

Vibration analysis Report

Date: 22/07/2025

LINE-1 CALCINER STRING FAN(J1P12):

Equipment details: -

Equipment No	J1P12- CALCINER STRING FAN
Location	L1 Kiln
Motor Capacity & Speed	2400 KW KW & 993
Motor bearing Details	DE-NU236C3, NDE-NU224C3 + 6224C3
Fan Bearing oil grade	VG 68
Equipment Mounting Type	Rigid

Subject: - On 03/04/2025, vibration measurements were conducted at the rated RPM of the aforementioned equipment. It was noted that the motor NDE acceleration levels exhibited noise.

Tag no	J1P12-CALCINER STRING FAN	Apr-25
1H	MOTOR NDE HORIZONTAL	0.425
1P	MOTOR NDE PEAK VUE HORIZONTAL	2.238
1V	MOTOR NDE VERTICAL	0.495
1A	MOTOR NDE AXIAL	0.462
2H	MOTOR DE HORIZONTAL	1.565
2P	MOTOR DE PEAK VUE HORIZONTAL	0.326
2V	MOTOR DE VERTICAL	0.773
2A	MOTOR DE AXIAL	0.393

Observation & Recommendations:

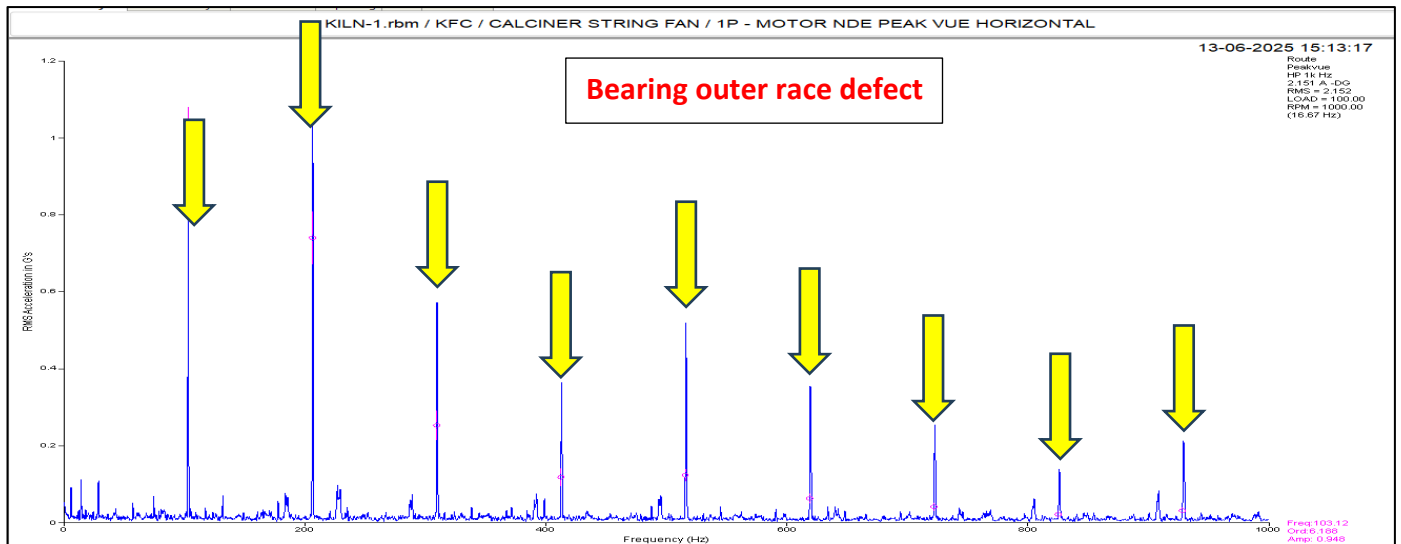
As a condition, we suggested to the concerned team to lubricate the motor NDE bearing, the value was reduced slightly after lubrication.

On 26/05/2025, the 'G' value still increased trend with heavy noise.

