



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Machine Id  
**142001 - HOLDING**  
Component  
**Winch**  
Fluid  
**LIEBHERR GEAR HYPOID 90 EP (--- GAL)**

### RECOMMENDATION

The oil change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LM0000707</b>	---	---
Sample Date		Client Info		<b>11 Jan 2024</b>	---	---
Machine Age	hrs	Client Info		<b>517</b>	---	---
Oil Age	hrs	Client Info		<b>517</b>	---	---
Filter Age	hrs	Client Info		<b>0</b>	---	---
Oil Changed		Client Info		<b>Changed</b>	---	---
Filter Changed		Client Info		<b>N/A</b>	---	---
Sample Status				<b>ABNORMAL</b>	---	---

### WEAR

The iron level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>150	<b>▲ 163</b>	---	---
Chromium	ppm	ASTM D5185m	>10	<b>2</b>	---	---
Nickel	ppm	ASTM D5185m	>10	<b>&lt;1</b>	---	---
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	---	---
Silver	ppm	ASTM D5185m		<b>0</b>	---	---
Aluminum	ppm	ASTM D5185m	>5	<b>1</b>	---	---
Lead	ppm	ASTM D5185m	>15	<b>1</b>	---	---
Copper	ppm	ASTM D5185m	>80	<b>5</b>	---	---
Tin	ppm	ASTM D5185m		<b>&lt;1</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	---	---
White Metal	scalar	*Visual	NONE	<b>NONE</b>	---	---
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	---	---

### CONTAMINATION

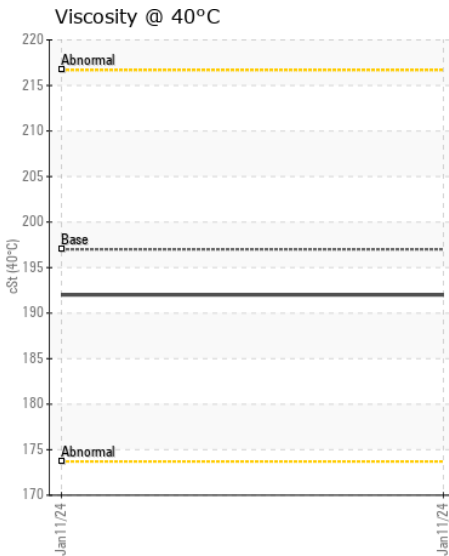
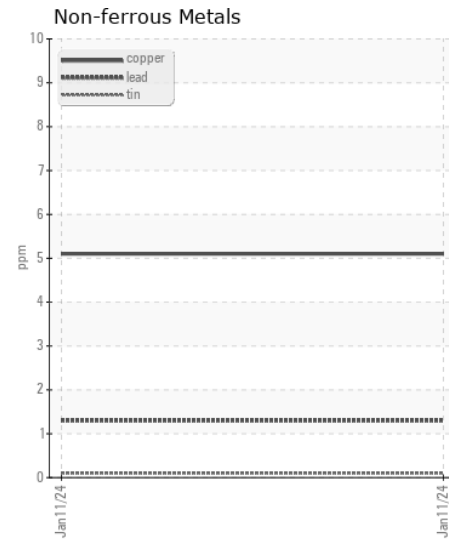
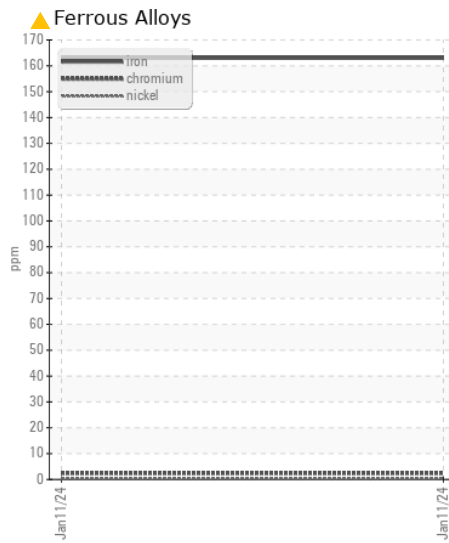
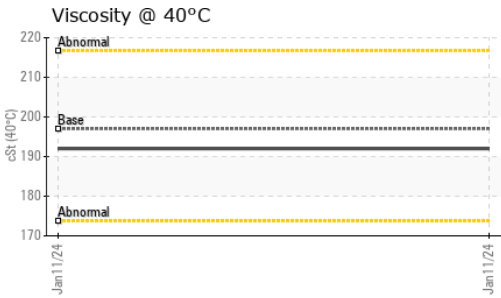
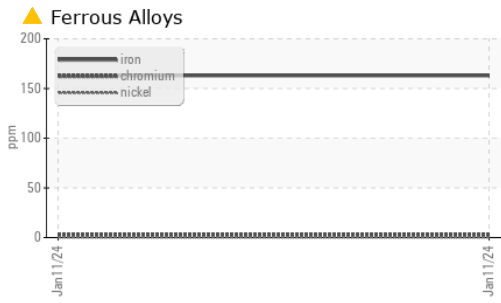
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>4</b>	---	---
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	---	---
Water		WC Method	>0.2	<b>NEG</b>	---	---
Silt	scalar	*Visual	NONE	<b>NONE</b>	---	---
Debris	scalar	*Visual	NONE	<b>NONE</b>	---	---
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	---	---
Appearance	scalar	*Visual	NORML	<b>NORML</b>	---	---
Odor	scalar	*Visual	NORML	<b>NORML</b>	---	---
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	---	---

### FLUID CONDITION

The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		<b>3</b>	---	---
Boron	ppm	ASTM D5185m		<b>0</b>	---	---
Barium	ppm	ASTM D5185m		<b>2</b>	---	---
Molybdenum	ppm	ASTM D5185m		<b>0</b>	---	---
Manganese	ppm	ASTM D5185m		<b>2</b>	---	---
Magnesium	ppm	ASTM D5185m		<b>2</b>	---	---
Calcium	ppm	ASTM D5185m		<b>74</b>	---	---
Phosphorus	ppm	ASTM D5185m		<b>935</b>	---	---
Zinc	ppm	ASTM D5185m		<b>136</b>	---	---
Sulfur	ppm	ASTM D5185m		<b>21493</b>	---	---
Visc @ 40°C	cSt	ASTM D445	197	<b>192</b>	---	---



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LM0000707 **Received** : 18 Jan 2024  
**Lab Number** : 06065222 **Diagnosed** : 22 Jan 2024  
**Unique Number** : 10836604 **Diagnostician** : Sean Felton  
**Test Package** : CONST

**LIEBHERR USA CO - Maritime Cranes**  
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To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)