



RIG TEST REPORT, 28 MARCH 1998

T-3M wheelset gearbox: tighter mesh — easier drive, less energy

Saltovskoe tram depot · approved by depot director A. P. Dratenko · chief engineer E. G. Khorunzhiy
Kharkiv, Ukraine · test 28.03.1998 · 2-hour rig run

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO RVS traction gearbox treated by the RVS technology	Traction gearbox No. 227916 wheelset of a T-3M type tram car	Rig test report of the Saltovskoe tram depot

EQUIPMENT	CONDITION BEFORE THE TEST	WHAT WAS MEASURED
T-3M tram car, traction gearbox No. 227916	Load current on the drive 6 A ; axial clearance of the 1st stage pinion shaft 0.10 µm	Load current of the rig motor during the run; axial clearance in the 1st stage mesh

Rig with a {{1.5 kW}} electric motor; after the XADO RVS treatment the gearbox was run for 2 hours, current was recorded at minutes 15, 30, 45, 60, 90 and 120.

Key result

↓ **25 %**

load current on the rig drive, 6 → 4.5 A

Load current on the rig drive during the run

RUN STAGE	LOAD CURRENT, A	CHANGE VS. INITIAL, A
Before treatment, minute 10	6	—
15 min	5.5	−0.5
30 min	5.2	−0.8
45 min	4.8	−1.2
60 min	4.6	−1.4
90 min	4.5	−1.5
120 min, end of the run	4.5	−1.5

The load reached a steady level by minute 60 and held it until the end of the run; the chart in the report shows the same.

Clearance in the 1st stage mesh of the gearbox

PARAMETER	BEFORE TREATMENT	AFTER 2 HOURS OF RUNNING
Axial clearance of the 1st stage pinion shaft	0.10 μm	0.06 μm

The value and the unit are given as in the report. The reduced mesh clearance is the reason the drive became easier to turn.

Conclusion of the report

The Saltovskoe tram depot recorded in its report of 28 March 1998: after gearbox No. 227916 of the tram car wheelset had been treated by the RVS technology and run on the rig for 2 hours, "the load stabilised after just one hour", the current drop from **6** to **4.5 A** "corresponds to a **25%** reduction in power consumption", "the axial clearance decreased by **0.04 μm** ". The sequence here matters more than the figures themselves: first the clearance in the 1st stage shaft–pinion pair shrank — the mesh geometry was restored — and only after that did the drive current go down. The same gearbox, the same rig, the same load and the same day: only the unit itself changed, and the drive began to draw a quarter less energy.