ECONOMIC EFFICIENCY CALCULATION APPROVED BY THE ENTERPRISE

Heat-supply units: lower current, quieter running, rarer bearing service

VOK PTM Vinnytsiateplokomunenergo · approved by General Director V. F. Zherdetsky; signed by Head of the Technical Department L. V. Gulkina and Energy Facilities Manager A. I. Kravchenko

Vinnytsia, Ukraine · units treated since November 2000 · calculation approved 20.03.2002

PRODUCT

XADO revitalizants

treatment performed by TOV VV Tekhnolohiya without dismantling the units

TREATED EQUIPMENT

32 units with 380 V electric drives

rated 630 · 315 · 200 · 110 · 95 · 75 kW · bearings treated

DOCUMENT TYPE

Economic efficiency calculation, approved by the enterprise

OBJECT	POWER	WHAT WAS MEASURED
Unit No. 1, 107 Pyrohova St.	**75 kW**	Current on each phase before treatment and **180 h** after it
Units No. 1-4, 1 Medvedeva St.	**90 kW**	Current on each phase before treatment and **180 h** after it
Other units of the enterprise	**75-630 kW**	Running noise, interval between bearing services

Since November 2000 the enterprise has treated **32 units** with **380 V** electric drives; current measurements were taken on the units at two addresses.

Key result

↓ 3.07 %

phase current of the 90 kW units, 130 → 126 A

Phase current 180 hours after treatment

OBJECT	BEFORE TREATMENT	AFTER 180 H	CHANGE
Unit No. 1, 107 Pyrohova St. (**75 kW**)	**126 A**	**124 A**	**−2 A**
Units No. 1-4, 1 Medvedeva St. (**90 kW**)	**130 A**	**126 A**	**−4 A (3.07 %)**

Current was measured on each phase, mains voltage **380 V**; the enterprise attributes the lower consumption to the reduced friction coefficient in the bearings.

Electricity saving over the heating season — calculation by the enterprise

OBJECT	CURRENT REDUCTION	SAVING OVER THE HEATING SEASON	SHARE OF SAVING
Unit No. 1, 107 Pyrohova St.	**2 A**	**3597.3 kWh**	**1.58 %**
1 Medvedeva St. — two units	**4 A**	**14 389 kWh**	**3.07 %**

The saving was calculated by the enterprise with the formula E = 1.73·U·I·n·cos φ·k at U = **380 V**, n = **2880 h** of operation over the heating season and cos φ = **0.95**.

Conclusion of the enterprise

180 hours after the treatment the enterprise recorded a significant drop in the running noise of the units and a drop in electricity consumption — a consequence of the reduced friction coefficient in the bearings. The programme has been running since November 2000, with **32 units** treated in total; the enterprise keeps monitoring them and periodically takes documented measurements of electricity consumption. The calculation approved by VOK PTM Vinnytsiateplokomunenergo on 20 March 2002 states:

1. The use of XADO technology led to a reduction of electricity consumption on the treated units by **2.32 %**.
2. The use of XADO technology made it possible to extend the interval between repeat bearing services.

XADO

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The results relate to units with 380 V electric drives rated 75-630 kW at the sites of VOK PTM Vinnytsiateplokomunenergo; with other units and operating modes the figures may differ. The original document with signatures and stamp is published in full and available for download.