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Vibration diagnostic report **7895U4-2025**		
Project: **Hafnia Hong Kong** IMO no: **9830288** Ordered by: **MMS Co. Ltd.**	Date of measurement: **2026-02-02 - 2026-02-05**	Place of measurement: **During normal operation**

Measurement condition

Measurements were taken during normal operating condition.

Results presentation

Measured values are presented in the table below. Each machine if applicable is separated for driver (el. motor, diesel engine, etc.) and driven unit (pump, compressor, etc.). *First column* of the table consist name of the equipment. *Second column* contains the highest value of vibration velocity measured on the equipment in all measurement points. *Third column* contains classification of the vibration class according to proper ISO standard and other normative documents. Classification depends on highest reading of measured equipment only. *Fourth column* contains additional readings of enveloped value of acceleration, which is helpful in detection of early stage of bearing wear. *Fifth column* contains remarks and suggestions based on the analysis of vibration signal. This column can be taken as the final conclusion about machine condition. If cell is empty, it means that there is no existing problem or defect shown in vibration signal.

Vibration standards

Following standards may applied for assessment:

ISO 10816-7	Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 7: Rotodynamic pumps for industrial applications, including measurements on rotating shafts
ISO 14694	Industrial fans - Specifications for balance quality and vibration levels
ISO 20816-1	Mechanical vibration — Measurement and evaluation of machine vibration — Part 1: General guidelines
ISO 20816-3	Mechanical vibration — Measurement and evaluation of machine vibration — Part 3: Industrial machinery with a power rating above 15 kW and operating speeds between 120 r/min and 30 000 r/min
ISO 8528-9	Reciprocating internal combustion engine driven alternating current generating sets — Part 9: Measurement and evaluation of mechanical vibrations

And makers recommendations

Legend according to vibration class

Cl. A	Newly commissioned
Cl. B	Unrestricted
Cl. C	Restricted long-term operation
Cl. D	High probability of damage, action required
Cl. D	Vibrations over the limits but actions are not required.

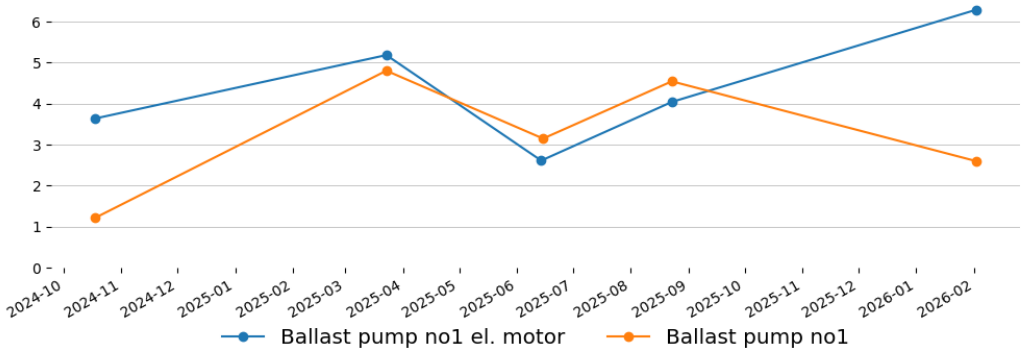
V. I	Unrestricted
V. II	Restricted long-term operation
V. III	High probability of damage, action required
V. III	Vibrations over the limits but actions are not required.

In limit	Unrestricted
Out of limit	High probability of damage, action required
Out of limit	Vibrations over the limits but actions are not required.

