

GEOFIZPRIBOR KYIV PLANT JSC · TESTIMONIAL AND REPORT OF 23.01.2002

VP2-10/9M compressor: factory dimensions without a major overhaul

Geofizpribor Kyiv Plant JSC · chief engineer V. I. Seredinskiy, chief mechanic V. T. Bichevoy · treatment performed by PKP Serna

Kyiv, Ukraine · treatment September — October 2001 · control measurements after 200 hours of operation

PRODUCT

XADO RVS
repair-and-restoration
compounds of the XADO
technology · treatment in
operating mode

TEST OBJECT

VP2-10/9M air compressor
serial No. 1559 · stage I and II
cylinders, crankshaft main
journals

DOCUMENT TYPE

Company testimonial and
report
with signatures and seals

EQUIPMENT

VP2-10/9M air
compressor, serial No.
1559

CONDITION AT THE START OF WORK

In service since November 1987, **14 years** without medium or major overhauls: output had dropped, knocking in the cylinders and the frame

WHAT WAS MEASURED

Receiver charging time, oil pressure, current draw, geometry of the cylinders and the crankshaft main journals

The treatment was carried out in operating mode in September — October 2001; control measurements were taken after 200 hours of operation.

Key results

↑ **32,5 %**

output, receiver charged to 5 kgf/cm², 106 → 80 s

↑ **19,2 %**

oil pressure in operating mode, 2.6 → 3.1 kgf/cm²

Geometry of the friction pairs: teardown before treatment and after 200 hours of operation

COMPONENT	DEVIATION BEFORE TREATMENT	AFTER 200 HOURS
Stage I and II cylinders	ovality 200-240 µm	restored to the manufacturer's dimensions
Crankshaft main journals	wear up to 250 µm	restored to the manufacturer's dimensions

Instrument measurements at the first teardown and at the second one after operation. Restored surfaces: roughness Rz 0.16, hardness HRC 60-62.

Measurements in operating mode

PARAMETER	BEFORE TREATMENT	AFTER 200 HOURS	CHANGE
Receiver charging time to 5 kgf/cm ²	106 s	80 s	-26 s , output higher by 32.5 %
Oil pressure	2.6 kgf/cm²	3.1 kgf/cm²	+0.5 kgf/cm² (+19.2 %)
Current draw, operating mode	120 A	120 A	no change

Measurements in operating mode before the compressor was dismantled and after 200 hours of operation. At idle, the current draw fell by 3 A.

Conclusion of the plant and of the report

The plant's testimonial, signed by the chief engineer and the chief mechanic, states: the results of applying the XADO repair-and-restoration technology made it possible to carry out the repair in operating mode, and the repair costs proved to be **5-6×** lower than those of a conventional major overhaul. The compressor came to the treatment after **14 years** of service without medium or major overhauls — with reduced output and knocking in the cylinders and the frame. The second teardown after **200 hours** of operation showed that the surfaces of the stage I and II cylinders and the crankshaft main journals had been restored to the manufacturer's dimensions; over the period of operation from November 2001 to February 2002 noise and vibration decreased noticeably. Conclusion of the report: the results of applying the RVS technology to restore the compressor in operating mode make it possible to recommend it for use instead of a conventional restoration repair with replacement of parts.



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The results relate to a VP2-10/9M reciprocating air compressor that had run for 14 years without medium or major overhauls; on other machines and in other duty cycles the figures may differ. RVS is an obsolete XADO designation, the zero-generation compounds; the current product generation is revitalizants. The originals of the testimonial and the report, with signatures and seals, are published in full and available for download.