ Excellent central system mobility</li> <li>■ Excellent load carrying capacity</li> <li>■ Oxidation resistance</li> </ul>	<ul style="list-style-type: none"> <li>■ Mechanical stability</li> <li>■ Corrosion inhibition/protection</li> <li>■ Energy efficiency</li> </ul>
	<b>NLGI recommendation:</b> 000-00	<b>NLGI recommendation:</b> 000-0	<b>NLGI recommendation:</b> 2 or 1.5	<b>NLGI recommendation:</b> 1.5 ,1 &2
	<b>Base oil viscosity recommendation:</b> ISO 3000-20000	<b>Base oil viscosity recommendation:</b> ISO 100	<b>Base oil viscosity recommendation:</b> ISO 150-460	<b>Base oil viscosity recommendation:</b> ISO 220-460
Technology recommendation	Aluminium complex & clear oil	Lithium	Lithium complex, lithium, calcium sulphonate	Calcium sulphonate, polyurea
Lithium/Lithium calcium		Shell gadus S3 wire rope	Shell Gadus S2 V220 C Shell Gadus S2 V220 AC Shell Gadus S2 V220 Shell Gadus S1 V150 D2	
Lithium complex			Shell Gadus S3 V460 2	
Calcium sulphonate			Shell Gadus S3U 460 A 1.5 EP2 xtra	Shell Gadus S3U 460 A 1.5 EP2 xtra
Polyurea				Shell Gadus S3 T 220 2 Shell Gadus S5 T 460 1.5
Aluminium complex	Shell Gadus S4 OGH 3000			
Clear oil	Shell Gadus S4 OG 20000 clear oil			

## Technology choices when selecting grease:

Thickener behaviour/ Performances	Application challenges			
	Water resistance	Corrosion protection	High temperature	Pumpability
Lithium	Light Blue	Medium Blue	Light Blue	Dark Blue
Lithium/Calcium	Dark Blue	Dark Blue	Light Blue	Light Blue
Lithium complex	Dark Blue	Dark Blue	Medium Blue	Dark Blue
Calcium sulphonate	Dark Blue	Light Blue	Medium Blue	Light Blue
Polyurea	Dark Blue	Dark Blue	Dark Blue	Dark Blue

Light Blue	Poor to good
Medium Blue	Good to very good
Dark Blue	Very good to excellent

## Shell's portfolio of products

Shell has designed a winning portfolio of oils, fluids and greases that our team of experts can recommend based on your specific technical and operational needs.

### Bearing and circulating oils

Shell Morlina S2 B	Versatile protection industrial applications	Conventional, anti-wear protection
Shell Morlina S2 BL	Reliable protection high-speed applications	Low-viscosity base oils, anti-wear protection
Shell Morlina S1 B	Reliable protection industrial applications	Conventional, non-ep
Shell Morlina S3 BX 100	Higher water separation efficiency, better protection	Bearing and circulation oil for rolling mills

### Gear Oils:

- Shell Omala S4 GXV/GX
- Shell Omala S4 WE
- Shell Omala S2 GX/G

#### Shell Omala S4 GXV

Advanced synthetic heavy duty industrial gear oil approved by Flender

Offering outstanding lubrication performance under severe operating conditions



### Industrial Hydraulic Oils:

- Shell Tellus S4 VX
- Shell Tellus S4 VE (GTL)
- Shell Tellus S3 M, zinc free
- Shell Tellus S2 MX
- Shell Tellus S1 M/V