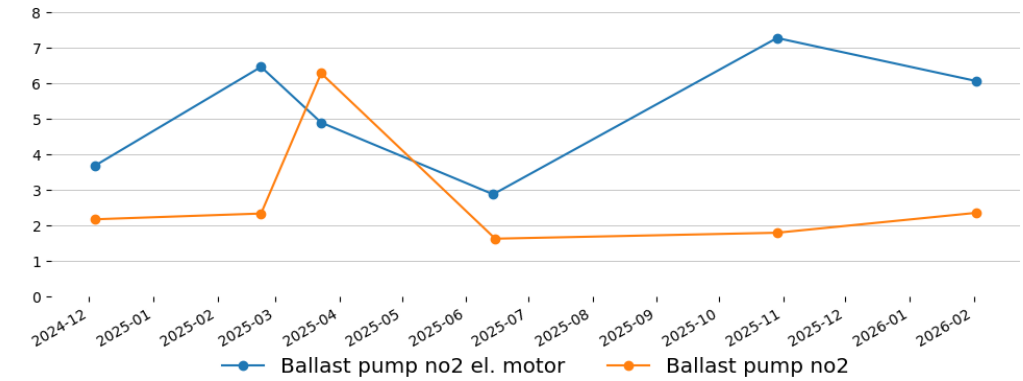
Results

In table are presented only readings with max. RMS results for each device equipment:

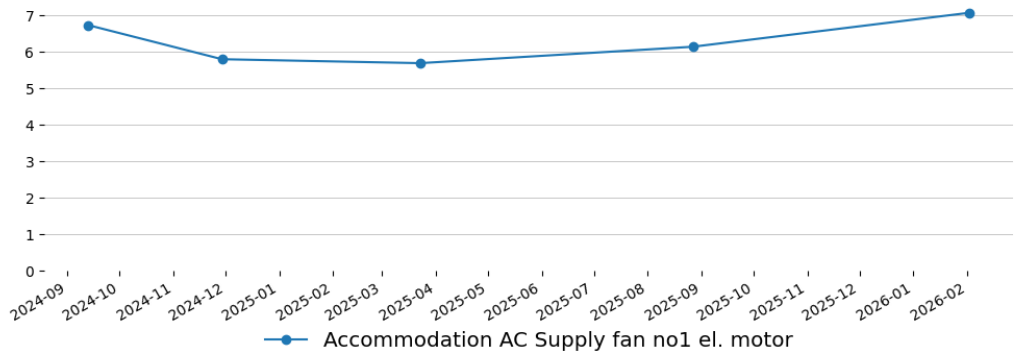
Machine name	Velocity RMS (mm/s) Max	ISO standard	Bearing Envelope 0-Peak (m/s2) Max	Remarks and suggestions
DECK				
Ballast pumps				
Ballast pump no1 el. motor	6.287	**Cl. D**	39.652	Main signal is related with rotational speed of machine. No signs of deterioration. Next measurement should be done according to regular interval.
Ballast pump no1	2.598	Cl. A	46.268	



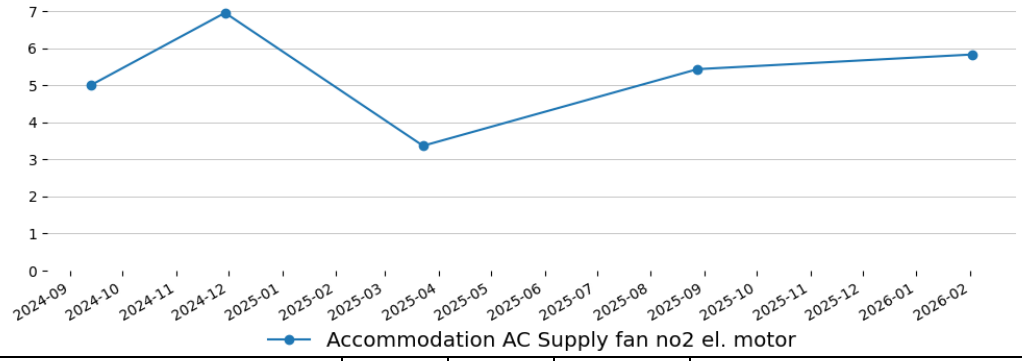
Ballast pump no2 el. motor	6.072	**Cl. D**	49.075	Main signal is related with rotational speed of machine. No signs of deterioration. Next measurement should be done according to regular interval.
Ballast pump no2	2.355	Cl. A	46.537	



