CS02 / MAINTENANCE FINDING

A pump-base correction connects reliability with energy value

Healthcare · Hospital chilled-water motor, pump and foundation

Electrical signatures and motion amplification focused a hospital pump-base correction and identified a conservative 1.40 kW annualized savings opportunity.



Base fasteners and grouting examined during the pump assessment.

8.57 tons CO_2/year

Minimum annual reduction at the stated basis • $1,471.68/year • 1.40 kW change

The application

A hospital chilled-water application required a clearer explanation of motor movement and alignment difficulty. The investigation considered the motor, pump and supporting base together.

MotorDoc's approach

MotorDoc reviewed running-speed and half-speed electrical features and used motion amplification to examine movement. Physical inspection identified loose fasteners and damaged grouting at the motor base.

01 Identify running-speed and half-speed features

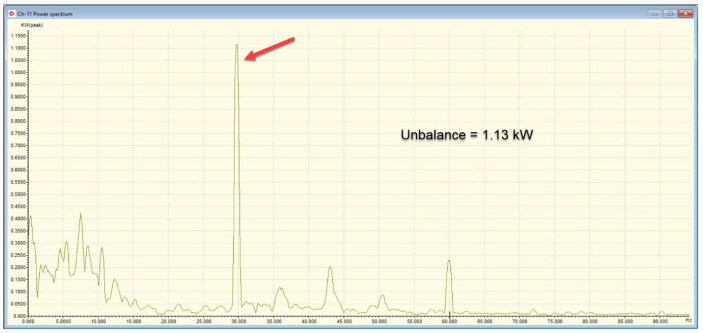
02 Confirm base movement and damaged support

03 Tighten bolts, align and observe response

EVIDENCE INTO ACTION

What the evaluation delivered

Evidence or calculation input	Documented value
Running-speed feature	1.13 kW
Stator/core-and-winding feature	0.273 kW
Conservative combined change used	1.40 kW
Observed mechanical response	Vibration reduced after bolt tightening



Electrical signature spectrum from the pump-base investigation, with the 1.13 kW unbalance-associated feature annotated.

Annual energy reduction

12,264.0

kWh / year

Annual energy savings

$1,471.68

per year

Minimum annual reduction

8.57

tons CO_2 / year

Annual basis: 8,760 hours • $0.12/kWh • 0.699 tons CO_2/MWh.
Conservative combined base-related loss change: 1.40 kW.

The result

Tightening the loose bolts reduced vibration during the evaluation. The documented follow-up describes elimination of the associated running-speed and stator features after tightening and alignment. Using a conservative combined change of 1.40 kW gives 12,264.0 kWh and $1,471.68 per year, with a calculated minimum annual reduction of 8.57 tons CO_2.

Maintenance direction

The evaluation linked electrical indications with visible base movement and support condition. The maintenance plan addressed grouting, balance and rotor-to-shaft condition, while the energy comparison translated the corrected signatures into annual operating value.

Value to operations

The same condition assessment supports maintenance planning and an energy conversation. Motion amplification explains the physical response; electrical signatures provide the loss quantities used in the annualized comparison.

Connect pump reliability work with energy and emissions performance.

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