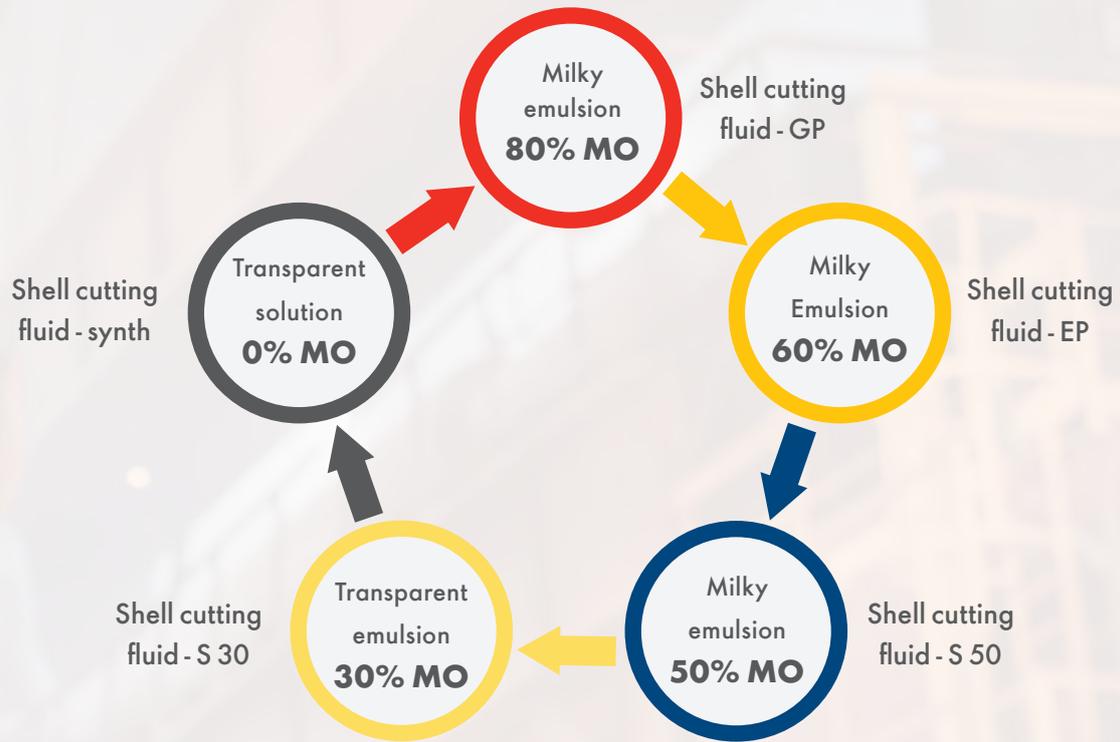
#### Shell Tellus S4 VX

Advanced synthetic industrial hydraulic fluid

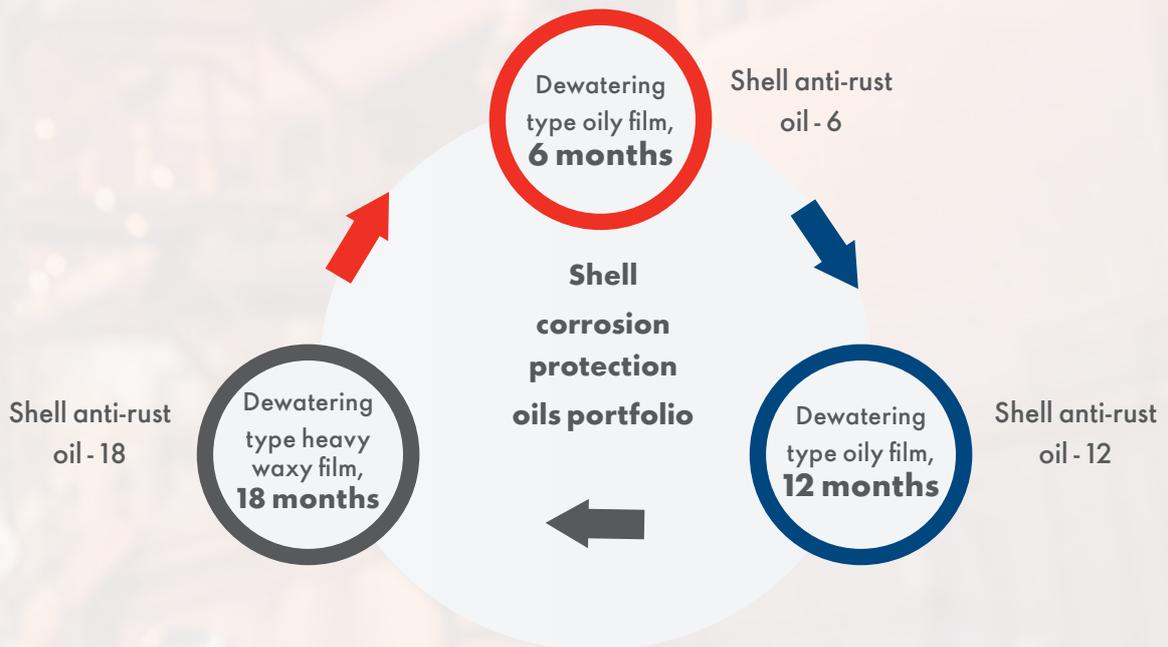
Energy efficiency, outstanding wear protection and long oil life