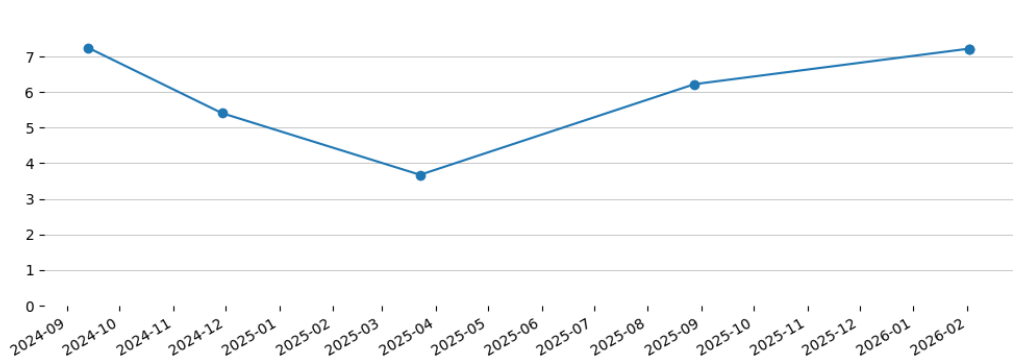
ACCOMODATION				
AC Supply Fans				
Accommodation AC Supply fan no1 el. motor	7.073	Cl. B	9.653	



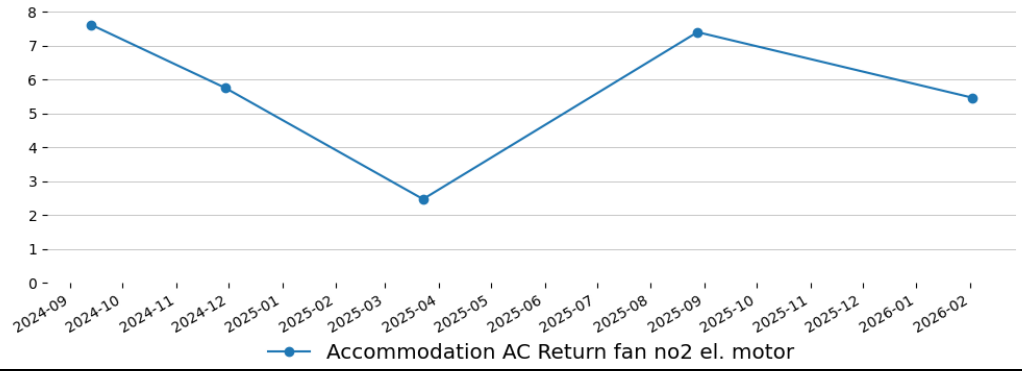
Accommodation AC Supply fan no2 el. motor	5.838	Cl. B	31.076	



Accommodation AC Return fan no1 el. motor	7.221	Cl. C	-	Envelope value errors occurred. **Next measurement should be repeated at first opportunity.**



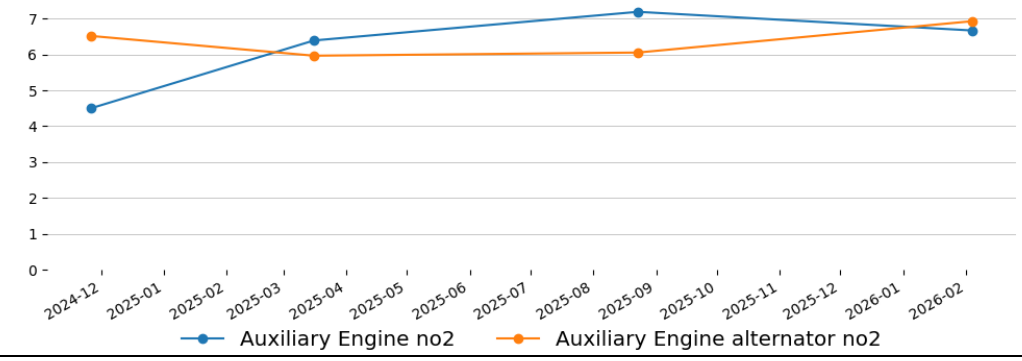
Accommodation AC Return fan no2 el. motor	5.463	Cl. B	-	Envelope value errors occurred. **Next measurement should be repeated at first opportunity.**