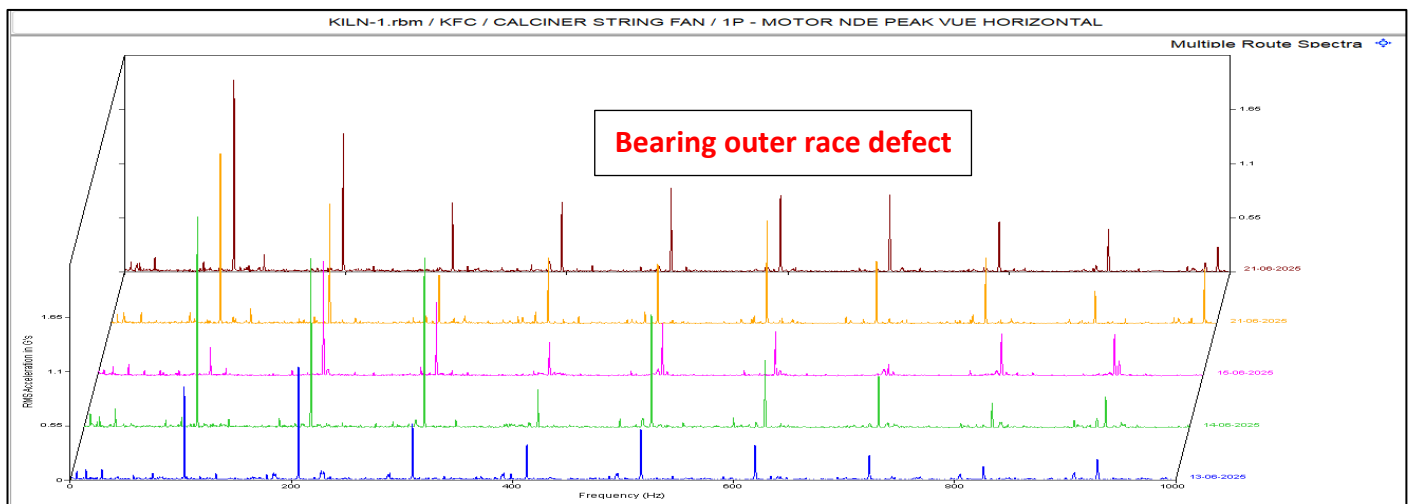
Tag no	J1P12-CALCINER STRING FAN	Apr-25	Apr-25	May-25	Jun-25
1H	MOTOR NDE HORIZONTAL	0.425	0.459	1.228	0.65
1P	MOTOR NDE PEAK VUE HORIZONTAL	2.238	1.116	1.859	1.305
1V	MOTOR NDE VERTICAL	0.495	0.426	0.706	0.406
1A	MOTOR NDE AXIAL	0.462	0.447	0.328	0.308
2H	MOTOR DE HORIZONTAL	1.565	1.456	1.333	0.776
2P	MOTOR DE PEAK VUE HORIZONTAL	0.326	0.204	0.19	0.204
2V	MOTOR DE VERTICAL	0.773	1.120	0.489	0.28
2A	MOTOR DE AXIAL	0.393	0.466	0.33	0.247

Acceleration spectrum: -

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Waterfall spectrum: -



Analysis & Observations:

1. Therefore, it was advised to lubricate the motor bearings. After lubrication was carried out by the responsible team, a decrease in 'G' values was noted; however, these values rose again on 26/05/2025. The FFT analysis indicates BPFO symptoms on the motor NDE side, suggesting bearing defects.
2. As part of the condition assessment, an electrical leakage test was conducted on the motor, which revealed electrical leakage at the motor NDE bearing.
3. The same bearing experienced failure on 10/02/2025 due to the identical cause. This represents the second failure within a five-month period.

Recommendations:

1. Having identified the root cause, it is recommended that the responsible team replace the motor both bearings with an insulated bearing. In the