## Water-soluble cutting fluids



## Corrosion protection oil



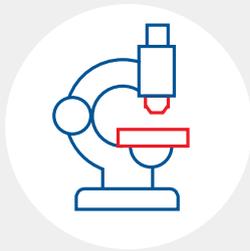
## Shell's portfolio of services

Shell's complete toolkit of services for the Metals sector put you back in control of your maintenance.

Easy-to-use digital tools and cutting-edge oil analysis allow you to make informed technical decisions, while our training programmes cater for lifelong learning, empowering you to make better lubrication choices.

### Shell LubeAnalyst

Oil Analysis



#### Shell LubeAnalyst

Shell LubeAnalyst combines world-renowned industry expertise with scientific best practice, providing an end-to-end service that helps you:

- Predict potential failures before they occur - preventing unnecessary downtime.
- Identify areas to optimise operations and implement best practice recommendations.
- Access a trends-based profile of your equipment via our easy-to-use digital platform.

### Shell Lube Optimiser

Reliability Services



#### Shell Lube Optimiser

Helps your business with a network of on-site reliability service providers that can offer:

- Support for maintenance and troubleshooting activities during the lifetime of your oil.
- Industry expertise to identify areas of operational improvement.
- Vital physical services such as flushing, filtration, vacuum dehydration and varnish mitigation.

### Shell Tactic EMV

Lubrication Solutions



#### Shell Tactic EMV

Shell Tactic EMV automated lubrication systems are designed to provide enhanced equipment protection and, thereby, extend bearing service life and deliver excellent reliability compared with manually lubricated bearings.

- Reduces operational costs and downtime through preventive maintenance programmes.
- Offers superior protection and reliability for essential components, especially in cases where regular manual upkeep is challenging.

## Shell LubeAdvisor

Technical Advisors



### Shell LubeAdvisor

One of the largest lubricant technical organisations in the world, Shell LubeAdvisor helps with:

- Choosing the right lubricant or grease for your specific needs.
- Protecting equipment and preventing unnecessary downtime.
- Cost reduction programmes through our comprehensive Lube Site Surveys.

## Shell LubeExpert

Technical Experts



### Shell LubeExpert

With productivity and TCO top of mind, Shell LubeExpert allows you to work alongside an on-site technical specialist, who is able to:

- Perform lubrication system audits and open gear inspections.
- Identify and implement improvement opportunities such as converting from manual to auto-lubrication systems.
- Hands-on support that integrates with your maintenance teams.

## Shell LubeCoach

Training Programme

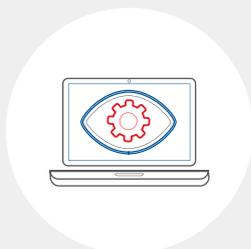


### Shell LubeCoach

Designed to adapt to the needs of your business and your staff. Delivered by technical experts as a modular programme, it can help you to:

- Upskill and empower your team with vital lubrication knowledge.
- Better understand the relationship between maintenance and TCO.
- Reduce the time associated with lubricant-related repairs and activities

## Shell Remote Sense



### Shell Remote Sense



#### Real-time oil condition monitoring

- Water ingress
- Viscosity
- Total acid number (TAN)
- Total base number (TBN)
- Oil consumption
- Fuel dilution
- Oxidation
- Nitration
- Wear metals
- Coolants



#### Actionable insights and recommendations

- Contamination alerts
- Remaining oil life
- Fine control of oil quality
- Smart top-up and sweetening
- Extend oil-drain intervals
- Consumption savings