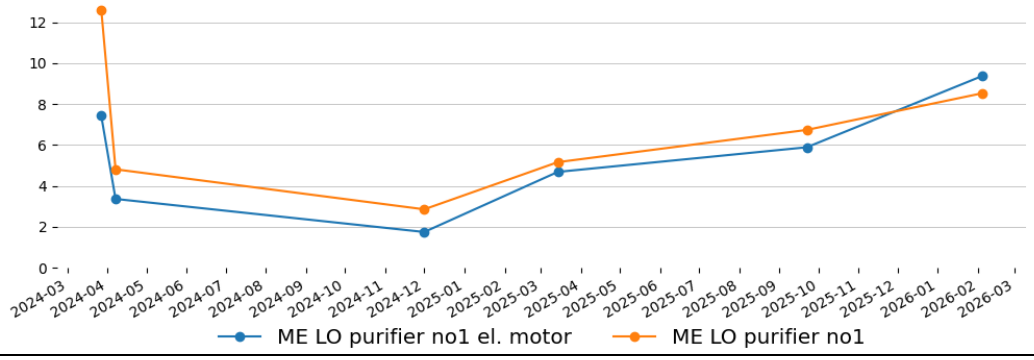
ENGINE ROOM

Diesel Generators

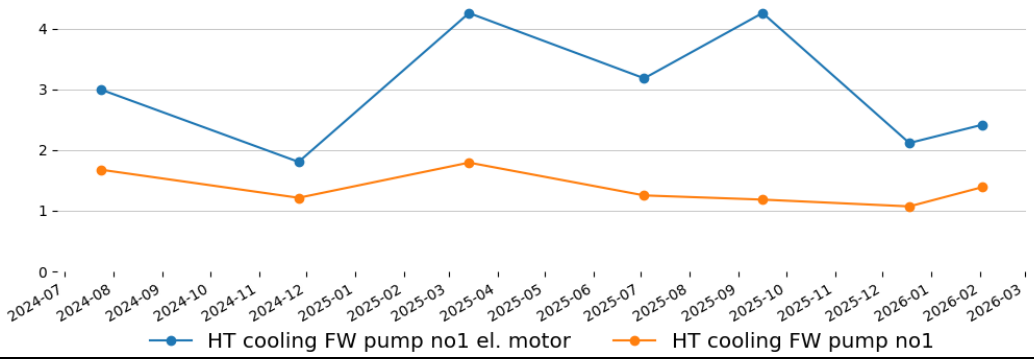
Auxiliary Engine no2	6.671	In limit	-	
Auxiliary Engine alternator no2	6.929	V. I	-	



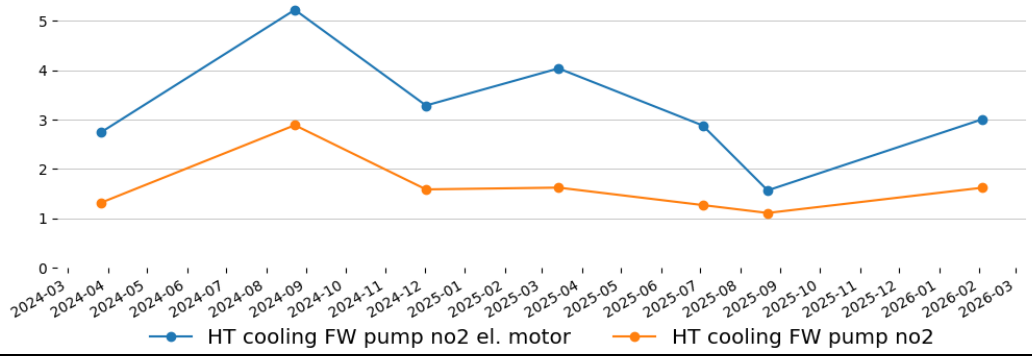
ME LO purifier				
ME LO purifier no1 el. motor	9.365	Cl. D	24.614	1. Condition and tension of belts should be checked. 2. Condition of friction clutch/pulleys should be checked. **3. Next measurement should be done after performing work (please send with feedback). Maintenance job should be done up to date 2026-03-01.**
ME LO purifier no1	8.523	Cl. C	-	1. Purifier should be checked/cleaned. 2. Condition of friction clutch/pulleys should be checked. **3. Next measurement should be done after performing work (please send with feedback). Maintenance job should be done up to date 2026-03-01.**