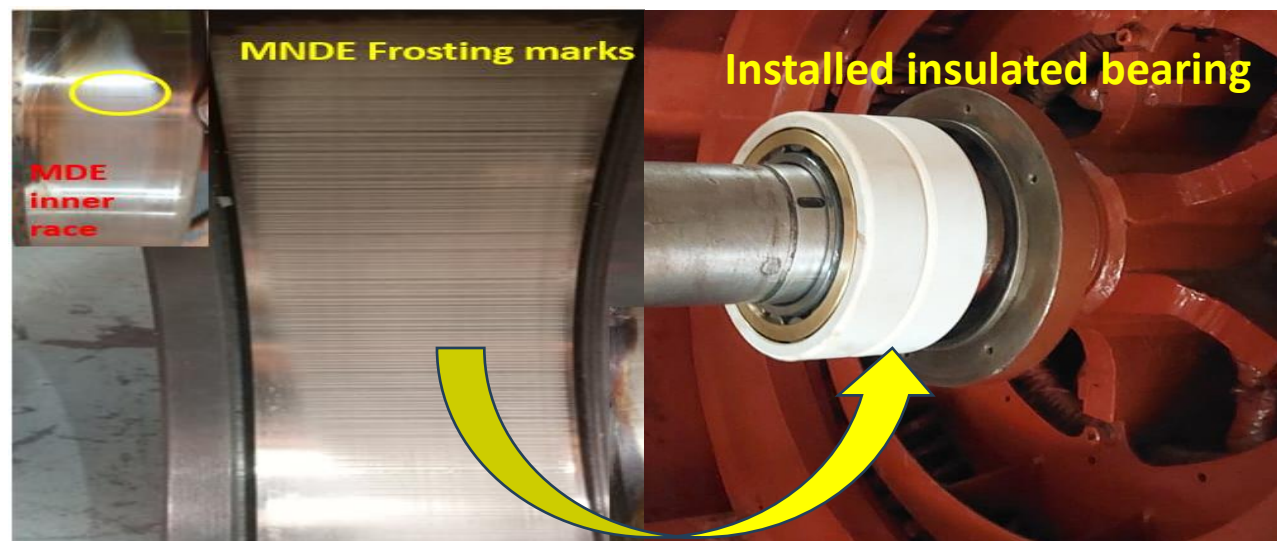
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interim, please ensure that the motor NDE bearing is lubricated to prolong its operational lifespan.

2. The fan coating should be cleaned at the earliest available opportunity during a scheduled shutdown.

According to the vibration analysis report, the concerned team completed the replacement of both motor bearings on 10/07/2025.

Effected bearings with installed bearing images :-

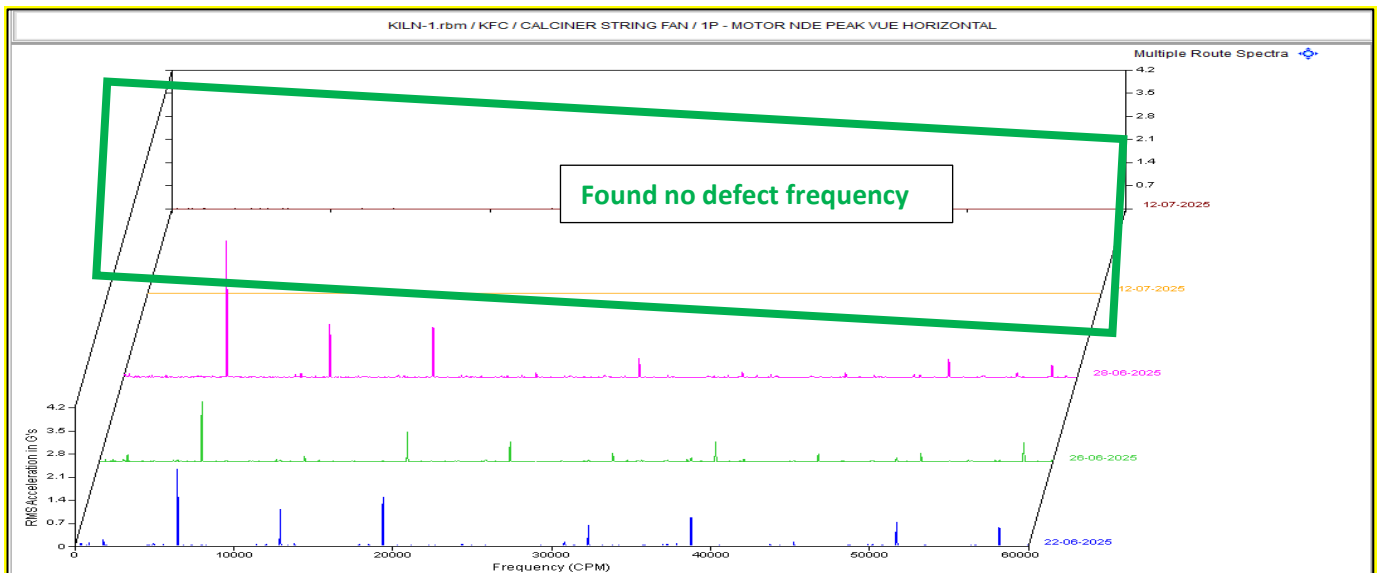
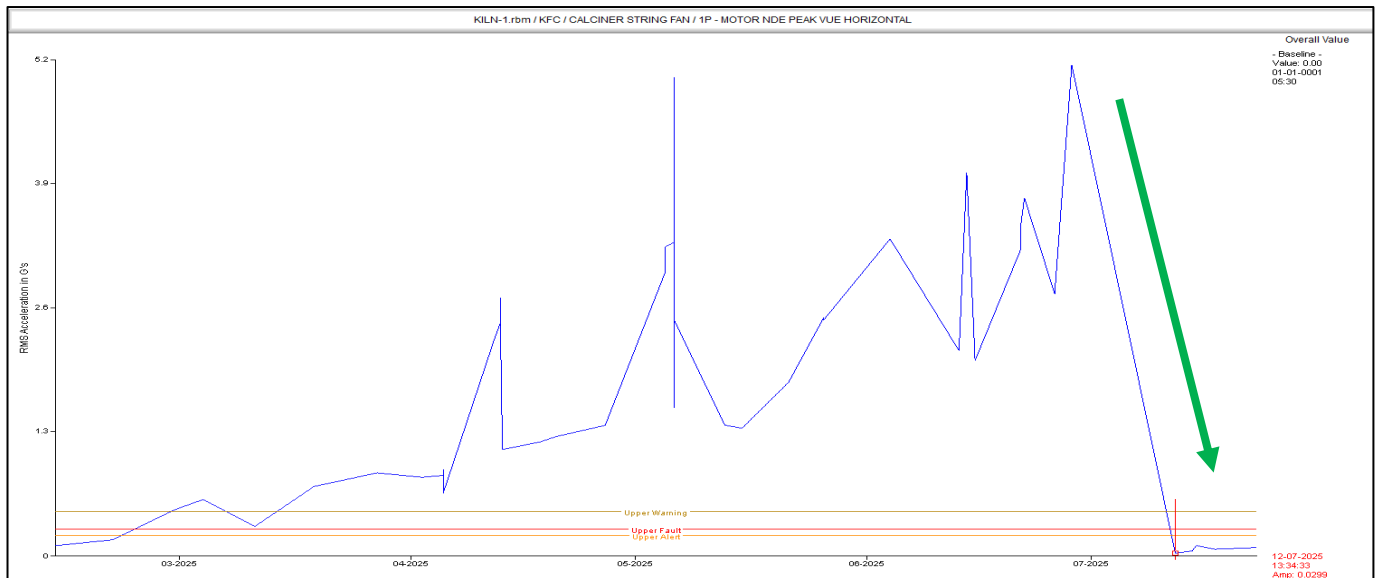