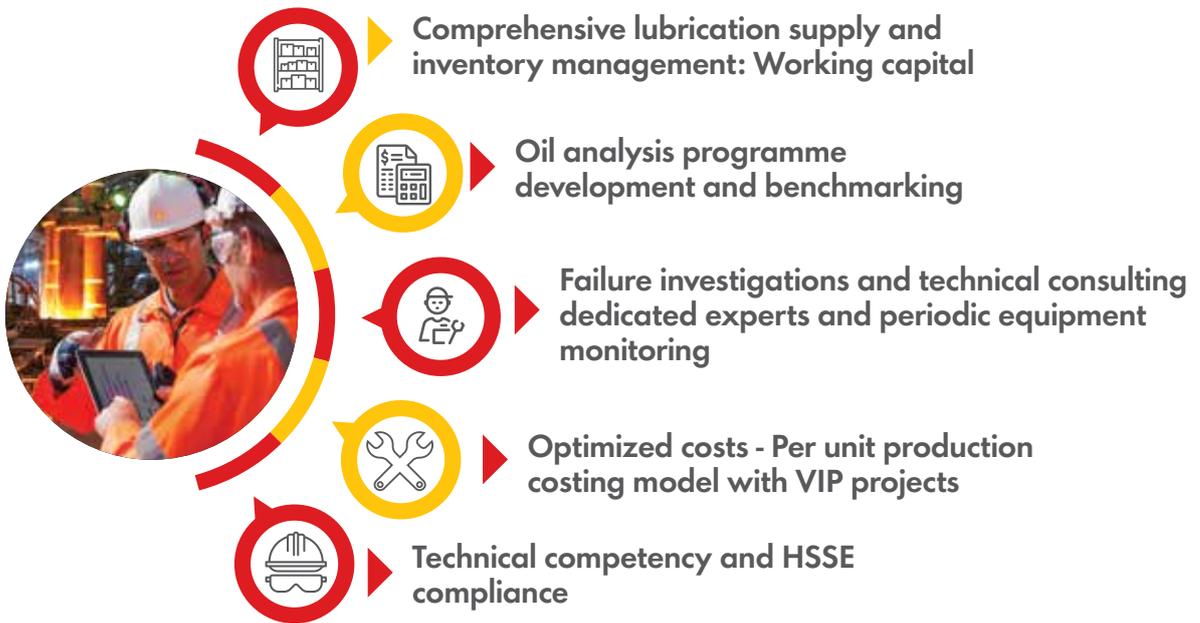
# Lubricant management programme

An end-to-end lubricant management programme which lets the customer focus on their core business while reducing cost and optimizing operations

## End-to-end lubrication management

- Right application
- Right lubricants
- Right quantity
- Right time
- Right lubrication point

## Value for customer with lubricant management programme



## Unlocking possibilities: Our unique programme journey

Analysis	New proposal	Implementation	Optimization
Detailed examination of current activities that would help us decide subsequent steps	Formulation of new lubrication management plan with focus on cost optimization and equipment efficiency	Implementation of new plan and additional continuous improvement projects	Assessing the new LMP elements that would help make enhancements and improvements to get the desired results

## Why choose Shell?

- Shell proven and established solution
- Lubricants life cycle management
- Structured value improvement programme [Guaranteed value delivery]
- Money on the table

# SHELL LUBRICANT Makes it possible

An 8-step optimum site assessment program which examines site to help you identify any problem areas and make improvements to achieve peak performance and cost savings in your operations.



## Why carry out a site assessment?

Lubricants can help increase productivity and reduce Total Cost of Ownership (TCO). Many customers overlook the importance of effective lubrication.

**43%** do not believe choosing higher quality lubricants can help improve productivity<sup>1</sup>

**1/10** customers think savings through lubrication selection and/or management could exceed 25%<sup>1</sup>. In reality, it impacts up to 30% of maintenance budget<sup>2</sup>

**20%** believe unplanned equipment shutdowns take place due to their incorrect lubricant selection and/or management have cost their business \$250,000 or more<sup>1</sup>

1. Total Cost of Ownership (TCO) is defined by Shell Lubricants as the total amount spent on industrial equipment, including cost of acquisition and operation over its entire working life, including costs of lost production during equipment downtime.  
2. Potential impact calculated based on Shell Lubricants site surveys with customers.

# Shell Waste Oil Management



Transparent pricing



Compliant to norms



Waste oil  
management training

**Recycling can reduce 21% of CO<sub>2</sub>e emission  
contributed from product life cycle**

## Life cycle of lubricating oil enhanced by Shell