HT cooling FW pumps				
HT cooling FW pump no1 el. motor	2.417	Cl. B	2.808	
HT cooling FW pump no1	1.388	Cl. A	4.115	

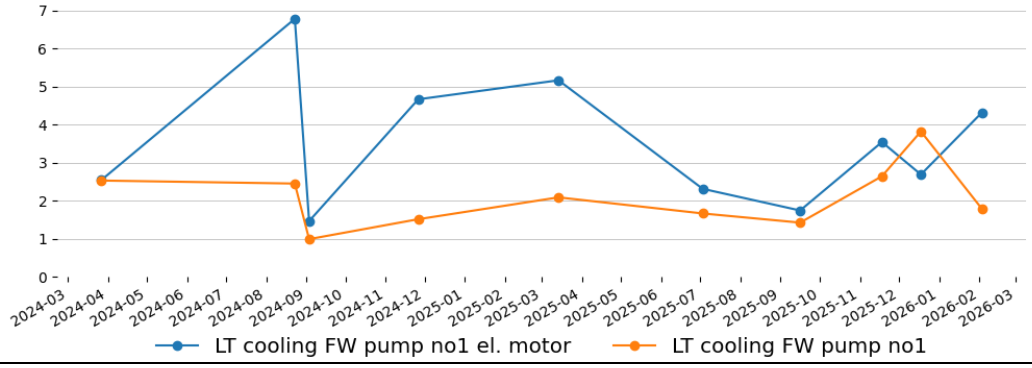


HT cooling FW pump no2 el. motor	3.005	Cl. C	3.231	
HT cooling FW pump no2	1.619	Cl. A	3.692	



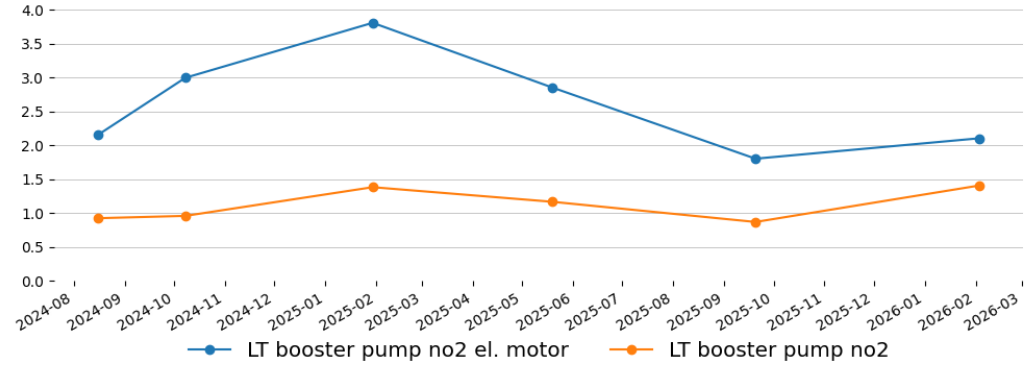
LT cooling FW pumps

LT cooling FW pump no1 el. motor	4.314	Cl. C	7.846	Bearing envelope signal significantly decreased since last measurement. Condition of bearings should be monitored.
LT cooling FW pump no1	1.780	Cl. A	9.884	

