



COMMISSION REPORT, ZMM METALIK AD

Drilling machine PK 045A: gears ran in, noise down at every speed

ZMM Metalik AD, Pazardzhik, Bulgaria · report signed by: Deputy Director for Engineering Eng. R. Sirakov, Head of QC Eng. S. Razhankova, Shop Manager Eng. St. Chervenkov; treatment performed by MAY OOD, Plovdiv

Pazardzhik, Bulgaria · report dated 18.10.2002

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO gel for gearboxes added in three stages at 8-hour intervals, without disassembling the gearbox	Drilling machine PK 045A gearbox — gear trains	Commission report, ZMM Metalik AD

EQUIPMENT	CONDITION AT START OF TESTS	WHAT WAS MEASURED
Drilling machine PK 045A, gearbox	Elevated noise from gear trains that had not run in	Noise level at nine spindle speed steps, before and after treatment

The formulation was added to the oil of the running gearbox in three stages at 8-hour intervals; the machine was not disassembled.

Key results

↓ **9 dB**

gearbox noise level, 77.3-80.5 → 68-74 dB

Gearbox noise level by spindle speed step

SPEED, rpm	BEFORE TREATMENT, dB	AFTER TREATMENT, dB	CHANGE, dB
1169	80.5	74	-6.5
806	79.5	72	-7.5
574	78	70	-8
191	77.5	69	-8.5
269	78.4	70	-8.4
390	79	68	-11
—	77.3	68	-9.3
123	80	69	-11
85	80.2	69	-11.2

Measured with a Voltcraft 320 sound level meter at nine spindle speed steps, from 85 to 1169 rpm; a reduction was obtained at every one of them, with 9 dB stated in the conclusion of the report.

Conclusion of the commission

The commission of ZMM Metalik AD recorded: the measurements performed confirm running-in of the gear trains and build-up of a metal-ceramic layer on the friction surfaces, which reduces friction and noise by **9 dB** and increases the service life of the gear train. The measurement was made with a Voltcraft 320 sound level meter. Before treatment the machine ran with degraded noise characteristics because the gear trains had not run in — running-in was achieved without disassembling the gearbox and without taking the machine out of service, using a formulation added to the oil in three stages at **8 hour** intervals. The noise reduction was recorded at all nine spindle speed steps, from the lowest to the highest. The report is signed by the Deputy Director for Engineering, the Head of QC and the Shop Manager of the plant.

XADO

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The results relate to the gearbox of a PK 045A drilling machine at the ZMM Metalik AD site; on other equipment and under different operating conditions the figures may differ. The original report dated 18.10.2002, with signatures and seal, is published in full and available for download.