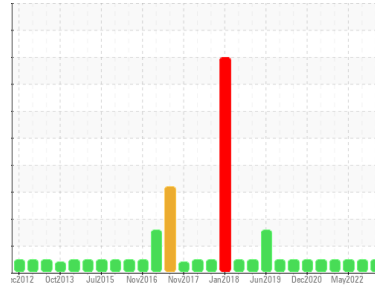




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**HINO [600380362]**

Machine Id  
**29WEA81872**

Component  
**Wind Turbine Gearbox**

Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (110 GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>NX05928229</b>	NX05700272	NX05602876
Sample Date	Client Info	<b>11 Jul 2023</b>	02 Nov 2022	12 May 2022
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184	>80	<b>18</b>	8	16	
Iron	ppm	ASTM D5185m	>150	<b>6</b>	10	11
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	<1
Lead	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>50	<b>2</b>	4	4
Tin	ppm	ASTM D5185m	>10	<b>0</b>	<1	0
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		<b>0</b>	39	1
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1150	<b>802</b>	701	642
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>5</b>	6	4
Calcium	ppm	ASTM D5185m	2000	<b>1580</b>	1522	1370
Phosphorus	ppm	ASTM D5185m	400	<b>342</b>	359	309
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0	0
Sulfur	ppm	ASTM D5185m	1850	<b>2040</b>	2175	1911

## CONTAMINANTS

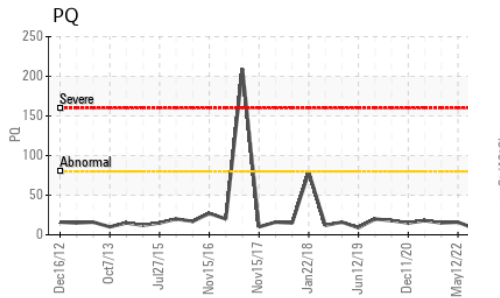
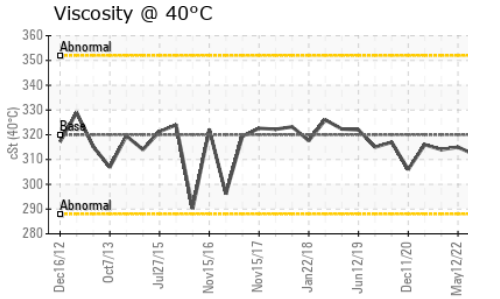
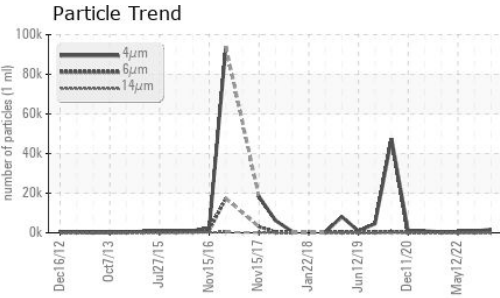
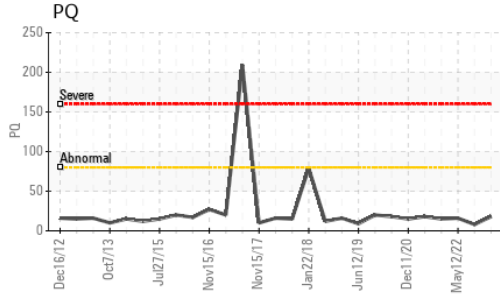
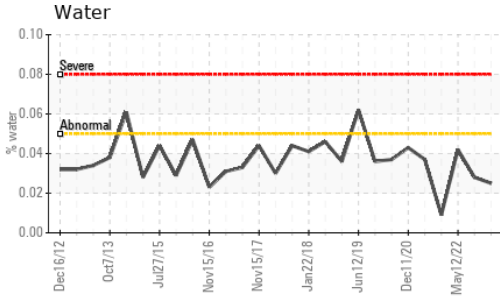
method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>50	<b>10</b>	9	8
Sodium	ppm	ASTM D5185m	>20	<b>2</b>	4	2
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	1
Water	%	ASTM D6304	>0.05	<b>0.025</b>	0.028	0.042
ppm Water	ppm	ASTM D6304	>500	<b>258.1</b>	285.9	423.6

## FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		<b>1665</b>	867	590
Particles >6µm	ASTM D7647	>2500	<b>292</b>	172	132
Particles >14µm	ASTM D7647	>320	<b>36</b>	18	13
Particles >21µm	ASTM D7647	>80	<b>13</b>	5	4
Particles >38µm	ASTM D7647	>20	<b>1</b>	0	0
Particles >71µm	ASTM D7647	>4	<b>1</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>18/15/12</b>	17/15/11	16/14/11



# OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.84</b>	0.51	0.66

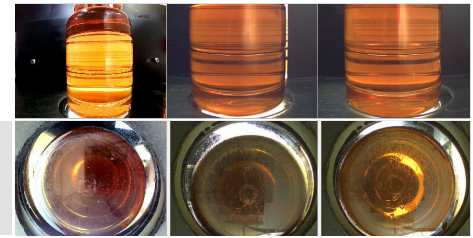
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	<b>NEG</b>	NEG	NEG
Free Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	<b>319</b>	312	315

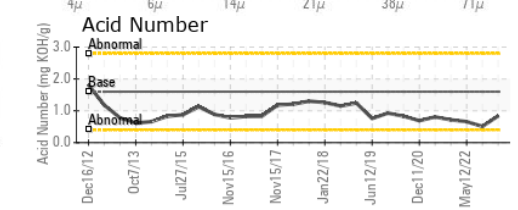
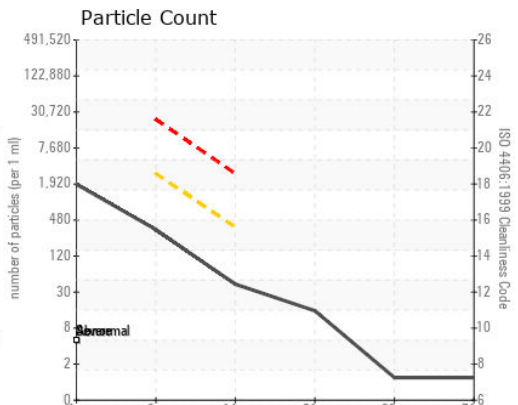
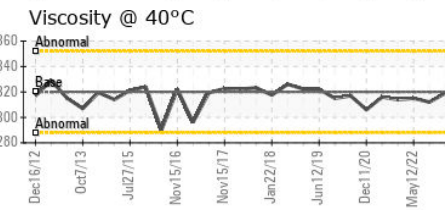
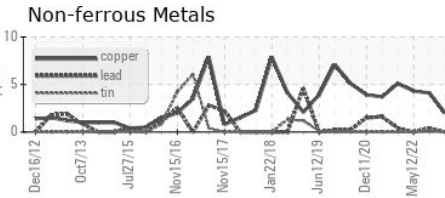
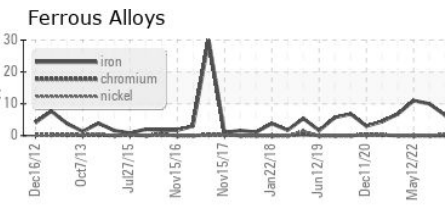
SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color

Bottom



## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : NX05928229 Received : 18 Aug 2023  
 Lab Number : 05928229 Diagnosed : 22 Aug 2023  
 Unique Number : 10608176 Diagnostician : Jonathan Hester  
 Test Package : IND 2 ( Additional Tests: KF, PQ, PrtCount )

NORDEX USA - HIGHLAND & HIGHLAND NORTH  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606  
 Contact: Robert Warner  
 rwarner@everpower.com

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)

T: x  
F: x