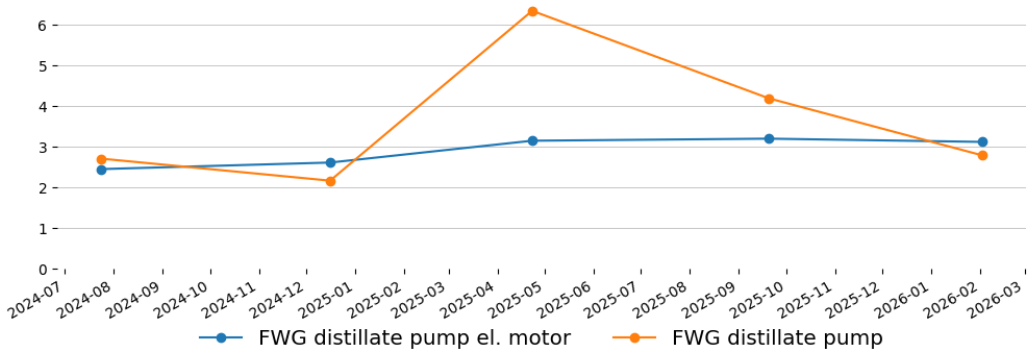


LT booster pump

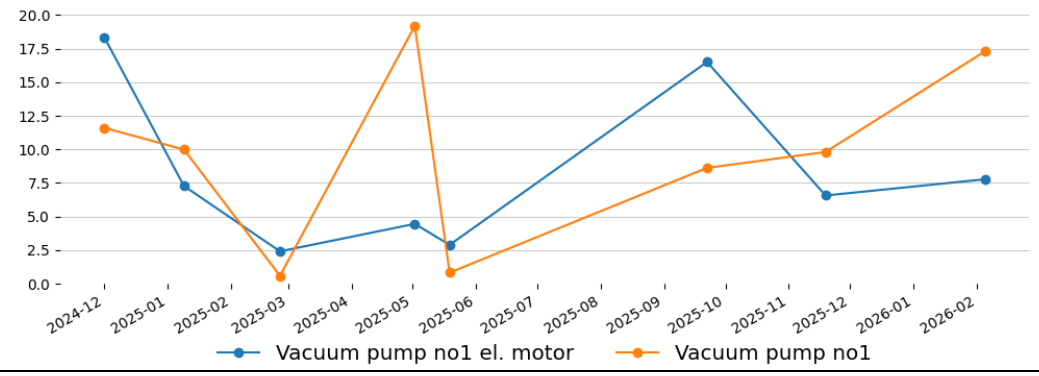
LT booster pump no2 el. motor	2.102	Cl. B	14.807	
LT booster pump no2	1.404	Cl. A	22.268	



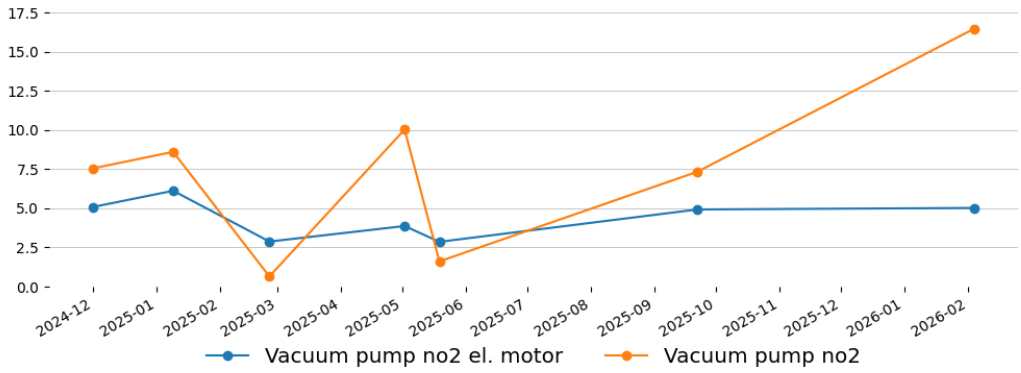
FWG distillate pump				
FWG distillate pump el. motor	3.118	Cl. C	24.422	
FWG distillate pump	2.789	Cl. A	30.614	



Vacuum pumps				
Vacuum pump no1 el. motor	7.768	Cl. D	26.884	1. Condition and alignment of coupling should be checked. 2. All bolts responsible for stiffness of structure should be checked/retightened. **3. Next measurement should be done after performing work (please send with feedback). Maintenance job should be done up to date 2026-03-01.**
Vacuum pump no1	17.299	**Cl. D**	186.686	

