



COMMISSION REPORT OF THE K. A. RUMYANTSEV MINE

Mine main fan: bearing clearance reduced, noise and heat lowered

K. A. Rumyantsev Mine, main ventilation unit · commission: chief mechanic, chief power engineer, deputy chief power engineer, commissioning technician · approved by chief engineer I. G. Sokolov

Ukraine · treatment 15.12.2000 – 23.01.2001 · clearance measurements: October 2000, December 2000, January 2001

PRODUCT	TREATED UNIT	DOCUMENT TYPE
XADO technology bearing treated without disassembly or removal of the unit	Rolling bearing of the support main fan No. 1 of the mine's main ventilation unit	Report signed by the commission and stamped by the enterprise

UNIT	CONDITION AT THE START OF WORK	WHAT WAS MEASURED
Main fan No. 1, rolling bearing of the support	Radial clearance 0.29-0.31 mm ; roller and race surfaces deformed; extraneous noise, elevated operating temperature	Radial clearance — three measurements under identical conditions; surface condition when the unit was opened

The baseline measurement before treatment was made by an outside commissioning company in October 2000 — the comparison base was recorded not by the contractor performing the work.

Key result

↓ **16-24 %**

bearing radial clearance, 0.29-0.31 → 0.22-0.26 mm

Bearing radial clearance — three control measurements

MEASUREMENT	RADIAL CLEARANCE	REDUCTION VS. BASELINE
Before treatment, October 2000	0.29-0.31 mm	—
During treatment, December 2000	0.26-0.29 mm	0.02-0.03 mm
After treatment, January 2001	0.22-0.26 mm	0.05-0.07 mm

The clearance was measured at several points, hence it is recorded as a range. The final reduction of 0.05-0.07 mm is also stated in the text of the report.

Condition of the unit when the bearing was opened

WHAT WAS ASSESSED	BEFORE TREATMENT	AFTER TREATMENT
Surfaces of rollers, inner and outer races	Deformed	Smoothing of the previously deformed surfaces
Extraneous noise	Present	Reduced noise
Bearing operating temperature	Elevated	Lower temperature

Assessed by visual inspection when the unit was opened and by ear: the report gives no numerical values for these indicators.

Commission's conclusion

The commission of the K. A. Rummyantsev Mine — chief mechanic, chief power engineer, deputy chief power engineer and commissioning technician — recorded in the report a reduction of the bearing radial clearance by **0.05-0.07 mm**, lower extraneous noise, smoothing of the previously deformed surfaces of the rollers and races, and a decrease in operating temperature. Verbatim: «On the basis of the analysis carried out on the application of the "XADO" technology, the effectiveness of its use in the machines and units of the K. A. Rummyantsev Mine has been established». The bearing had gone into service worn: the outside measurement in October 2000 gave a clearance of **0.29-0.31 mm**, and the rolling surfaces were deformed. The unit was returned to service without disassembly or replacement, and the commission continued to monitor it: monthly opening of the bearing with an inspection report was prescribed.



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The results relate to the rolling bearing of the support of main fan No. 1 of the main ventilation unit at the K. A. Rummyantsev Mine; on other machines and operating modes the figures may differ. The original report with the commission's signatures and the enterprise stamp is published in full and available for download.