Final vibration & Acceleration readings: - @After correction:

Tag no	J1P12-CALCINER STRING FAN	Apr-25	Apr-25	May-25	Jun-25	Jul-25
1H	MOTOR NDE HORIZONTAL	0.425	0.459	1.228	0.65	0.897
1P	MOTOR NDE PEAK VUE HORIZONTAL	2.238	1.116	1.859	1.305	0.08
1V	MOTOR NDE VERTICAL	0.495	0.426	0.706	0.406	0.4
1A	MOTOR NDE AXIAL	0.462	0.447	0.328	0.308	0.273
2H	MOTOR DE HORIZONTAL	1.565	1.456	1.333	0.776	0.772
2P	MOTOR DE PEAK VUE HORIZONTAL	0.326	0.204	0.19	0.204	0.344
2V	MOTOR DE VERTICAL	0.773	1.120	0.489	0.28	0.348
2A	MOTOR DE AXIAL	0.393	0.466	0.33	0.247	0.3
3H	FAN DE HORIZONTAL	0.791	0.814	3.182	2.438	0.645
3P	FAN DE PEAK VUE HORIZONTAL	0.041	0.05	0.137	0.036	0.033
3V	FAN DE VERTICAL	0.377	0.751	0.813	0.809	0.284
3A	FAN DE AXIAL	0.916	2.307	1.536	1.684	0.742
4H	FAN NDE HORIZONTAL	0.637	0.55	2.898	1.964	0.568
4P	FAN NDE PEAK VUE HORIZONTAL	0.075	0.16	0.099	0.091	0.08
4V	FAN NDE VERTICAL	0.4	0.735	1.287	0.481	0.31
4A	FAN NDE AXIAL	1.142	1.842	1.955	1.519	0.786

Acceleration spectrum: - @After rectification graph

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Root cause: Electrical leakage at the motor NDE bearing resulted in two failures span of 6 months

Action plan & Key improvements:

1. The motor both bearings replacement has been completed, changing from a normal to an insulated bearing.
2. The fan impeller coating has been cleaned.

Benefits: As a preventive measure, avoided repeated bearing failures with improved the equipment reliability.

****We extend our sincere gratitude to the concerned team for their invaluable support****