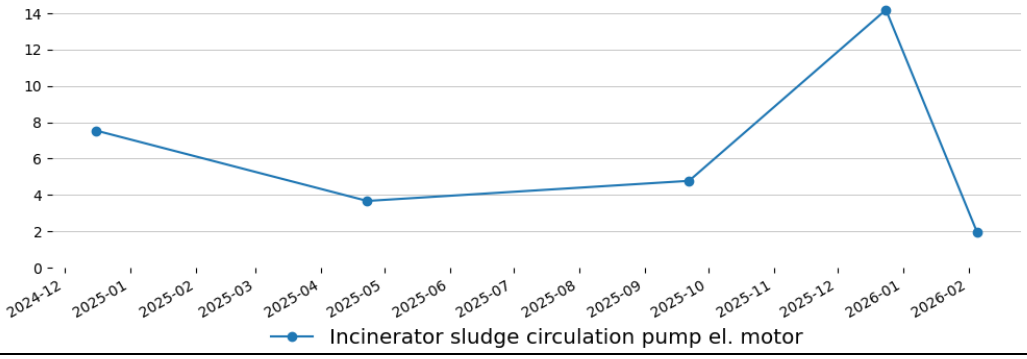


Vacuum pump no2 el. motor	5.020	**Cl. D**	32.922	Main signal comes from harmonics of rotational speed of machine. No signs of deterioration. Next measurement should be done according to pump interval.
Vacuum pump no2	16.454	Cl. D	18.384	1. Condition and alignment of coupling should be checked. 2. All bolts responsible for stiffness of structure should be checked/retightened. **3. Next measurement should be done after performing work (please send with feedback). Including el. motor. Maintenance job should be done up to date 2026-03-01.**

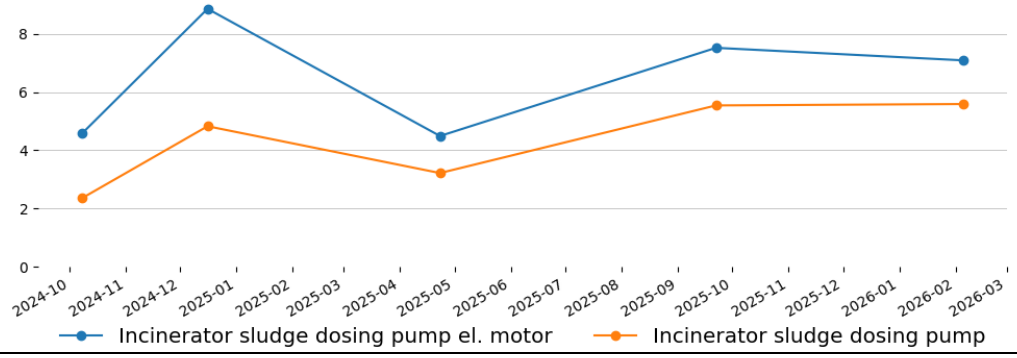


Incinerator Sludge circulation pump

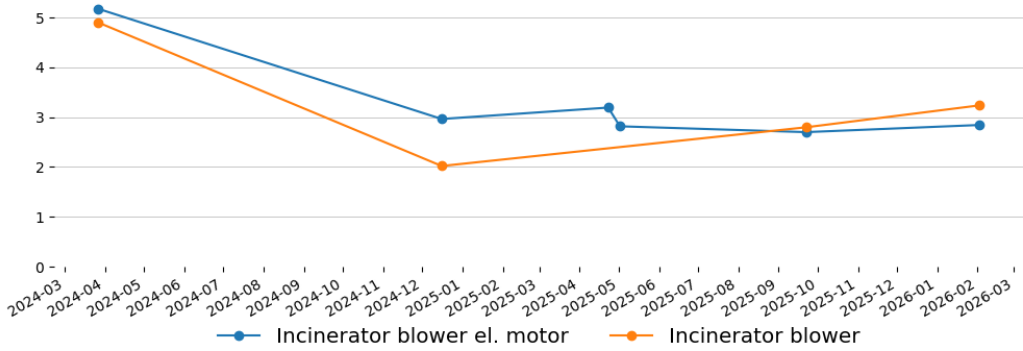
Incinerator sludge circulation pump el. motor	1.964	Cl. B	29.384	Vibration significantly reduced and with in the limit after work done. Next measurement should be done according to regular interval.



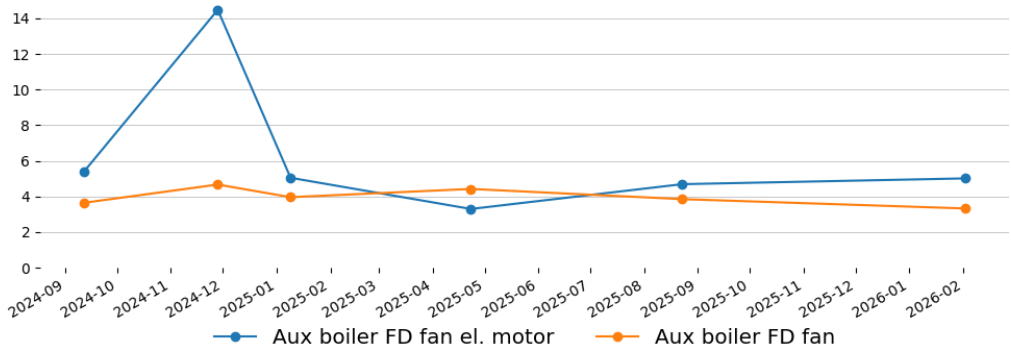
Incinerator Sludge dosing pump				
Incinerator sludge dosing pump el. motor	7.097	**CI. D**	15.269	High vibration signal is related with rotational speed of machine and environment. No signs of deterioration. Next measurement should be done according to regular interval.
Incinerator sludge dosing pump	5.594	**CI. D**	16.653	



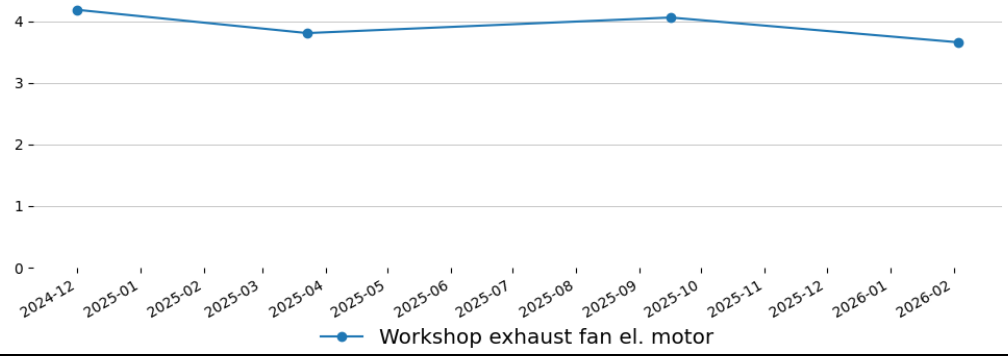
Incinerator blower fan				
Incinerator blower el. motor	2.843	CI. C	4.961	
Incinerator blower	3.236	CI. A	28.114	



Aux boiler FD fan				
Aux boiler FD fan el. motor	5.011	CI. B	8.654	
Aux boiler FD fan	3.322	CI. A	22.307	



Workshop exhaust fan				
Workshop exhaust fan el. motor	3.661	Cl. A	5.654	



Measurement equipment:

Technical data	
Maker:	Info Marine
Type:	MarVib DC750
Serial number:	7506584
Measuring range:	2Hz-30kHz / RPM = 60-20000
Indication error:	± 0,5%

Equipment is calibrated, certificate for verification - if required.

Ship type: Oil Chemical Tanker	**Main dimensions:** Length(b.p).....228,00 m Breadth(B.).....38,00 m
Sea depth: Least twice times greater than Vessel draught	
Measurement method: According to standard ISO 10816 : - procedure No. 2 Measurement report	

Summary

Next measurements should be done in three month period to obtain trend value for each equipment, in some cases even one month period is preferable.

This report is prepared in good faith based on measurement diagnostic done on available running rotary machine and documentation submitted.

Prepared by:
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Jayeshkumar dayanandan

Approved by:
Tomasz Chuchra
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